



GARLAND

AGENDA

REGULAR MEETING OF THE CITY COUNCIL

**City of Garland
Council Chambers, City Hall
William E. Dollar Municipal Building
200 North Fifth Street
Garland, Texas
September 19, 2017
7:00 p.m.**

The City Council extends to each visitor a sincere welcome. We value your interest in your community and your participation in the meetings of this governing body. Regular meetings of the City Council are held the 1st and 3rd Tuesdays of each month, beginning at 7:00 p.m.; the City Council meets regularly in work sessions at 6:00 p.m. the Monday preceding each regular meeting.

Garland City Hall and Council Chambers is wheelchair accessible. Special parking is available on the east side of City Hall and on Austin & State Street west of City Hall. Persons with disabilities who plan to attend this meeting and who may need auxiliary aids or services must contact the City Secretary's Office at (972) 205-2404 at least two working days prior to the meeting so that appropriate arrangements can be made. **BRAILLE IS NOT AVAILABLE.**

CITY COUNCIL GOALS 2020

(Adopted by Resolution No. 9402 on December 20, 2005)

- **Sustainable quality development and redevelopment**
- **Financially stable government with tax base that supports community needs**
- **Defends rightful powers of municipalities**
- **Fully informed and engaged citizenry**
- **Consistent delivery of reliable City services**
- **Safe, family-friendly neighborhoods**
- **Embrace diversity**

LEGISLATIVE PRAYER AND PLEDGE OF ALLEGIANCE

It is the custom and tradition of the members of the City Council to have an invocation and recital of the Pledge of Allegiance prior to the beginning of the meeting. Members of the audience are invited to participate. However, members of the audience are not required to participate. The decision to participate is strictly a matter of personal choice and has no bearing on matters to be considered by the City Council and will not affect the decisions to be made during the meeting.

MAYORAL PROCLAMATIONS, RECOGNITIONS AND ANNOUNCEMENTS

The Mayor may present proclamations and recognize attendees or award winners, and may make announcements regarding upcoming City events and matters of interest to citizens. There will be no Council deliberations or votes on these matters.

CONSENT AGENDA

All items under this section are recommended for approval by a single motion of Council, without discussion. Council has had the opportunity to review each of these items at a previous work session and approval of the consent agenda authorizes the City Manager to implement each item. The Mayor will announce the agenda and provide an opportunity for members of the audience and the City Council to request that an item be removed and considered separately.

1. Consider approval of the minutes of the September 5, 2017 Regular Meeting.
2. Consider approval of the following bids:
 - a. **Grounds and Landscape Maintenance** **Bid No. 4413-14**

Qualicare Landscape Services

\$16,867.00

This request is to provide grounds and landscape maintenance at additional City facilities under the existing Term Contract with Qualicare Landscape Services. The proposed Change Order increases the existing contract amount of \$56,066.00 to approximately 30% for a new contract amount of \$72,933.00

- b. Replacement Toughbook Computers for Fire Department Fleet** **Bid No. 1066-17**

GTS Technology Solutions **\$190,231.41**

This request is to replace the aging computers that are installed in the Fire Department fleet.

- c. Cleaning and Closed Circuit Television Inspection of Sewer Lines** **Bid No. 0867-17**

RKM Utility Services, Inc. **\$300,000.00**

This request is to provide cleaning and closed circuit television inspection of existing sewer lines of various sizes and locations throughout the city. This is a term agreement with four optional renewals.

- d. Duck Creek Wastewater Treatment Plant Raw Water Lift Pump Replacement** **Bid No. 0974-17**

Xylem Water Solutions **\$236,056.94**

This request is to purchase a raw water lift pump to be used by Duck Creek Wastewater Treatment for pumping raw water through the treatment system.

- e. Ben Davis Substation Flood Study - Phase II** **Bid No. 1085-17**

Black & Veatch **\$230,879.00**

This request is to obtain engineering services related to the study of the flooding and regulatory impact of proposed GP&L flood improvements at the Ben Davis Substation.

- f. GP&L Naaman to Apollo Transmission Line Rebuild Engineering Services** **Bid No. 1081-17**

R-Delta Engineers **\$533,400.00**

This request is to obtain engineering services necessary to support voltage conversion from 69 kV to 138 kV for the GP&L Naaman to Apollo (NA-AP) transmission line.

- g. Parking Lot Improvements - Winters and Audubon Parks** **Bid No. 0822-17**

Tri-Con Services, Inc.	\$1,439,093.90
Optional Contingency	<u>85,000.00</u>
TOTAL:	\$1,524,093.90

This request is to begin Phase I demolition and concrete re-pavement of deteriorating asphalt parking lots in the Parks System. Due to the complex nature of the project, an Optional Contingency is included for any additional work that may be required.

h. Property Insurance **Bid No. 0997-17**

Princeton Excess and Surplus Lines Insurance Company	\$712,203.00
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This request is to purchase property insurance to replace current coverage expiring September 30, 2017.

i. Central Library Life Safety Upgrades - Architectural Design Services **Bid No. 3229-13**

Mayse & Associates	\$93,800.00
Optional Contingency	<u>25,000.00</u>
TOTAL:	\$118,800.00

The purpose of this Change Order is to provide additional Life Safety Project upgrades for the Central Library. Due to the complex nature of the project, an Optional Contingency is included for any additional design work that may be required.

j. GP&L/TMPA Construction Labor for Power Line Relocations **Bid No. 1029-17**

Hargrave Power, Inc.	\$349,503.05
Optional Contingency	<u>34,950.30</u>
TOTAL:	\$384,453.35

This request is to provide for the construction labor associated with the Shelby to Nevada power line relocations.

3. **A public hearing was previously conducted for the following zoning case. Council approved the request and instructed staff to bring forth the following ordinance for consideration.**

a. **Zoning File No. Z 17-35, City of Garland (District 1)**

Consider an ordinance amending the Garland Development Code of the City of Garland, Texas, by approving an amendment to Planned Development (PD) District 15-20 for Mixed Use to remove the Transition Zone located at the southwest corner of Campbell Road and Lookout Drive and re-zone to Mixed Use-Mixed Residential on an approximately 300-acre tract of land located northeast of PGBT/SH 190, west of Holford Road, and south of the city limits line; providing for conditions, restrictions, and regulations; providing a penalty under the provisions of Sec. 10.05 of the Code of Ordinances of the City of Garland, Texas; providing a Savings Clause and a Severability Clause; and providing an effective date.

4. **Consider a resolution authorizing the submission of a grant application to the Office of the Governor of the State of Texas for certain public safety, law enforcement, and homeland security projects; and providing an effective date.**

Council is requested to consider a resolution in support of the Homeland Security Grant Program application to gain access to grant funding.

5. **Consider a resolution of the City Council of the City of Garland, Texas adopting the Federal Emergency Management Agency (FEMA) approved revised Hazard Mitigation Action Plan.**

Council is requested to consider adopting the Garland Hazard Mitigation Action Plan (HazMAP).

6. **Consider a resolution authorizing the City Manager to execute an amendment to a Project Specific Agreement with Dallas County for repairs of bridges over Type B Thoroughfares within the City of Garland, Dallas County District 1; and providing an effective date.**

Council is requested to consider a resolution authorizing the City Manager to execute Amendment No. 1 to the Project Specific Agreement with Dallas County.

7. **Consider a resolution authorizing the City Manager to execute an interlocal agreement with Dallas County relating to the continued operation of a Household Hazardous Waste Disposal Program; and providing an effective date.**

Council is requested to consider a resolution authorizing the City Manager to execute an interlocal agreement with the Dallas Area HHW Network to continue participation in the program.

8. **Consider by minute action authorizing the City Manager to execute an Interlocal Agreement with Dallas County Hospital District d/b/a Parkland Health and Hospital System that will extend the Inter-local agreement signed in October of 2016 between Garland and Parkland, by an additional two years, for Bio-Tel System Services in the amount of \$180,068.72.**

At the September 18, 2017 Work Session, Council considered executing the amendment delivered to the Garland Fire Department by the Dallas County Hospital District d/b/a Parkland Health & Hospital System. The City of Garland uses Bio-Tel services to provide medical direction to EMS.

9. **Consider by minute action approving the Wholesale Wastewater Contract with the Town of Sunnyvale.**

At the April 17, 2017 Work Session, Council was presented a new wholesale wastewater contract with the Town of Sunnyvale. Garland's prior wholesale wastewater contracts were not consistent in terms and conditions between wholesale customers, nor were they fully reflective of the numerous changes that have occurred in wastewater regulation in recent years. More specifically, these contracts contained conflicting provisions which complicated the administration of the contracts, particularly in the area of wastewater charges. The contract with the Town of Sunnyvale is the first of five renewals with neighboring wholesale wastewater customers that will be up for renewal in the next few years to ensure operational and financial consistency.

ITEMS FOR INDIVIDUAL CONSIDERATION

Speaker Regulations:

Anyone wishing to speak for, against, or on agenda items must fill out a speaker card and give it to the City Secretary before speaking (cards are located at the entrance to the Council Chambers). The Mayor will recognize speakers; he may impose a time limit and may provide for rebuttal. All comments and testimony are to be presented from the podium.

10. **Hold a public hearing regarding the 2017-18 Proposed Budget**

Section 5, Article VII, of the City Charter requires that a Public Hearing be held on the Proposed Budget for the coming fiscal year. At the Public Hearing, all interested persons shall be given an opportunity to be heard for or against any proposed item in the Budget. The Proposed Budget for 2017-18 has been available for public inspection in the City libraries, in the City Secretary's Office, and on the City's website since August 2, 2017. Previous Public Hearings were held on August 15 and August 24, 2017.

This budget will raise more total property taxes than last

year's budget by \$7,039,306 or 8.02%, and of that amount, \$1,460,036 is tax revenue to be raised from new property added to the tax roll this year.

11. Hold a public hearing regarding the Proposed 2017-18 Tax Rate

The Texas Property Tax Code, Section 26.05 (d), provides that a governing body may not adopt a tax rate that exceeds the lower of the rollback tax rate or the effective rate until the governing body has held two public hearings on the proposed tax rate and has otherwise complied with Section 26.06 and Section 26.065. The 2017-18 Proposed Budget is based on a tax rate of 70.46 cents per \$100 of valuation, which does exceed the effective tax rate of 65.31 cents due to a 7.89% increase in taxable values. This budget will raise more total property taxes than last year's budget by \$7,039,306 or 8.02%, and of that amount, \$1,460,036 is tax revenue to be raised from new property added to the tax roll this year. Previous public hearings were held on August 15, August 24, and September 5, 2017.

12. Adoption of the 2017-18 Budget

In accordance with the City Charter, the City Manager presented his recommended Budget for fiscal year 2017-18 to the City Council on August 1, 2017. Copies were made available for public inspection at the City libraries, at the City Secretary's Office, and on the City's website. Public hearings were held on August 15, August 24, and September 19, 2017. An ordinance reflecting final decisions regarding the Budget for 2017-18 and revised budgets will be prepared for the Mayor's signature upon final direction from the City Council.

13. Adoption of 2017-18 Property Tax Rate

The City Council has considered an Ad Valorem Tax Rate of 70.46 cents per \$100 of valuation for the fiscal year beginning October 1, 2017. All meetings, notices, and public hearing requirements related to the adoption of the Tax Rate have been met in accordance with State law. Council is requested to consider approving an ordinance setting the Ad Valorem Tax Rate at 70.46 cents per \$100 of valuation for 2017-18.

14. Rate and Fee Changes for 2017-18

In considering the 2017-18 Proposed Budget, the City Council reviewed the adjustments to existing rates and fees. Revenue estimates included in the 2017-18 Proposed Budget are based on these actions. An ordinance will be prepared for the Mayor's signature once final direction has been given by the City Council.

- 15. Consider an ordinance of the City of Garland, Texas, establishing civil service classifications within the Police and Fire Departments; prescribing the number of positions in each classification; prescribing the base salary and types of pay for those classifications; and providing an effective date.**

Pursuant to Chapter 143 of the Local Government Code of Texas, the City Council must establish the civil service classifications in the Police and Fire Departments, the number of positions in each classification, the base salary, and the types of incentive pays for each classification.

- 16. Consider appointments to Boards and Commissions.**

Board members are selected for two-year terms by the City Council in August. Terms are usually staggered whereby at least half of the membership has board experience. Board members are appointed based on qualifications.

Council Member Rich Aubin

- Gina Shanks - Community Multicultural Commission

Council Member Robert Vera

- Carlos Porras - Downtown TIF Board
- Joel Requenez - Community Multicultural Commission

- 17. Council Member Robert John Smith**

- Rex Kyle - TIF I-30
- Christopher Ott - Plan Commission

- 18. Citizen comments.**

Persons wishing to address issues not on the agenda may have three minutes to address Council at this time. Council is prohibited from discussing any item not posted according to the Texas Open Meetings Act.

- 19. Adjourn.**

All Regular Council meetings are broadcast live on CGTV, Time Warner Cable Channel 16, and Frontier FIOS TV 44. Meetings are rebroadcast at 9:00 a.m. and 7:00 p.m. on Wednesday-Sunday and at 7:30 p.m. on Thursday. Live streaming and on-demand videos of the meetings are also available online at www.garlandtx.gov. Copies of the meetings can be purchased through the City Secretary's Office – audio CD's are \$1 each and DVD's are \$3 each.



GARLAND

City Council Regular Session Agenda

1.

Meeting Date: September 19, 2017

Item Title: Minutes September 5, 2017

Submitted By: Rene Dowl, City Secretary, City Secretary

Summary:

Consider approval of the minutes of the September 5, 2017 Regular Meeting.

Attachments

Minutes September 5, 2017

Minutes of the Garland City Council Regular Meeting

The City Council of the City of Garland convened in regular session at 7:00 p.m. on Tuesday, September 5, 2017, in the Council Chambers at City Hall, 200 North Fifth Street, Garland, Texas, with the following members present:

COUNCIL PRESENT:	Mayor	Douglas Athas
	Mayor Pro Tem	David Gibbons
	Council Member	Anita Goebel
	Council Member	Jerry A. Nickerson
	Council Member	B. J. Williams
	Council Member	Rich Aubin
	Council Member	Robert Vera
	Council Member	Scott LeMay
	Council Member	Robert Smith

STAFF PRESENT:	City Manager	Bryan L. Bradford
	City Attorney	Brad Neighbor
	City Secretary	Eloyce René Dowl

CEREMONIALS: Mayor Athas and Council Member Vera presented a proclamation to Mexico 2000 Ballet Folklorico members: Mary Palencia, Director and dancers Valerie Vasquez and Christopher Gonzalez.

Council Member Vera and Mayor Athas presented the proclamation for Hispanic Heritage Month (September 15 – October 15) to Garland Association For Hispanic Affairs members: Tony Torres, Lupita Torres, Ana DeYoung, Greg DeYoung, and Dr. Isabell Zambrano.

CALL TO ORDER: The meeting was called to order by Mayor Douglas Athas.

CONSENT AGENDA: All items marked with asterisks (**) on the Consent Agenda were voted on at the beginning of the meeting. Mayor Athas read those items into the record. Motion was made by Council Member Smith to approve the Consent Agenda as presented, seconded by Council Member LeMay, to approve items 1, 2a, 2b, 2c, 2d, 2e, 2f, 2g, 3a, 3b, 3c, 4, 5, 6, 7, 8, 9, and 10. Motion carried, 9 ayes, 0 nays.

1. APPROVED** Approval of the Minutes of the August 15, 2017 Regular Meeting and the August 24, 2017 Special Session.

2a. APPROVED**

Bid No. 0875-17 awarded to Infratech Corporation in the amount of \$352,508.42, which includes an optional contingency of \$35,251.00, for a total bid of \$387,759.42 for GP&L Underground Cable Replacement.

This request is to provide for the replacement of four underground cable loops in the GP&L electrical distribution system. This project is in support of the system-wide Underground Cable Replacement Program. Due to the complex nature of the project, an optional contingency is included for any additional work that may be required.

2b. APPROVED**

Bid No. 6864-16 awarded to MPI Architects for \$16,000.00, which includes an optional contingency of \$13,350.00, for a total bid of \$29,350.00 for Transmission & Distribution Building Improvements – A/E Professional Services.

This request is to provide additional A/E Professional Services for the Transmission & Distribution building improvements. During demolition, unforeseen conditions related to existing power and wall construction necessitated more extensive demolition and renovation in the amount of \$16,000.00 to the Administration area. Due to the complex nature of the project, an optional contingency of \$13,350.00 is included for any additional unforeseen conditions that may exist. This Change Order is to increase funding for necessary professional services related to the project. Additional construction funding was previously authorized at the July 5, 2017 Council Meeting. This Change Order increases the original PO 24724 from \$52,850.00 to \$82,200.00, or 55.5%.

2c. APPROVED**

Bid No. 0938-17 awarded to City Transformer Service in the amount of \$750,000.00 for Transformer and Electrical Equipment Services for GP&L and TMPA.

This request is to provide maintenance and repair services for electric power delivery equipment including substation transformers, circuit breakers, and gas and oil analyses for GP&L and TMPA on an as-needed basis. This is a term agreement with two optional renewals. A term is defined as either the annual expiration date or the expenditure of funds,

whichever occurs first. Subsequent renewals do not require additional City Council approval. If all optional renewals are exercised, the potential financial impact will be \$2,250,000.00 over the life of the agreement. Expenditures will not exceed appropriated funds. Any TMPA expenses will be reimbursed at 100%.

2d. APPROVED**

Bid No. 0996-17 awarded to Custard Construction Services in the amount of \$3,971.00 for the Transmission & Distribution Building Improvements – Asbestos Abatement.

This request is to provide additional Asbestos Abatement Services for the Transmission & Distribution building improvements. During demolition, unforeseen additional asbestos was uncovered necessitating additional abatement. This Change Order increases the original PO 26084 from \$7,656.00 to \$11,627.00, or 51.9%.

2e. APPROVED**

Bid No. 0170-17 awarded to Hill & Wilkinson General Contractors in the amount of \$39,981.05 for the Fleet Services Renovation.

The purpose of this request is to provide additional renovation for the Fleet Services building improvements. These additional services include fiberglass reinforced plastic wall covering in high traffic areas, modifications to steel structure at west parapet, storefront door at Office 115B for better visibility to work areas being supervised, and new vinyl composition tile in Office 206. Change Orders #1 and #3 increased the original PO 25236 from \$1,226,477.00 to \$1,276,245.32. This Change Order #4 increases the original PO 25236 from \$1,226,477.00 to \$1,316,226.37, or 7.3%

2f. APPROVED**

Bid No. 0933-17 awarded to Tri-Con Services, Inc. in the amount of \$624,000.00 for 2017 Garland Alley Improvements – Phase 2A.

The purpose of this request is to reconstruct 3,500 square yards of alley pavement, three alleys, and 215 square yards of driveway pavement, including all incidentals. The request also includes replacement of approximately 2,000 linear feet of 8” sanitary sewer mains located in the affected alleys.

2g. APPROVED**

Bid No. 0855-17 awarded to Butler and Land, Inc. in the amount of \$1,529,620.00, which includes an optional contingency of \$72,000.00, for a total bid of \$1,601,620.00 for an Autotransformer for the Dent Road Substation.

The purpose of this request is to purchase an Autotransformer for the Dent Road 138 kV Switchyard project that was approved in the 2017 GP&L CIP Budget. This is an approved ERCOT project to develop a third transmission feed into the City of Greenville. Due to the complex nature of the project, an optional contingency is included for any additional work that may be required.

3a. APPROVED**

Ordinance No. 6929 amending the Garland Development Code of the City of Garland, Texas, by approving 1) an amendment to Planned Development (PD) District 13-31, 2) an amendment to a Concept Plan, 3) a Detail Plan, and 4) a Specific Use Provision for a Car Wash, (Automated/Rollover) Use on property zoned Planned Development (PD) District 13-31 for Community Retail Uses on a 2.39-acre tract of land located at 3401 South Garland Avenue; providing for conditions, restrictions, and regulations; providing a penalty under the provisions of Sec. 10.05 of the Code Of Ordinances of the City of Garland, Texas; providing a Savings Clause and a Severability Clause; and providing an effective date. (File No. Z 17-22, Big Red Dog Engineering, District 5)

3b. APPROVED**

Ordinance No. 6930 amending the Garland Development Code of the City of Garland, Texas, by approving 1) an amendment to Planned Development (PD) District 17-11, and 2) a Detail Plan for Dwelling, Single-Family Detached on a property zoned Planned Development (PD) District 17-11 for Dwelling, Single-Family Detached Dwelling use on a 11.721-acre tract of land located at the north corner of East Centerville Road and South Country Club Road; providing for conditions, restrictions, and regulations; providing a penalty under the provisions of Sec. 10.05 of the Code of Ordinances of the City of Garland, Texas; providing a Savings Clause and a Severability Clause; and providing an effective date. (File No. Z 17-23, Skorburg Company, District 2)

3c. APPROVED**

Ordinance No. 6931 amending the Garland Development Code of the City of Garland, Texas, by approving a change in zoning from Agricultural (AG) District to Single Family-7 (SF-7)

District on a 7.054-acre tract of land located northeast of the northeast intersection of Holford Road and Arapaho Road; providing for conditions, restrictions, and regulations; providing a penalty under the provisions of Sec. 10.05 of the Code of Ordinances of the City of Garland, Texas; providing a Savings Clause and a Severability Clause; and providing an effective date. (File No. 17-31, Balcones Urban, LLC, District 7)

4. APPROVED**

Ordinance 6932 authorizing an amendment to the 2017 Capital Improvement Program, providing for the supplemental appropriation of funds in the Electric Utility Program; and providing an effective date.

5. APPROVED**

Minute action approving the reappointment of Dr. Timothy Lambert for a two-year term as the Garland Health Authority and authorize the City Manager to renew interlocal agreements with the City of Rowlett and the City of Sachse for the purpose of public health services.

6. APPROVED**

Resolution No. 10296 authorizing a Texas Department of Transportation (TxDOT) Selective Traffic Enforcement Program (STEP) – single year – 2018 Comprehensive Grant in the amount of \$391,230.15; and providing an effective date.

7. APPROVED**

Resolution No. 10297 authorizing the submission and acceptance of an application to the Bureau of Justice Assistance for grant under the 2017 Edward Byrne Memorial Justice Assistance Grant Program; and providing an effective date.

The Police Department is authorized to apply for the 2017 Edward Byrne Memorial Justice Assistance Grant (JAG) program.

8. APPROVED**

Resolution No. 10298 of the City of Garland, Texas (“CITY”) authorizing the Mayor to act on the City’s behalf in executing an amendment to the Joint Operating Agreement (The “JOA”) by and between, and among, Texas Municipal Power Agency (THE “AGENCY”) and the cities of Bryan, Denton, Garland, and Greenville (Collectively, the “PARTIES”) and acknowledging effective notice from the agency regarding its intent to issue transmission debt (as defined in the JOA) and approving such issuance by the agency.

Council approved the resolution authorizing the Mayor to execute, on the City's behalf, Amendment No. 2 to the Joint Operating Agreement by, between, and among the Texas Municipal Power Agency and the cities of Garland, Bryan, Denton, and Greenville.

9. APPROVED**

Resolution No. 10299 approving the abandonment, release, and conveyance of utility and electric easements in The Mansions subdivision; authorizing the Mayor of the City of Garland to execute a deed conveying the property interest to Western Rim Investors, LP; and providing an effective date.

Council approved the resolution authorizing the Mayor to execute a Deed Without Warranty that abandons the 20-foot Utility Easement and the 20-foot Electric Distribution Easement to the current property owner, Western Rim Investors, L. P.

10. APPROVED**

Ordinance No. 6933 authorizing the issuance of "City of Garland, Texas, Tax Notes, Series 2017; specifying the terms and features of said notes levying a continuing direct annual ad valorem tax for the payment of said notes; and resolving other matters incident and related to the issuance, sale, payment, and delivery of said notes, including the approval and execution of a Paying Agent/Registrar Agreement and a Purchase Letter; and providing an effective date.

At the August 14, 2017 Work Session, Council considered authorizing the issuance of tax notes in the amount of \$8,305,000.00. Savings realized from General Obligation Commercial Paper Program provide the City the ability to issue tax notes that are used to supplement the street and infrastructure funding and provide short-term funding for other capital projects. The notes will be paid off within one year and will not impact the debt service tax rate.

ITEMS FOR INDIVIDUAL CONSIDERATION

11.

Hold a Public Hearing and consider a resolution approving an amendment to the Garland Thoroughfare Plan by extending Guthrie Road as a Type E from Broadway Boulevard to the IH 30 Frontage Road; and providing an effective date.

The staff report was presented by Paul Luedtke, Transportation Director. There were no speakers on this item. Motion was made by Council Member Aubin to approve the

amendment based on staff recommendation, seconded by Council Member Vera. Motion carried 9 ayes, 0 nays.

12. PUBIC HEARING
HELD

City Manager Bradford announced the continuation of the public hearing(s) on the proposed 2017-2018 tax rate and re-setting the adoption date for September 19, 2017.

Council held a public hearing on the proposed tax rate for 2017-2018. There were no speakers on this item.

Mayor Athas announced the Tax Rate is scheduled to be adopted Tuesday, September 19, 2017 at 7 p.m., in the Council Chambers at City Hall, 200 N Fifth Street, Garland, Texas 75040.

13.

Consider the application of City of Garland, requesting approval of an amendment to Planned Development (PD) District 15-20 for Mixed Use to remove the Transition Zone located at the southwest corner of Campbell Road and Lookout Drive and re-zone to Mixed Use-Mixed Residential. This property is generally located northeast of PGBT/SH 190, west of Holford Road, and south of the city limits line. (File No. Z 17-35, District 1)

BEING various tracts of land together comprising approximately 300 acres, generally located within the boundaries of North President George Bush Turnpike (south and west), the City of Garland city limits line (north), and Holford Road (east). The subject property excludes the following tracts: Lot 1, Block 1 Gurdwara Akaljot; Lot 36, Block 1, Pot O' Gold; Lot 1, Block 1, Campbell Firewheel Addition; Lot 1, Block 1, Montessori School Addition; Lots 1 and 2, Block 1, Campbell Ferris Addition; Lots 2A and 2B-R, Blackburn State Highway 190 Addition. The property is generally located northeast of PGBT/SH 190, west of Holford Road, and south of the city limits line. Approval of the proposal would remove the existing Transition Zone from the southwest corner of Campbell Road and Lookout Drive, in order to allow Data Center use by right at that location. The Transition Zone is designated on the Zoning Framework Plan for residential, neighborhood serving office, and retail use.

The staff report was presented by Kira Wauwie, Principal Development Planner. There were no speakers on this item. Motion was made by Council Member Gibbons to approve the application based on staff and Plan Commission recommendations, seconded by Council Member Goebel. Motion carried 9 ayes, 0 nays.

14. APPOINTMENTS TO BOARDS AND COMMISSIONS

Board Members are selected for two-year terms by the City Council Members. Terms are usually staggered whereby at least half of the membership has board experience. Board Members are appointed based on qualifications.

Mayor Athas turned the meeting over to Mayor Pro Tem Gibbons to present his nominations.

Mayor Athas placed the following names in nomination:

- John Kaiwi – Board of Adjustment
- Sal Liberto – Building and Fire Code Board
- Ken Risser – Citizens Environmental and Neighborhood Services Committee
- Jennifer Nguyen – Community Multicultural Commission
- Charles Pickitt – Community Multicultural Commission
- Ali Said – Community Multicultural Commission
- Kenneth Rogers – Community Multicultural Commission
- Joann Traylor – Garland Cultural Arts Commission
- Bettye Haynes – Library Board
- Elizabeth Berry – Parks and Recreation Board
- Shirley Robnett – Senior Citizens Advisory Board
- Allan Stafford – Tax Increment Finance District Board (Downtown)
- Morgan Jones – Tax Increment Finance District Board (South)
- Mark Tyler – Property Standards Board

A vote was cast to approve the appointments with 9 ayes,
0 nays.

Mayor Pro Tem Gibbons turned the meeting over to Mayor
Athas after the vote.

15. CITIZEN COMMENTS: None

16. ADJOURN There being no further business to come before the City
Council, Mayor Athas adjourned the meeting at 7:33 p.m.

CITY OF GARLAND, TEXAS

/s/ Douglas Athas, Mayor

/s/ Eloyce René Dowl, City Secretary



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.a.

Meeting Date: September 19, 2017

Item Title: Grounds and Landscape Maintenance

Submitted By: Jermel Stevenson, Managing Director

Bid Number: 4413-14

Purchase Justification:

The purpose of this request is to provide grounds and landscape maintenance at additional City facilities under the existing Term Contract with Qualicare Landscape Services. The proposed additions include grounds maintenance for the completed City Hall, lawn maintenance for the Downtown Square, and landscape bed maintenance at Firewheel Golf Course. The work is similar to that currently provided at eighteen municipal facilities throughout the City. The proposed Change Order increases the existing contract amount of \$56,066.00 by approximately 30% for a new contract amount of \$72,933.00.

Evaluation:

Qualicare Landscape Services was originally selected as the Best Value vendor under Bid 4413-14.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
Qualicare Landscape Services	All	\$16,867.00
TOTAL:		\$16,867.00

Basis for Award: Change Order

Purchase Requisition #: 38408

Fiscal Impact

Total Project/Account: N/A

Expended/Encumbered to Date: N/A

Balance: N/A

This Item: \$16,867
Proposed Balance: N/A
Account #: 451-6999
Fund/Dept/Project – Description and Comments:
Term Contract - Grounds and Landscape Maintenance

Term Contract sets price but does not commit funds. Expenses will be charged to accounts as incurred.

Attachments

Bid Recap

Fiscal Reference:

Budget Type: Operating Budget

Fiscal Year: 2016-17

Document Location: Page 250

Budget Director Approval: Ron Young

Approval Date: 09/06/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/06/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.b.

Meeting Date: September 19, 2017

Item Title: Replacement Toughbook Computers for Fire Department Fleet

Submitted By: Steven Niekamp, Chief Information Officer

Bid Number: 1066-17

Purchase Justification:

The purpose of this request is to replace the aging computers that are installed in the Fire Department fleet.

Evaluation:

The Fire Department tested a demo unit for 3 weeks in order to verify that the Toughbook computer best fits their business needs. These computers are being provided by GTS Technology Solutions through the Department of Information Resources (DIR) Contract TSO-2520.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
GTS Technology Solutions	All	\$190,231.41
TOTAL:		\$190,231.41

Basis for Award: Cooperative Purchase

Purchase Requisition #: 38619

Fiscal Impact

Total Project/Account:	\$5,754,996
Expended/Encumbered to Date:	5,053,335
Balance:	701,661
This Item:	190,231
Proposed Balance:	\$511,430

Account #: 413-1311-6011; 413-4511-6011; 413-4511-9029;
411-4516-6011

Fund/Dept/Project – Description and Comments:

IT Replacement Fund / Fire Administration

IT Replacement Fund / IT Administration

IT Fund / Help Desk

Toughbooks for Fire Fleet

Attachments

BR 1066-17

Fiscal Reference:

Budget Type: Operating Budget

Fiscal Year: 2016-17

Document Location: Pages 139 & 238

Budget Director Approval: Ron Young

Approval Date: 09/06/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/06/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.c.

Meeting Date: September 19, 2017

Item Title: Cleaning and Closed Circuit Television Inspection of Sewer Lines

Submitted By: Wes Kucera, Managing Director

Bid Number: 0867-17

Purchase Justification:

The purpose of this request is to provide cleaning and closed circuit television inspection of existing sewer lines of various sizes and locations throughout the city. This is part of the Sanitary Sewer Overflow Initiative as required by the Texas Commission on Environmental Quality (TCEQ). This is a term agreement with four (4) optional renewals. A term is defined as either the annual expiration date or the expenditure of funds, whichever occurs first. Subsequent renewals do not require additional City Council approval. If all optional renewals are exercised, the potential financial impact will be \$1,500,000 over the life of the agreement. Expenditures will not exceed appropriated funds.

Evaluation:

A request for bids was issued in accordance with Purchasing procedures. Four (4) bids were received and evaluated with RKM Utility Services, Inc., submitting lowest responsible. This is a line item bid with estimated quantities. The quantities may be more or less, depending on actual needs, but the line item price will remain firm.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
RKM Utility Services, Inc.	All	\$300,000.00
	TOTAL:	\$300,000.00

Basis for Award: Lowest Responsible Bid

Purchase Requisition #: 38308

Fiscal Impact

Total Project/Account: N/A
Expended/Encumbered to Date: N/A
Balance: N/A
This Item: \$300,000
Proposed Balance: N/A
Account #: 231-4122-7111

Fund/Dept/Project – Description and Comments:

This bid is related to the FY 2017-18 Wastewater Utility Fund Operating Budget that has yet to be adopted by City Council.

Term Contract - Cleaning and Closed Circuit Television Inspection of Sewer Lines

Term Contract sets price but does not commit funds, and expenses will be charged to account as incurred.

The bid recap amount of \$149,362 represents a sampling for bid comparison purposes with other responding vendors of the various items that may be needed to complete work as described in this bid during FY 2017-18 and does not represent the total anticipated expenditures for the year. It is expected that the full \$300,000 identified in the Award Recommendation will be spent during the year and charged to the designated account as those expenses are incurred.

Attachments

Bid Recap

Fiscal Reference:

Budget Type: Operating Budget

Fiscal Year: 2017-18

Document Location: Page D-134 (Proposed)

Budget Director Approval: Ron Young

Approval Date: 09/08/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/06/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.d.

Meeting Date: September 19, 2017

Item Title: Duck Creek Wastewater Treatment Plant Raw Water Lift Pump Replcmt.

Submitted By: Wes Kucera, Managing Director

Bid Number: 0974-17

Purchase Justification:

The purpose of this request is to purchase a raw water lift pump to be used by Duck Creek Wastewater Treatment Plant for pumping raw water through the treatment system.

Evaluation:

The existing raw water lift pump has experienced various mechanical and electrical failures in the past 4 years, resulting in a 40% failure rate. System reliability must be improved in order to maintain proper treatment plant operations. The existing ABS pump is heavily worn and is beyond its cost-effective repair life cycle. The Wastewater Master Plan recommendations include upgrading failing pumps to the more reliable Flygt pumps. Wastewater has been standardizing to the Flygt pumps when a replacement is necessary. This has not only helped with system reliability but also with standardizing repair parts and maintenance schedules.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
Xylem Water Solutions	All	\$236,056.94
TOTAL:		\$236,056.94

Basis for Award: Sole Source

Purchase Requisition #: 38494

Fiscal Impact

Total Project/Account: \$1,015,000

Expended/Encumbered to Date: 343,111

Balance: \$671,889
This Item: 236,057
Proposed Balance: \$435,832
Account #: 230-4239-3402700-9007

Fund/Dept/Project – Description and Comments:

Wastewater Treatment CIP / Duck Creek WWTP Replacements/Mods.

Attachments

Bid Recap

Fiscal Reference:

Budget Type: CIP

Fiscal Year: 2017-18

Document Location: Page WW17

Budget Director Approval: Ron Young

Approval Date: 09/07/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/07/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.e.

Meeting Date: September 19, 2017

Item Title: Ben Davis Substation Flood Study – Phase II

Submitted By: Ross Owen, Director of Transmission & Distr

Bid Number: 1085-17

Purchase Justification:

The purpose of this request is to obtain engineering services related to the study of the flooding and regulatory impact of proposed GP&L flood improvements at the Ben Davis Substation. Phase I analyzed flood control options, with a recommendation to construct a berm. Phase II will provide for a detailed proposal and cost estimate of the recommended solution. Services will include enhanced hydraulic modeling of the site based upon initial hydraulic modeling conducted by Black & Veatch in 2016. In addition, aerial and topographic surveying will be conducted to construct a three-dimensional surface to be used in advanced modeling of the site and a two-dimensional surface to further and better model the unique hydraulics of the site.

Evaluation:

Black & Veatch was selected as the Most Qualified firm for this project based on a short list of respondents evaluated by criteria published in Request for Qualifications 5771-15.

Award Recommendation:

<u><i>Vendor</i></u>	<u><i>Item</i></u>	<u><i>Amount</i></u>
Black & Veatch	All	\$230,879.00
TOTAL:		\$230,879.00

Basis for Award: Most Qualified

Purchase Requisition #: 38585

Fiscal Impact

Total Project/Account: \$2,057,893

Expended/Encumbered to Date: 71,923

Balance: \$1,985,970
This Item: 230,879
Proposed Balance: \$1,755,091
Account #: 210-3799-3176801-7111
Fund/Dept/Project – Description and Comments:
Electric CIP Fund / Substations Upgrades

Attachments

Bid Recap

Fiscal Reference:

Budget Type: CIP

Fiscal Year: 2017-18

Document Location: Page E10

Budget Director Approval: Ron Young

Approval Date: 09/07/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/06/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.f.

Meeting Date: September 19, 2017

Item Title: GP&L Naaman to Apollo Transmission Line Rebuild Engineering Services

Submitted By: Ross Owen, Director of Transmission & Distr

Bid Number: 1081-17

Purchase Justification:

The purpose of this request is to obtain engineering services necessary to support voltage conversion from 69 kV to 138 kV for the GP&L Naaman to Apollo (NA-AP) transmission line. This includes design of transmission line reconstruction from structure NA-AP-44 to a proposed new Apollo Substation Dead End (approximately 2.60 miles). This will require a complete rebuild with new tubular steel monopoles configured for 138 kV conductor spacing and hardware. The new transmission line will generally follow the existing NA-AP alignment and will occupy existing road right-of-way and easements. The project will include approximately thirty-eight (38) new steel structures and the modification of one existing structure proposed to remain in place (NA-AP-46). The transmission line will be a 138 kV overhead single circuit consisting of three (3) phases of ACSS/TW 1929.6 Cumberland conductor with one 48-pair Optical Ground Wire (OPGW).

Evaluation:

R-Delta Engineers was selected as the Most Qualified firm for this project based on a short list of respondents evaluated by criteria published in Request for Qualifications 5771-15.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
R-Delta Engineers	All	\$533,400.00
TOTAL:		\$533,400.00

Basis for Award: Most Qualified

Purchase Requisition #: 38602

Fiscal Impact

Total Project/Account: \$700,000
Expended/Encumbered to Date: 451
Balance: \$699,549
This Item: 533,400
Proposed Balance: \$166,149
Account #: 210-3599-3143901-7111
Fund/Dept/Project – Description and Comments:
Electric CIP / Transmission Lines

Attachments

Bid Recap

Fiscal Reference:

Budget Type: CIP

Fiscal Year: 2017-18

Document Location: Page E01

Budget Director Approval: Ron Young

Approval Date: 09/07/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/06/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.g.

Meeting Date: September 19, 2017

Item Title: Parking Lot Improvements - Winters and Audubon Parks

Submitted By: Jermel Stevenson, Managing Director

Bid Number: 0822-17

Purchase Justification:

The purpose of this request is to begin Phase I demolition and concrete re-pavement of deteriorating asphalt parking lots in the Parks System. Phase I addresses the parking lots in Winters Park adjacent to the Soccer Complex and in Audubon Park directly in front of Audubon Recreation Center. The Base Bid includes the parking lot at Audubon Recreation Center and the southern half of the parking lot at Winters Soccer Complex. Bid Alternate 1 includes the northern half of the parking lot at Winters Soccer Complex. Due to the complex nature of the project, an Optional Contingency is included for any additional work that may be required.

Evaluation:

A request for bids was issued in accordance with Purchasing procedures. Four (4) bids were received and evaluated. Tri-Con Services is recommended as the Lowest Responsible Bidder for the Base Bid combined with Bid Alternate 1.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
Tri-Con Services, Inc.	Base Bid	\$1,042,059.50
	Alternate 1	397,034.40
	Contingency	85,000.00
	TOTAL:	\$1,524,093.90

Basis for Award: Lowest Responsible Bid

Purchase Requisition #: 38320

Fiscal Impact

Total Project/Account: \$1,305,000
Expended/Encumbered to Date: 151,247
Balance: \$1,153,753

This Item: 1,524,094
Proposed Balance: \$(370,341)
Account #: 692-4749-1834512-9002
Fund/Dept/Project – Description and Comments:
Parks & Recreation / Repaving of Parking Lots for Parks Dept.
Award: \$1,524,094

Approved Funding through 2017 CIP	\$1,305,000
<u>Unfunded Request for 2018 CIP</u>	<u>625,000</u>
Total Project Funding	\$1,930,000

Attachments

Bid Recap

Fiscal Reference:

Budget Type:

Fiscal Year: 2017-18

Document Location:

Budget Director Approval:

Approval Date: 09/07/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/06/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.h.

Meeting Date: September 19, 2017

Item Title: Property Insurance

Submitted By: Robby Neill, Managing Director

Bid Number: 0997-17

Purchase Justification:

The purpose of this request is to purchase property insurance to replace current coverage expiring September 30, 2017. This insurance provides all risk property coverage for City buildings, contents, and other properties. This contract may renew annually and may be subject to subsequent City Council approval depending on change of rates or coverage terms.

Evaluation:

A request for proposal was issued in accordance with Purchasing procedures. Two (2) proposals were received and evaluated based on the following criteria: economic evaluation of the proposed fee schedule, responsiveness to RFP, and capability to provide the coverage requested. The Princeton Excess and Surplus Lines Insurance Company proposal offered the Best Value based on the evaluation criteria. The recommended vendor proposed broader coverage at the same rate as the expiring policy. The recommended vendor also offered better coverage at a better rate than the other vendor. The FY 2017-18 premium is 0.4% above the expiring premium due to increased insurance values.

Award Recommendation:

<u><i>Vendor</i></u>	<u><i>Item</i></u>	<u><i>Amount</i></u>
Princeton Excess and Surplus Lines Insurance Company	All	\$712,203.00
TOTAL:		\$712,203.00

Basis for Award: Best Value

Purchase Requisition #: TBD

Fiscal Impact

Total Project/Account: \$1,210,000

Expended/Encumbered to Date: 0

Balance: \$1,210,000

This Item: 712,203
Proposed Balance: \$497,797
Account #: 405-1192-7404

Fund/Dept/Project – Description and Comments:

Self Insurance Fund Operating Fund - This request is for a policy that will be effective October 1, 2017, and is funded in the FY 2017-18 Proposed Operating Budget that has yet to be adopted by City Council.

Attachments

Bid Recap

Fiscal Reference:

Budget Type: Operating Budget

Fiscal Year: 2017-18

Document Location: Page C-43 (Proposed)

Budget Director Approval: Ron Young

Approval Date: 09/08/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/08/2017



**GARLAND
PURCHASING REPORT**

City Council Regular Session Agenda

2.i.

Meeting Date: September 19, 2017

Item Title: Central Library Life Safety Upgrades - Architectural Design Services

Submitted By: Ginny Holliday, Facilities Management Director

Bid Number: 3229-13

Purchase Justification:

The purpose of this Change Order is to provide additional Life Safety Project upgrades for the Central Library. The requested upgrades are necessary to bring the Central Library up to current fire codes. The additional upgrades include improvement of three stairwells to a one-hour fire-rated assembly; design and installation of fire sprinklers on the main floor of the Library; replacement of the lights, ceiling tile, and grid; addition of security cameras and access controls; construction of a Marshal's office; upgrade of the North Meeting Room; and upgrade of existing bathrooms to comply with ADA requirements. Due to the complex nature of the project, an Optional Contingency is included for any additional design work that may be required.

Evaluation:

Mayse & Associates was selected as the Most Qualified firm for the Central Library project based on the short list of architects evaluated in RFQ 2887-12. The Library Life Safety Project is new work at the Central Library that overlaps with existing work that was awarded in the amount of \$41,800.00 on PO 20466. The selected architect will build on their previously designed base drawings allowing the designs to be performed in a more economical and expeditious manner.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
Mayse & Associates	All	\$ 93,800.00
Optional Contingency		25,000.00
TOTAL:		\$118,800.00

Basis for Award: Change Order

Purchase Requisition #: 38666

Fiscal Impact

Total Project/Account: \$1,995,919
Expended/Encumbered to Date: 221,401
Balance: \$1,774,518
This Item: 118,800
Proposed Balance: \$1,655,718
Account #: 692-4749-1958512-7101

Fund/Dept/Project – Description and Comments:

Central Library Life and Safety Upgrades
Fire Upgrades / 692-4749-1958512-7101

Attachments

Bid Recap

Fiscal Reference:

Budget Type: CIP

Fiscal Year: 2017

Document Location: Page L03

Budget Director Approval: Ron Young

Approval Date: 09/11/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/11/2017



GARLAND PURCHASING REPORT

City Council Regular Session Agenda

2.j.

Meeting Date: September 19, 2017

Item Title: GP&L/TMPA Construction Labor for Power Line Relocations

Submitted By: Ross Owen, Director of Transmission & Distr

Bid Number: 1029-17

Purchase Justification:

The purpose of this request is to provide for the construction labor associated with the Shelby to Nevada power line relocations. These relocations are necessary to accommodate the TxDOT construction work on State Spur 1570. This is a TMPA project that will be reimbursed by TxDOT at 100%.

Evaluation:

A request for bids was issued in accordance with Purchasing procedures. Two (2) bids were received and evaluated based on the published criteria of price, experience, qualifications, equipment, and safety. Hargrave Power, Inc., submitted the lowest bid and received the highest evaluated score, offering the Best Value for the City. This was a joint bid for Garland Power & Light and Greenville Electric Utility System (GEUS). Both utilities are performing similar work in the area, and the joint bid capitalized on economies of scale. GEUS is responsible for managing their portion of the project including, but not limited to, all payment activities. Due to the complex nature of the project, an Optional Contingency is included for any additional work that may be required.

Award Recommendation:

<u>Vendor</u>	<u>Item</u>	<u>Amount</u>
Hargrave Power, Inc.	All	\$349,503.05
Optional Contingency		34,950.30
TOTAL:		\$384,453.35

Basis for Award: Best Value

Purchase Requisition #: 38564

Fiscal Impact

Total Project/Account: \$1,150,000
Expended/Encumbered to Date: 172,461
Balance: \$977,539
This Item: 384,453
Proposed Balance: \$593,086
Account #: 215-3542-3125501-7111
Fund/Dept/Project – Description and Comments:
Electric CIP Fund / Transmission Lines

Attachments

Bid Recap

Fiscal Reference:

Budget Type: CIP

Fiscal Year: 2017

Document Location: Page E01

Budget Director Approval: Ron Young

Approval Date: 09/11/2017

Purchasing Director Approval: Gary L. Holcomb

Approval Date: 09/11/2017



**GARLAND
CITY COUNCIL ITEM SUMMARY SHEET**

City Council Regular Session Agenda

3.a.

Meeting Date: September 19, 2017

Item Title: Z 17-35 City of Garland (District 1)

Submitted By: Kira Wauwie, Principal Development Planner

Summary of Request/Problem

Zoning Ordinance Z 17-35 City of Garland

Recommendation/Action Requested and Justification

Consider adoption of attached ordinance.

Attachments

Z 17-35 Ordinance

Z 17-35 Exhibit A

Z 17-35 Exhibit B

Z 17-35 Exhibit C

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE GARLAND DEVELOPMENT CODE OF THE CITY OF GARLAND, TEXAS, BY APPROVING AN AMENDMENT TO PLANNED DEVELOPMENT (PD) DISTRICT 15-20 FOR MIXED USE TO REMOVE THE TRANSITION ZONE LOCATED AT THE SOUTHWEST CORNER OF CAMPBELL ROAD AND LOOKOUT DRIVE AND RE-ZONE TO MIXED USE-MIXED RESIDENTIAL ON AN APPROXIMATELY 300-ACRE TRACT OF LAND LOCATED NORTHEAST OF PGBT/SH 190, WEST OF HOLFORD ROAD, AND SOUTH OF THE CITY LIMITS LINE; PROVIDING FOR CONDITIONS, RESTRICTIONS, AND REGULATIONS; PROVIDING A PENALTY UNDER THE PROVISIONS OF SEC. 10.05 OF THE CODE OF ORDINANCES OF THE CITY OF GARLAND, TEXAS; PROVIDING A SAVINGS CLAUSE AND A SEVERABILITY CLAUSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, at its regular meeting held on the 14th day of August, 2017, the Plan Commission did consider and make recommendations on a certain request for approval of an amendment to Planned Development (PD) District 15-20 for Mixed Use to remove the Transition Zone located at the southwest corner of Campbell Road and Lookout Drive and re-zone to Mixed Use-Mixed Residential on property zoned Planned Development (PD) District 15-20 for Mixed Use made by the **City of Garland**; and

WHEREAS, the City Council, after determining all legal requirements of notice and hearing have been met, has further determined the following amendment to the Garland Development Code would provide for and would be in the best interest of the health, safety, morals, and general welfare:

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

Section 1

The Garland Development Code is hereby amended by approving an amendment to Planned Development (PD) District 15-20 for Mixed Use to remove the Transition Zone located at the southwest corner of Campbell Road and Lookout Drive and re-zone to Mixed Use-Mixed Residential on property zoned Planned Development (PD) District 15-20 for Mixed Use and located at north of PGBT/SH 190, West of Holford Road, and

ZONING FILE NO. Z 17-35

South of the City Limits Line and being more particularly described in Exhibit A, attached hereto and made a part hereof.

Section 2

Development shall be in conformance with the conditions, restrictions, and regulations set forth in Exhibit B, attached hereto and made a part hereof.

Section 3

That a violation of this Ordinance shall be a misdemeanor punishable in accordance with Section 10.05 of the Code of Ordinances, City of Garland, Texas.

Section 4

That the Garland Development Code, as amended, shall be and remain in full force and effect save and except as amended by this Ordinance.

Section 5

That the terms and provisions of this Ordinance are severable and are governed by Sec. 10.06 of the Code of Ordinances of the City of Garland, Texas.

Section 6

That this Ordinance shall be and become effective immediately upon and after its passage and approval.

PASSED AND APPROVED this _____ day of _____, 2017.

CITY OF GARLAND, TEXAS

Mayor

ZONING FILE NO. Z 17-35

ATTEST:

City Secretary

Published:

EXHIBIT A
LEGAL DESCRIPTION
Zoning File 17-35

BEING various tracts of land together comprising approximately 300 acres, generally located within the boundaries of North President George Bush Turnpike (south and west), the City of Garland city limits line (north), and Holford Road (east). The subject property excludes the following tracts: Lot 1, Block 1 Gurdwara Akaljot; Lot 36, Block 1, Pot O' Gold; Lot1, Block 1, Campbell Firewheel Addition; Lot 1, Block 1, Montessori School Addition; Lots 1 and 2, Block 1, Campbell Ferris Addition; Lots 2A and 2B-R, Blackburn State Highway 190 Addition. The property is generally located northeast of PGBT/SH 190, west of Holford Road, and south of the city limits line.

PLANNED DEVELOPMENT CONDITIONS

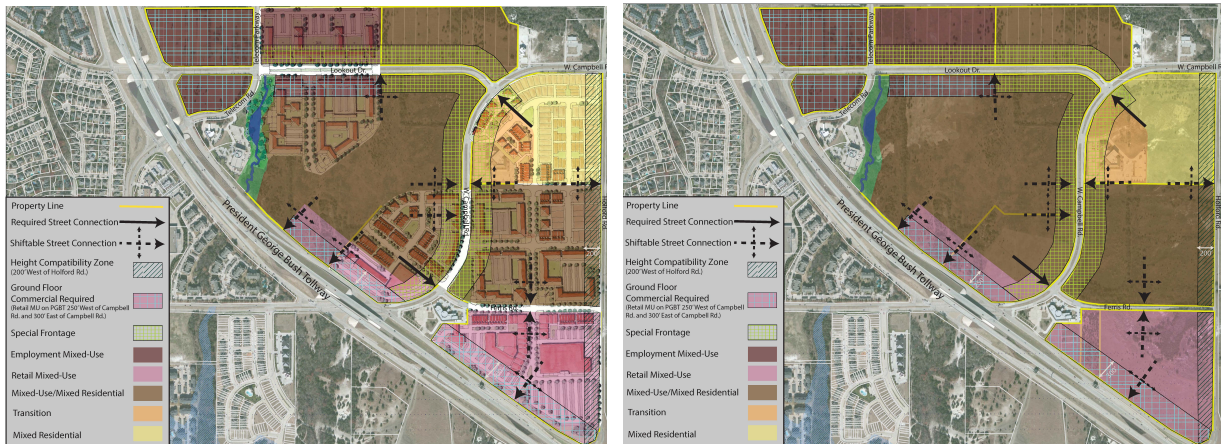
ZONING FILE 15-35

Northeast of PGBT/SH 190, west of Holford Road, and south of the City Limits line

- I. **Statement of Purpose:** The purpose of this Planned Development District is to allow for a mix of uses subject to conditions.
- II. **Statement of Effect:** This Planned Development District shall not affect any regulation found in the Garland Development Code (GDC), Ordinance No. 6773, as amended prior to adoption of this ordinance, except as specifically provided herein.
- III. **General Regulations:** All regulations in Ordinance 6773 Garland Development Code (GDC), are included by reference and shall apply, except as otherwise specified by this ordinance.
- V. **Specific Regulations:**
 - A. Regulating Plan: All uses, conditions, processes and standards shall be as provided within Exhibit C.

City of Garland SH 190/Campbell Mixed Use Center Planned Development District

June 8, 2015 -- Z 15-20
AMENDED September 19, 2017 -- Z 17-35



Created for



GARLAND

TEXAS MADE HERE

By:

GATEWAYPLANNING
A VIALTA GROUP PARTNER

City of Garland SH 190/Campbell Mixed Use Center Planned Development District

Table of Contents

- I. Purpose and Intent
- II. Applicability
- III. SH 190/Campbell MUC-PD District Structure
- IV. Administration
- V. Schedule of Uses
- VI. Development Standards
 - A. General to all sites
 - B. Performance and Design Standards
 - C. Site Development Standards
- VII. Definitions

Appendices:

- A. Zoning Framework Plan
- B. Sample Illustrative Plans
- C. SH 190/Campbell MUC-PD District Structure and Review Process Flow Chart
- D. Street Design Standards and Typical Cross Sections

SH 190/Campbell Mixed Use Center Planned Development District

I. Purpose and Intent

The purpose and intent of the SH 190/Campbell Mixed Use Center Planned Development District (here after known as “MUC-PD”) is to implement the City’s vision for a vibrant and sustainable approach to the development of SH 190 Corridor and to encourage the continuation of the Telecom Corridor® through Garland by becoming a center for major employment office, technology, healthcare and support services, while encouraging, where feasible, a mix of complementary uses including housing, retail, offices, commercial services, and civic uses, supporting long term attractiveness for both employment uses and neighborhood uses. Specifically, the MUC-PD is intended to:

- A. Create short-term development momentum while allowing for long-term market opportunities for larger-scale employment uses;
- B. Establish a high level of development standards to create development of exemplary and enduring quality that fits into the City’s vision including Envision Garland 2030 as amended;
- C. Encourage the development of vertical and horizontal mixed-use areas that are safe, comfortable and attractive to pedestrians while protecting significant environmentally sensitive areas;
- D. Provide flexibility on the site and with design of new development to anticipate changes in the marketplace while establishing human-scaled buildings;
- E. Leverage the frontage and access to SH 190 and other regional corridors while preserving environmentally significant areas as “features” and not constraints, encouraging destination retail and other uses along the SH 190 Corridor with adjacent transitions to sustainable mixed use development patterns so that destination uses directly along the corridor are accessible internally by walking, cycling and driving;
- F. Create a variety of connected community gathering places and passive open spaces with trails to make walking and biking easy from one place to another and connect to off-site trails;
- G. Include a range of residential options that reflect changing lifestyles considering both market demand and City preferences;
- H. Provide appropriate transitions to protect adjacent neighborhoods and to promote sustained value;
- I. Encourage efficient uses of land; and
- J. Utilize existing and future transportation and parking assets efficiently in order to optimize both auto traffic on surrounding streets and on-site parking demand through design strategies and policy incentives that support use of multiple modes of transportation.

II. Applicability

- A. The MUC-PD District (this Code) applies to the property shown as the PD 15-20 on the Zoning Map and the boundaries are as established in the Zoning Framework Plan in Appendix A.
- B. The provisions of the MUC-PD District (this Code), when in conflict, shall take precedence over those in the Garland Development Code (GDC) as amended except as noted herein. Development standards not addressed in this Code shall be governed by the GDC to the extent they are not in conflict with the intent of the MUC-PD District standards.

III. SH 190/Campbell MUC-PD District Structure

- A. MUC-PD District Structure: The following plans establish the structure within which the details of the PD District are calibrated to a specific Master Concept Plan (MCP) at the time of development. The Sample Illustrative Plans are included to provide an overall guidance on the desired pattern and character of development envisioned under this code while the Zoning Framework Plan establishes the major street network and character zone allocations within the PD District.
1. Sample Illustrative Plans – are conceptual plans generated for different areas of the MUC-PD District that provide guidance on the intended character and layout of development based on the context and vision for the different character zones. These are to be used as prototypical development scenarios that would inform the ultimate Master Concept Plan by the individual developers/property owners. The Sample Illustrative Plans illustrate important principles of planning a mixed use, walkable neighborhood.
 2. Zoning Framework Plan – is the plan that is adopted at the time of creation of this PD and associated rezoning and establishes the different Character Zones and the major street network envisioned for MUC-PD District. Using the Zoning Framework Plan (ZFP) (Appendix A) and this Code, an applicant shall specify certain details of the development and may refine ZFP elements at the time of MCP per the criteria established in this Code.

Five (5) Character Zones are established within the MUC-PD, each of which implements specific aspects of the vision for a regional mixed use destination with significant employment and residential uses. Prior to any new development within these areas, a Master Concept Plan (MCP) consistent with the adopted ZFP (Appendix A) and this PD shall be developed by the applicant/property owner or developer.

- i. Employment Mixed Use Zone (EMU): This is the Character Zone the area adjacent to the SH 190 frontage and along Lookout Drive. This zone is appropriate for the long-term development of large-scale regional employment and office uses due to its proximity to the Telecom Corridor®. The direct access to regional roadways including SH 190 offers adequate capacity for such an employment hub. The major roadway frontages along SH 190, Lookout Drive, and Telecom Parkway are not appropriate for ground floor residential uses. The vision for this zone is mid-to high-rise office buildings with structured parking.
- ii. Retail Mixed Use Zone (RMU): This is the area adjacent to SH 190 with access conducive to destination and regional retail uses. This area shall contain design and development standards that allow for retail and office uses; but that also encourage connections and transitional uses with the adjacent development.
- iii. Mixed Use-Mixed Residential Zone (MU-MR): This area is the core mixed use development opportunity for the area, linking the other areas together and encouraging development standards and uses that create a variety of higher density residential types as well as office and retail uses that do not require visibility from SH 190, but in a walkable development context.

- iv. Transition Zone (T): This area is located to provide opportunities for residential and neighborhood serving smaller scale professional office and retail within a design context that respects the scale of the adjacent Mixed Residential Zone (MR).
 - v. Mixed Residential Zone (MR): This area is primarily residential in character and intended to provide a transition to the single family neighborhoods to the northeast. This area shall provide a variety of lower density attached and detached housing types within a walkable context including integrated small open spaces.
3. Master Concept Plan – A Master Concept Plan shall establish the exact location of Character Zones, land uses and open spaces, blocks, lots, building and street layout, treatment of transition areas to adjacent uses and any other appropriate information required by this PD. The Master Concept Plan shall illustrate the design direction of the site with dimensional standards that provide substantial certainty about the development outcomes, intensity, and phasing of the proposed development. It shall be created and submitted by the applicant/developer prior to any new development within the MUC-PD in conformance with Type 1 or Type 2 MCP applications as established in Section IV.B.2 of this Code. A Master Concept Plan shall meet the standards established in the Zoning Framework Plan and this PD and shall be developed for a minimum acreage even if the actual development is phased.
- i. Minimum Acreage Required: The minimum acreage required for any initial Master Concept Plan shall be no smaller than any one of the following: (1) all the contiguous property under one single ownership; or (2) all property under one Character Zone as established in the adopted Zoning Framework Plan; or (3) all property circumscribed by any proposed new or existing streets per the Zoning Framework Plan.
 - ii. Amendments to Approved Master Concept Plans: After the initial Master Concept Plan approval, subsequent amendments to approved MCPs shall include the entire area of the initial Master Concept Plan approval regardless of the standards in III.A.3.i. above.
4. Detail Plan: Detail plans shall be the lot and buildings level plans and shall be required for individual lots and/or buildings prior to Site Permit and/or Building Permit approval for all development. The approval process for detail plans shall be based on the process established for Type 1 or 2 applications in Section IV.B.3 of this PD and as outlined within Section 2.1.2 of the GDC.

IV. Administration

- A. General: No building or structure may be erected or moved unless in conformity with this MUC-PD.
- B. Authority for Approval (See Appendix C for a flow chart illustrating the Application Process):
 - 1. Zoning Framework Plans: may only be approved by City Council after recommendation by the Plan Commission. The process for Zoning Change applications in Chapter 2, Article 2, Division 1 of the GDC shall be followed. Modifications to adopted ZFPs may also be processed in conjunction with MCP applications per IV.B.2 below.

2. Master Concept Plans: Master Concept Plans may be classified into Type 1 and Type 2 MCP applications.
 - i. Type 1 MCP Applications:
 - a. Shall include any new or revised MCP applications consistent with the adopted ZFP, requirements of this PD, and applicable sections of the GDC. They may include minor modifications to ZFP elements per Table 4-1.
 - b. May be approved administratively by the Director.
 - c. Appeals to the Director's decision shall be heard by the City Council after a recommendation from the Plan Commission. In reviewing such appeals, the Plan Commission and City Council shall only consider the items identified by the Director as not meeting this PD.
 - ii. Type 2 MCP Applications:
 - a. Shall include any new or revised MCP applications that are NOT consistent with the adopted ZFP, requirements of this PD, or applicable sections of the GDC or propose alternative standards to the standards in this PD or an approved ZFP beyond the standards established under Table 4-1 for minor modifications to Zoning Framework Plan elements.
 - b. May only be approved by City Council after recommendation by the Plan Commission.
 - c. The process for Type 2 MCP Applications shall follow the process for Concept Plan Review under Section 2.12 of the GDC. In considering Type 2 MCP Applications, the Plan Commission and the City Council may use any of the following criteria:
 - 1) The extent to which the proposed modifications to street layout and/or character zones impact adjoining properties with respect to continuity and adjacency predictability;
 - 2) The overall purpose and intent of the regional Mixed Use Center;
 - 3) The extent to which the proposal fits the adjoining design context by providing appropriate building scale and use transitions;
 - 4) The extent to which the proposal provides public benefits such as usable civic and open spaces, livable streets, affordable housing, structured and/or shared parking, and linkages to transit; and
 - 5) The extent to which the proposal does not hinder future opportunities for higher intensity development.
3. Detail Plans: Detail Plans may be classified into Type 1 and Type 2 applications.
 - i. Type 1 Detail Plan Applications:
 - a. Shall include any new or revised Detail Plans consistent with the requirements of this PD, an approved MCP, and applicable sections of the GDC.
 - b. May be approved administratively by the Director.
 - ii. Type 2 Detail Plan Applications:
 - a. Shall include any new or revised Detail Plans that are NOT consistent with the requirements of this PD, an approved MCP, or applicable sections of the GDC

- or propose alternative standards to the standards in this PD or an approved MCP.
 - b. May only be approved by City Council after recommendation by the Plan Commission.
 - c. The process for Type 2 Applications shall follow Section 2.12 of the GDC. In considering Type 2 Applications, the Plan Commission and the City Council may use any of the following criteria:
 - 1) The extent to which the proposed application impacts adjoining properties with respect to continuity and adjacency predictability;
 - 2) The extent to which the application meets the overall purpose and intent of the regional Mixed Use Center;
 - 3) The extent to which the proposal fits the adjoining design context by providing appropriate building scale and use transitions;
 - 4) The extent to which the application provides public benefits such as usable civic and open spaces, livable streets, affordable housing, structured and/or shared parking, and linkages to transit; and
 - 5) The extent to which the application does not hinder future opportunities for higher intensity development.
- C. Master Concept Plan Requirements: The Master Concept Plan is intended to illustrate the building and block level development pattern of the MUC-PD District consistent with the purpose and intent of the Section and establish the detailed standards and rules for any new development within the MUC-PD District and the corresponding Character Zones.
- 1. The applicant shall submit a Master Concept Plan for the minimum acreage as established in Section III.A.3.i. The Master Concept Plan application shall be made prior to detail plan application for any new development.
 - i. Each MCP application shall:
 - a. demonstrate compliance with this PD's purpose, intent, and development standards;
 - b. include exhibits meeting all the informational requirements for a Concept Plan under Section 2.11 of the GDC, and meeting the standards of this PD and adopted ZFP including:
 - 1) Delineation of the Character Zones per the adopted ZFP (including any modifications to adopted ZFP elements);
 - 2) The layout of proposed blocks, major and minor streets, bikeways, sidewalks, and trails;
 - 3) the location and acreage of open space areas and whether each will be privately owned, a common area for residents only or dedicated to public use;
 - 4) Type "A" and "B" Development Frontage designations based on the standards in this PD.
 - 5) A conceptual level plan for the accommodation of stormwater drainage and detention and other major water and sewer infrastructure elements for the overall area included in the MCP;

- 6) the location and area of retail, office, industrial, residential, civic, and open space uses;
- 7) the approximate shape, size, and placement of buildings;
- 8) the general parking location relative to streets and buildings and approximate parking count, with indication of parking lot landscape areas; and
- 9) any minor modifications to adopted ZFP elements per Table 4-1 below.

Table 4-1: Minor Modifications Table		
Framework Plan Element	Extent of Minor Modification Permitted	Criteria
a. Area/boundary of a Character Zone	Area/boundary of a specific Character Zone may be adjusted no more or less than 30%.	i. Shall not eliminate any character zone ii. Modified area shall be contiguous with the corresponding character zone that is changed iii. Boundary modifications may be due to physical constraints on the property, or shifting of internal roadways or to better align with ownership boundaries.
b. Location of any Required Street	Location may be shifted no more than 150' in any direction	i. Shall maintain the connectivity intended by the Framework Plan ii. Shall maintain the continuation and/or connectivity with any existing streets or driveways where possible
c. Area of any Required Civic/Open Space	May be reduced by no more than 25%	i. Shall maintain the frontages required by the Framework Plan ii. Area may be adjusted to accommodate shifting of any new Required Streets or any required easements only

- c. Include a Street Classification Master Plan with associated with cross-sections and street classifications for the proposed MCP area (or for each phase, if it is to be developed in phases) specifying right-of-way width, minimum pavement width, on-street parking, approximate location of street trees, bikeways and sidewalks (Appendix D, Institute of Transportation Engineers' Designing Walkable Urban Thoroughfares manual or NACTO's Urban Street Design Guide shall be used to guide the development of the proposed cross sections in lieu of the street standards in the GDC. See Definitions for complete citation).
- d. Include a report in the form of text, statistical information, tables, guidelines, and graphics that includes:
 - 1) a statement of the purpose and intent of the proposed development consistent with the vision and ZFP for the MUC-PD District and its Character Zones;
 - 2) a description of the mix of land uses and the factors which ensure compatibility both within the development site, with adjacent land uses, and compliance with the recommendations of all the adopted elements of the Comprehensive Plan;
 - 3) any special standards for signage in the form of a Master Sign Plan application that provides a design palette addressing the location, size,

type, lighting, colors, and materials for all signage in the proposed development unless meeting the Sign Regulations in Chapter 4, Article 5 of the GDC;

4) statistical information including:

- a) gross acreage of the site, and net acreage of the site excluding jurisdictional wetlands, regulatory floodplains, and slopes over 20%;
- b) the amount of land devoted to open space, both in acres and as a percentage of the gross acreage of the site;
- c) the amount of land devoted to retail, office, industrial, residential, and civic uses;
- d) a plan for pedestrian, bicycle, and vehicular circulation describing the general design capacity of the system as well as access points to any regional trail system;
- e) a daily and peak hour trip generation and directional distribution report by use unless the Director of Transportation finds that the traffic to be generated by the proposed development does not warrant the preparation and submission of a study;
- f) the maximum allowable building coverage and height; and
- g) the minimum and maximum building setbacks.

- e. Development standards for the proposed development that meet Section VI.B of this PD and specifying standards for all the “flexible” elements by each Character Zone within the specific MCP area in the form of a table (see Table 6-3 in Section VI for criteria and format);
- f. Compliance with frontage and housing mix and type standards in Section VI.A.4 for the specific Character Zones and locations to be included with the MCP;
- g. Building design and general architectural design standards that meet Sections VI.A.8 and VI.A.9 of this PD for the proposed development specifying general materials and configurations permitted for facades, roofs, and openings;
- h. a landscape concept plan that includes the design direction and general for streetscapes and public/open spaces types; and
- i. a non-binding schedule for the entire development (or for each phase, if it is to be developed by phases), which shall show generally how the applicant will complete the project containing the following information:
 - 1) The proposed order of construction by section delineated on the Master Concept Plan;
 - 2) The proposed schedule for construction of improvements to open space areas; and
 - 3) The proposed schedule for the installation of required public streets, utilities improvements and the dedication of public rights-of-way and/or easements.

D. Detail Plans and Minor Amendments to Approved MCPs:

1. Detail Plan Requirements: A Detail Plan shall be required for all development. Detail Plans within the MUC-PD District shall meet the submittal requirements for Detail Plans established under the Section 2.12 of the GDC. Additional information that adequately illustrates the detail plan's compliance with this PD and the applicable MCP shall also be required. The process for approval of Detail Plans is established in Section IV.B.3 of this PD and within Chapter 2, Article 2, Division 2 of the GDC.
2. The Director of Planning may approve minor changes to a previously approved MCP or detail plan with the applicant's written justification for such changes. Any significant changes to and deviations from approved plans shall be regarded as an amendment to that particular plan and may be reviewed by the Director of Planning and processed per the standards established in this PD. The Director of Planning shall make the determination as to whether a proposed change is minor or significant, based upon consideration of the following facts:
 - i. whether the proposed change substantially alters the arrangement of component zones, buildings or changes the use of building space designated on the original plan;
 - ii. whether there is an increase of greater than 10% in the number of residential dwelling units beyond the threshold established in the approved MCP;
 - iii. whether the proposed change substantially alters vehicular circulation or the placement/ arrangement of parking areas; or
 - iv. whether the proposed change will reduce or lessen the effectiveness of open space, landscape buffers, and edges.

V. Schedule of Uses

- A. No permit may be issued for a use that is not allowed by this MUC-PD.
- B. Use Categories: In order to regulate use, categories of uses have been established. Use categories provide a systematic basis for assigning land uses to appropriate categories with other, similar uses. Use categories classify land uses and activities based on common functional, product, or physical characteristics. Characteristics include the type and amount of activity, the hours of operation, the type of customers or residents, how goods or services are sold or delivered, likely impact on surrounding properties, and site conditions.
- C. Principal Uses: Allowed principal uses by MUC-PD District and Character Zones are listed in Table 5.1 Permitted Use Table. Principal uses are grouped into categories of uses (see Definitions for description of land use categories). The example uses listed are not an exhaustive list. The Director of Planning has the responsibility for categorizing all uses.
- D. Accessory Uses: The following standards shall apply to Accessory Uses:
 - 1. Unless otherwise expressly stated, accessory uses are permitted in conjunction with allowed principal uses. Accessory uses shall be accessory and customarily incidental and subordinate to a permitted principal use.
 - 2. No accessory use may be established on a site prior to the establishment of a permitted principal use.
 - 3. The Director of Planning is authorized to determine when a structure or use meets the definition of an accessory use. In order to classify a structure or use as accessory, the Director of Planning must determine that the use:
 - i. Is subordinate to the principal use in terms of area, extent and purpose;
 - ii. Contributes to the comfort, convenience or necessity of occupants of the principal use served;
 - iii. Is located on the same lot as the principal structure or use, or on a contiguous lot in the same ownership;
 - iv. Does not involve operations not in keeping with the character of the principal use served; and
 - v. Is not of a nature likely to attract visitors in larger numbers than would normally be expected for the principal structure or use.
 - 4. Home Occupations: Standards in Section 2.61 of the GDC shall apply.
 - 5. Live-Work Uses and Structures: Live-work uses and structures are permitted per Section V of this PD. A live-work structure is a mixed use building type with a dwelling unit that is also used for work purposes, provided that the 'work' component is (1) restricted to the uses of professional office, personal service, cottage industrial, artist's workshop, studio, or other similar uses, (2) is located on the street level and ground floors constructed to Commercial Ready standards, and (3) is constructed as separate units under a condominium regime or as a single unit. The 'live' component may be located on the street level (adjacent to the work component) or any other level of the building. Live-work dwelling is distinguished from a home occupation otherwise defined by this Section in that the "work" component is not required to be incidental and secondary to the "live"

component. The business owner or a full-time employee may reside in the residential unit associated with the commercial use.

- E. Accessory Structures: All accessory structures shall be clearly subordinate to the principal structure on the lot. All accessory structures shall meet the applicable principal structure standards per the Character Zone unless alternative standards are proposed by the applicant and adopted as part of the MCP approval.



The land use is allowed by right in the zoning district indicated.



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Table 5-1 Schedule of Uses

	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
AGRICULTURAL USES						
Farm, Ranch, Orchard						-
Feed Store						-
Stable, Commercial						-
Stable, Private						-
Stockyards, Livestock Auction, Livestock Hauling						-
RESIDENTIAL USES						
Accessory Dwellings:	-	-	-	-	-	-
Dwelling, Accessory – Guard/Manager/Caretaker					P	Sec. 2.58
Dwelling, Accessory – Guest House					P	Sec. 2.58
Dwelling, Accessory – Rental Unit					P	Sec. 2.58
Congregate Adult Living Facilities:	-	-	-	-	-	-
Rehabilitation Facility, In Home/Residential		S	S	S	S	-
Rehabilitation Facility, Institutionalized						-
Elder Care Facilities:	-	-	-	-	-	-
Elder Care – Assisted Living	S	S	S	S		Sec. 2.52(A)12
Elder Care – Continuing Care (combination)	S	S	S	S		Sec. 2.52(A)12

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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Elder Care – Independent Living	P	P	P	P	p*	Sec. 2.52(A)12 p* = Permitted in duplex, triplex, quadplex, and single-family (attached and detached) building types only
Elder Care – Nursing/Convalescent Care	S	S	S	S		Sec. 2.52(A)12
Household Living Units:	-	-	-	-	-	-
Dwelling, Two-Family (duplex)			P	P	P	Sec. 2.38
Dwelling, Industrialized Housing Unit						Sec. 2.36
Dwelling, Manufactured/HUD-Code Home						-
Dwelling, Mobile Home						-
Dwelling, Multi-Family	P	P	P	P		Sec. 2.39 (see exception below) The GDC requirement for 2 swimming pools for MF Developments over 250 units may be reduced to 1 swimming pool in addition to any reduction of required Clubhouse area with the Planning Director's approval through the MCP or Detail Plan process.
Dwelling, Live/Work	P	P	P	P		-



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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Dwelling, Single-Family Detached			P*		P*	Sec. 2.36 P* implies Section VI.A.4.i and Section VI.A.4.ii applies P implies only Section VI.A.4.i applies
Dwelling, Single-Family Attached (Townhouse)		P	P	P	P	Sec. 2.37
Manufactured/Mobile Home Park or Subdivision						-
ACCESSORY & TEMPORARY USES						
Accessory Structure			P	P	P	Sec. 2.58
Convenience Facilities:	-	-	-	-	-	-
Drive-Through Service		S				Sec. 4.20 Standards in Section 7 of this PD also apply
Walk-Up Service	P	P	P	P		-
Fuel Pumps, Retail		S				Sec. 2.52(A)3 Standards in Section 7 of this PD also apply
Kiosks, Self-Service:	-	-	-	-	-	-
Automated Teller Machine (ATM) – Drive-Up	P	P	S	S		Sec. 2.52(A)7, Sec. 4.20
Automated Teller Machine (ATM) – Walk-Up	P	P	P	P		Sec. 2.52(A)7
Retail (ice, water, etc.)		S				Sec. 2.52(A)7, Sec. 4.20
Recycled Materials Collection						
Outside Display, New Materials		S				Sec. 2.52(A)14
Outside Display, Used Materials						
Outside Storage, New Materials		S				Sec. 2.52(A)14



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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Outside Storage, Used Materials						
Outside Storage Unit, Portable (POD)						
Seasonal Sales	*	*	*	*		Art. VIII, Ch. 30, City Code
Shelter Tent						-
Shipping Container						Sec. 2.52(A)15, Art. XII, Ch. 30, City Code
Temporary Building/Office (field office, construction office, subdivision sales office, etc.)	*	*	*	*	*	Sec. 2.52(A)19
INSTITUTIONAL AND EDUCATIONAL						
College or University	P	P				-
Convention Facility	P	S	S			-
Day Care Facilities:	-	-	-	-	-	-
Day Care Center, Adult	S	P	S	S	S	Sec. 2.52(A)13
Day Care, Youth – Licensed Child-Care Center	P	P	S	S	S	Sec. 2.52(A)2
Day Care, Youth – Registered Child-Care Home			S	S	S	Sec. 2.61
Church or Place of Worship	P	P	P	P	P	-
Learning Center, Specialized	P	P	S	S		-
School, Business	P	P	P			-
School, Retail/Personal Services Training	P	P	P			-
School, Trade						-
School, Private, Religious or Charter			S	S	S	-
School, Public			P	P	P	-



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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
GOVERNMENT & HUMAN SERVICES USES						
Charitable Boarding						-
Garden, Charitable						-
Garden, Civic			P	P	P	-
Post Office	P	P	P	P		-
Social Service Facility/Agency		P	P	P		-
MEDICAL & HEALTH SERVICES USES						
Cemetery						-
Hospital	S	S				-
Medical and Dental Office/Clinic	P	P	P	P		-
Mortuary/Funeral Home						-
RECREATIONAL, SOCIAL AND ENTERTAINMENT USES						
Athletic Events Facility, Indoor		P	P			-
Athletic Events Facility, Outdoor						-
Athletic Field, Stadium, Arena	S	S				-
Civic Club/Fraternal Lodge		P	P	S		-
Commercial Amusement, Indoor		P	S			-
Commercial Amusement, Outdoor						-



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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Cultural Facility	P	P	P	P		-
Day Camp, Private						-
Dry Boat Storage						-
Equestrian Camp, Private						-
Golf Course/Country Club						-
Health & Fitness Gym (indoor)	P	P	P	P		-
Marina						-
Public Amusement, Temporary	*	*	*	*		Art. VIII, Ch. 30, City Code.
Racing Track						-
Reception Facility		S				Sec. 2.52(A)20
Recreational Vehicle Park (short-term stays only)						-
Shooting Range, Indoor						-
Shooting Range, Outdoor						-
Theater, Large Scale		P				-
Theater, Small Scale	S	P	P			-
Zoo						-
OFFICE, RETAIL & SERVICE USES						
Alternative Financial Establishment						-

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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Antique Shop (indoors only)		P	P	P		-
Bait Sales, Live						-
Bakery, Retail	P	P	P	P		-
Bed and Breakfast						Sec. 2.52(A)11
Business & Media Service	P	P	P	P		-
Call Center	P	P	P			-
Commercial Blood, Plasma, Tissue and Cell Collection Center						Sec. 2.52(A)26
Convenience Store (1,000-5,000sf)	P	P	P	S		Sec. 2.52(A)1
Financial Institution	P	P	P	P		Sec. 4.20
Flea Market, Indoor						-
Flea Market, Outdoor						-
Furniture, Household Furnishings and Appliance Sales/Rental		P	P			-
Grocery/Supermarket (>5,000sf)	S	P	P			-
Home Improvement Center (>50,000sf)		S				-
Hotel/Motel, Extended Stay	S	S	S			Sec. 2.52(A)11
Hotel/Motel, Full Service	P	P	P			Sec. 2.52(A)11
Hotel/Motel, Limited Service	S	S	S			Sec. 2.52(A)11
Indoor Shopping Mall						-



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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Kiosk, Trailer or Mini-Structure (attended):	-	-	-	-	-	-
Retail/Service	S	P	P			Sec. 2.52(A)7, Sec. 4.20
Recycled Materials Collection						
Landscape Nursery (retail)		S				-
Landscape Nursery/Tree Farm (wholesale)						Sec. 2.52(A)17
Laundry, Drop-Off (with drive-through or window)	S	P	S			Sec. 4.20
Laundry, Drop-Off (without drive-through or window)	P	P	P	P		-
Laundry, Self-Serve (Laundromat)						-
Office, General	P	P	P	P		-
Pawn Shop						-
Personal Services	P	P	P	P		-
Pet Store (indoors only)	P	P	P			-
Pharmacy (with drive-through or window)	S	P	S			Sec. 4.20
Pharmacy (without drive-through or window)	P	P	P	P		-
Produce Stand/Outdoor Farmers Market		P	P	S		-
Restaurant (No Drive-Through)	P	P	P	P		-
Restaurant, Drive-Through		P	S			Sec. 4.20
Retail Store	P	P	P	P		-

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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Sexually Oriented Business						
Smoke Shop						-
Studio, Arts/Crafts	P	P	P	P		-
Studio, Fitness or Performing Arts	P	P	P	P		-
Tattooing/Body Piercing Establishment						Sec. 2.52(A)6
Used Goods, Retail Sales (Indoors)		S				-
COMMERCIAL USES						
Bakery, Commercial						-
Building/Garden Materials Sales & Storage (wholesale)						Sec. 2.52(A)23
Bulk Material Sales & Storage (retail or wholesale)						Sec. 2.52(A)18
Contractor's Office/Storage Yard (outdoor storage)						Sec. 2.52(A)24
Contractor's Office/Warehouse (indoors only)						-
Custom Products Manufacturing	P					-
Equipment Leasing/Rental, Indoor						-
Equipment Leasing/Rental, Outdoor						Sec. 2.52(A)25
Feed/Grain Mill						-
Furniture and Appliance Cleaning/Repair						-
Garden, Commercial						-

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	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Laundry Plant, Commercial						-
Meat and Game Processing						-
Pet Care/Play Facility (indoor)	P	P	P	P		Sec. 2.52(A)9
Pet Care/Play Facility (outdoor)						Sec. 2.52(A)9
Portable Building Sales/Leasing						-
Printing/Publishing House		S	S			-
Recording Studio/Media Production	P	P	P			-
Recycling Collection Center (no outdoor storage)						Sec. 2.52(A)8
Recycling Salvage Yard (unlimited outdoor storage)						Sec. 2.52(A)8
Self-Storage Facility (mini-warehouse)		S				Sec. 2.52(A)16
Small Engine/Lawn Equipment Rental & Repair (indoors)						-
Taxidermist						-
Vehicle Dispatch & Storage						-
Veterinary Clinic, Large Animal (outdoor pens)						-
Veterinary Clinic, Small Animal (indoors only)	P	P	P	P		-
Veterinary Clinic, Small Animal (outdoor kennels, runs)						-
MOTOR VEHICLE & RELATED USES						
Automobile Leasing/Rental						-

P The land use is allowed by right in the zoning district indicated.

The land use is prohibited in the zoning district indicated.

S The land use is allowed only upon approval of a Specific Use Provision (SUP) in the zoning district indicated.

	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Automobile Repair, Major						
Automobile Repair, Minor						
Automobile Sales, New or Used						-
Boat Sales, Leasing & Repair (outdoor storage)						
Car Wash, Automated/Rollover						
Car Wash, Full-Service/Detail		S				
Car Wash, Self-Service/Wand						
Impoundment Lot (commercial/private)						-
Motorcycle/ATV Sales, Leasing & Repair (new and used – indoors only)						-
Parking Lot or Garage, Commercial	P	P	P			-
Personal Watercraft Sales, Leasing & Repair (new and used)						-
Recreational Vehicle/Trailer Sales, Leasing & Repair						-
Salvage Yard, Automotive						-
Travel Center						-
Truck/Bus Repair						-
Truck/Bus Sales & Leasing/Rental						-
Truck/Bus Storage						-
Truck/Bus Wash						



The land use is allowed by right in the zoning district indicated.



The land use is prohibited in the zoning district indicated.



The land use is allowed only upon approval of a Specific Use Provision (SUP) in the zoning district indicated.

	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Wrecker/Towing Service						-
TRANSPORTATION USES						
Airport/Heliport						-
Bus Stop	P	P	P	P		-
Helipad	S					-
Motor Freight Terminal/Railroad Switching Yard						-
Transit Station, Public	P	P	P			-
Transportation Depot, Passenger (commercial)						
Transportation Terminal, Passenger (commercial)						-
INDUSTRIAL USES						
Animal Feed Processing & Storage						-
Batching Plant						-
Batching Plant, Temporary	P	P	P	P	P	-
Data Center	P	P	P			Design standards in Section VI.A.10 shall apply
Distribution Center, Large (indoors only)						-
Distribution Center, Small (indoors only)	S					-
Food Processing & Storage						-

P The land use is allowed by right in the zoning district indicated.

The land use is prohibited in the zoning district indicated.

S The land use is allowed only upon approval of a Specific Use Provision (SUP) in the zoning district indicated.

	EMU – Employment Mixed Use	RMU – Retail Mixed Use	MU-MR – Mixed Use – Mixed Residential	T – Transition	MR – Mixed Residential	Cross-Reference(s) for Special Standards
Gas or Petroleum Drilling or Pipeline						
Heavy Machinery Sales, Rental, Storage & Repair						-
High Risk Use						-
Industrial or Manufacturing, Heavy						-
Industrial or Manufacturing, Light						-
Laboratory, Analytical or Research (indoor)	P					-
Leather & Allied Products Manufacturing						-
Mining/Mineral Extraction						-
Warehouse, Office/Showroom (indoors only)	S					-
UTILITY & SERVICE USES						
Antenna, Commercial	*	*	*	*	*	Div. 5, Art. 5, Ch. 2
Antenna, Private	*	*	*	*	*	Div. 5, Div. 6, Art. 5, Ch. 2
Electric Generating Plant						-
Electric Substation	S	S	S			-
Gas Regulating Station						-
Telecommunications Switching Station	S	S				-
Wind Energy Conversion System	S	S	S	S	S	Div. 7, Art. 5, Ch.2

VI. Development Standards: This section shall establish the overarching development standards for walkable, mixed-use development within the MUC-PD and all its Character Zones. Standards in this Section shall be applied during the development of a Master Concept Plan. Some standards apply to all the Character Zones within the MUC-PD District and other standards are specific to specific Character Zones.

A. General to the MUC-PD:

1. Intent: Standards in this PD are intended to facilitate the development of market responsive and pedestrian-friendly environments while discouraging monotonous and single use projects. To this end, design and development standards are intended to be tailored to create such an environment based on market-driven projects over a long-term development horizon. In order to provide flexibility in use and design with prescription of performance standards for specific building form outcomes, applicable development standards for each Character Zone shall be established through the Master Concept Plan for each proposed development.
2. Requirements for Site Development Standards by Character Zone: At the time of Master Concept Plan application, each applicant shall establish specific Site Development Standards for each Character Zone included in the MCP area. These standards shall be based on Section VI.A and the criteria in the Site Development Standards Table 6-3 and shall be developed at the time of MCP by the applicant.
3. General Layout Principles: All Master Concept Plans shall meet the following general principles:
 - i. Buildings and urban design shall contribute to the physical definition of Thoroughfares as Civic places.
 - ii. Development shall adequately accommodate automobiles while providing supportive design and programs/incentives to increase the use of other modes of transportation and respecting the spatial form of public areas.
 - iii. Buildings shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods.
 - iv. Civic Buildings and public gathering places shall be provided as locations that reinforce community identity.
 - v. The plan should anticipate a harmonious and orderly evolution of the district based on market changes and reinvestment over time.
4. Frontage and Housing Mix Standards: In order to ensure that the PD implements the community's vision for a regional mixed use center with supporting mix of retail and mixed residential uses while providing for short term development opportunities that can be appropriately transitioned into higher intensity non-residential uses, Special Frontage and Housing Mix Standards are established in this MUC-PD District.
 - i. Frontage Standards: This section establishes the Frontage Standards for development within the primarily commercial zones of Employment Mixed Use, Retail Mixed Use, and Transition Zones and along certain street frontages as established in the ZFP.
 - a. Retail Mixed Use Zone (see Appendix A – Zoning Framework Plan for location of this requirement):
 - 1) Required Ground Floor Commercial Uses (see definition) along PGBT frontage road:
 - i. West of Campbell Road shall be within 250' deep as measured from the PGBT frontage road.
 - ii. East of Campbell Road shall be 300' deep as measured from the PGBT frontage road

- 2) No ground floor residential permitted within the area designated for Ground Floor Commercial uses.
 - 3) Upper floor residential allowed anywhere within this zone.
 - 4) No limitation on surface parking along the PGBT frontage. Along Campbell Road frontage, surface parking shall be limited to no more than one double loaded aisle of parking (parallel, angled, or head-in).
- b. Employment Mixed Use Zone (applies to the blocks on both sides of Lookout Drive west of Telecom Drive and EMU area south of Lookout Drive and east of Telecom Drive ; see Appendix A – Zoning Framework Plan for location of this requirement):
- 1) Required Ground Floor Commercial Uses for the entire zone.
 - 2) No ground floor residential uses permitted.
 - 3) Upper floor residential allowed anywhere within this zone with structured parking only.
 - 4) No limitation on surface parking along the PGBT frontage. Along Lookout Road and Telecom Road frontage, surface parking shall be limited to no more than one double loaded aisle of parking (parallel, angled, or head-in).
- c. The following standards shall apply to frontages designated as “Special Frontage” along Lookout Road and Campbell Road (regardless of the specific character zone):
- 1) For ground floor commercial and commercial ready uses (w/ upper floor residential uses) the following frontage standards shall apply–
 - No more than one double loaded aisle of parking (parallel, angled, or head-in) shall be permitted between the building and the street.
 - Any such parking shall be screened along the sidewalk/street frontage to maintain a well defined pedestrian edge with street trees and connections to building entrances.
 - Street intersections shall be anchored by building front façade design that turns the corner
 - No large parking lots at street intersections (beyond the one double-loaded aisle) and
 - Special façade design, articulation standards, 12’ min. ground floor height, shall apply (see Section VI.A.8).
 - 2) For ground floor residential uses, including SF and townhomes (attached or detached-- by no more than 5 feet) the following frontage standards shall apply (note: SF detached residential uses more than 5’ shall not be permitted with direct frontage along Campbell and Lookout Road)–
 - No off-street parking permitted between the building fronts and street along Campbell Road/Lookout Road.
 - All off-street parking in the rear (tuck-under, parking structure, or surface parking);
 - Parking shall be set behind buildings along Campbell and Lookout Roads;
 - Ground floor building height min of 12’ finished floor to finished floor;

- No blank walls or opaque residential fences (open fences allowed - wrought iron, picket, and similar fences not taller than 3').
- Fronts of residential buildings to address the street (stoops, patios, porches, bay windows, doors, etc.).
- No large parking lots at street intersections (beyond the one double-loaded aisle) or anchor street intersections with building facades that turn the corner.
- Street trees and sidewalks required.
- Minimum façade design, articulation shall apply for residential building types (see Section VI.A.8).
- Landscaped and divided entry roadways into the neighborhood are permitted along Campbell and Lookout Roads

- ii. Housing Mix and Type Standards: Table 6-1 establishes the different categories of Housing Types and Table 6-2 establishes the minimum mix of housing types for each MCP within the predominantly residential Character Zones of Mixed Use-Mixed Residential and Mixed Residential Zones.

Table 6-1 Housing Type Standards

<i>Category/ Common Name</i>		<i>Lot Widths (min. – max.)</i>	<i>Garage or Primary Parking Location</i>
Category 1	Type 1A	70' +	Any
	Type 1B	60' – 69'	Any
	Type 1C	50' – 59'	Any
Category 2	Type 2A	40' – 49'	Side or Rear
	Type 2B	25' – 39'	Side or Rear
Category 3	Type 3A on pedestrian mews, court, green, eyebrow, square, or other similar public space	40' – 49'	Rear
	Type 3B on pedestrian mews, court, green, eyebrow, square, or other similar public space	25' – 39'	Rear
	Multi-unit home	no min or max	Rear
	Townhome or Single Family Detached (if separated by 3' or less)	20' – 35'	Rear/tuck under
Category 4	Multi-family Residential	60' – no max	Rear/tuck under

Table 6-2 Housing Mix Requirements

<i>Character Zone</i>	<i>Housing Mix Required</i>	<i>Notes</i>
Mixed Use – Mixed Residential Zone	Minimum of 1 from Category 3 and minimum of 1 from either Category 2 or Category 4	Minimum number of units in each category included in each Master Concept Plan shall be either one block face or 10 units (whichever is less)
Mixed Residential	Minimum of 1 from Category 1 and minimum	Minimum number of units in each category

	of 1 from either Category 2 or Category 3	included in each Master Concept Plan shall be either one block face or 10 lots (whichever is less)
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5. Street Design Standards: Street cross sections in Appendix D, ITE's Designing Walkable Urban Thoroughfares manual or NACTO's Urban Street Design Guide shall be used to develop the streets within the MUC-PD. Generally, they shall:
 - i. Create a localized grid of pedestrian and vehicular travel ways.
 - ii. Be designed to create a pleasant walking environment with on-street parking and streetscape treatments.
 - iii. Discourage the use of cul-de-sacs unless natural features such as topography, floodplains or stream corridors, or practical site layout constraints make a street connection impractical or inefficient. In such cases, a trail or pedestrian pathway shall be utilized where a street cannot be constructed due to natural constraints or drainage elements. When such pedestrian pathways or trails are used as block edges, they shall be limited to no more than two edges of a block and the pathway or pedestrian facility shall be a minimum of 8' in width. They shall provide connectivity to adjoining neighborhoods or shopping and shall be within public access easements. Such block faces may be considered as Type A frontages only if they meet the building frontage requirement in that character zone along that block face.
 - iv. Blocks may be square, elongated or irregular. Block shape and size should respond to topography, existing vegetation, hydrology, and design intentions.
 - v. Average blocks widths shall be between 400 feet and 600 feet. Blocks should vary in size based on the Sample Illustrative Plans and character zone standards.
 - vi. Blocks that are longer than 1,000 feet should be bisected by a walking path, paseo or other similar pedestrian cut-through.
 - vii. Blocks may be bounded by streets or drainage features.
 - viii. Appendix D shall establish the cross section standards for the different street types in the MUC-PD.
 - ix. The MCP shall establish the Type "A" and Type "B" development frontage designations per the character zone standards within the Development Standards Table 6-3 of this PD.
 - x. Porte-cochers may be used along Type "A" frontages but shall maintain the pedestrian streetscape along the edge of the street within minimal encroachments of driveways and with the utilization of street walls along the sidewalk/street frontage to help define the pedestrian and public realms.
6. Open Space Standards: The provision of adequate and appropriate open space areas shall be integral to all development in MUC-PD. The minimum requirement for open space in the district is 10% of the gross area of the site which shall be based on the locations identified in the Zoning Framework Plan (if any) and dedicated as open space in the Master Concept Plan. The design of open spaces within the development shall be integrated with the design of stormwater improvements. However, no more than 50% of any required open space shall be used solely for stormwater improvements such as retention ponds and creeks. The remaining 50% of the open space may be utilized for

stormwater improvements only if amenitized and designed to also be usable open space per the criteria below. In addition to the following standards for the design, location, and orientation of open space, site specific standards shall also apply based on the Character Zone context:

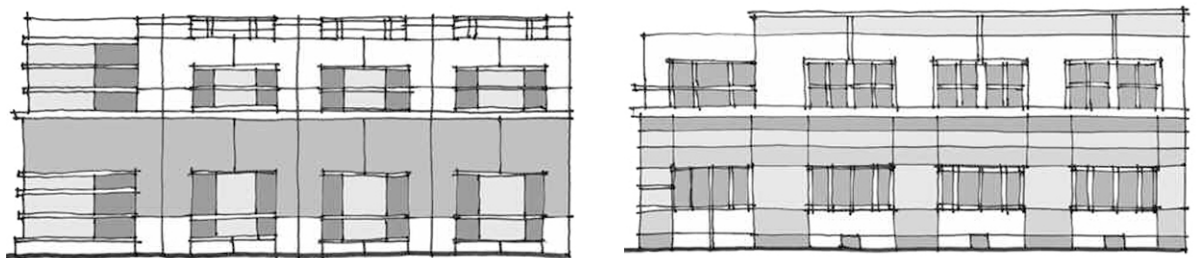
- i. The open space provided shall be appropriately distributed, designed and scaled in each of the character zones.
 - ii. The following criteria shall be used to evaluate the merits of proposed open spaces in the MUC-PD Master Concept Plan:
 - a. The extent to which environmental elements preserved are considered as “features” or “focal points” and integrated into and prominently featured as “front yards” in the development; adding value to the development;
 - b. The extent to which emphasis has been placed on preservation of existing wooded areas, view sheds, water bodies, topography, and stream corridors in a natural and contiguous state;
 - c. The extent to which pedestrian connectivity in the form of sidewalks, natural walking paths along stream and creek corridors has been accommodated; and
 - d. The extent to which a range of open spaces have been provided to be contiguous with existing open spaces and to invite passive recreational uses from plazas and squares to playgrounds, parks and environmental preserves, appropriately organized within the respective component zone.
 - iii. Open spaces may be in the form of plazas, pocket parks, children’s play areas, squares, linear greens, parks, and environmental preserves as outlined within Section 7.21 (Table 2.9.1) of the GDC. Active sports fields and structured recreational activities shall be limited to less than 10% of any required open space located in any character zone.
 - iv. Plazas and squares shall be permitted only in the Employment Mixed Use, Retail Mixed Use, and Mixed Use-Mixed Residential character zones. A plaza which is intended to serve as open space may be located at a street intersection or a focal point and shall generally be small in scale (under ¼ acre in size). A square which is intended to serve as open space may also be located at a street intersection or as a focal point of a development.
7. Special Designations: The following Special Designations are optional (unless required per Section VI.A.4 and Section VI.A.5), but if used, shall be designated on the MCP:
- i. Mandatory and/or Recommended Commercial Ready/Active Edge Requirement: Shall be designated frontages requiring active ground floor uses for a minimum depth of 30’ (no residential units, lodging rooms, parking (except as permitted in Section VI.A.4) , or service uses permitted) and with the ground floor façade being no less than 60% glazed (VT higher than 0.6). Such frontage designations are permitted in the following character zones: Employment Mixed Use, Retail Mixed Use, Mixed Use-Mixed Residential, and Transition.
 - ii. Designations for Mandatory and/or Recommended Gallery or Colonnade Frontage: requiring or advising that a building provide a permanent cover over

the sidewalk, either cantilevered or supported by columns. The Gallery or Colonnade Frontage designation may be combined with a Commercial Ready or Commercial Required Frontage designation.

8. Building Design Standards: Building design standards shall be established at the time of the MCP and shall be based on the following standards and criteria.
 - i. Building Orientation:
 - a. Primary Façade Orientation: For EMU and MU-MR Character Zones, primary building facades for all non-residential and mixed use buildings shall be oriented towards a Type “A” frontage designation or toward a focal point such as a landscaped street, plaza, similar formal open space or an environmental feature (which shall be considered as a Type “A” frontage as long as a sidewalk or trail is located along that frontage and links the buildings to the open space/environmental feature). For Mixed Residential at least 50% of the lots shall be oriented to a Type “A” frontage designation or toward a focal point such as a landscaped street, plaza, similar formal open space or an environmental feature (which shall be considered as a Type “A” frontage as long as a sidewalk or trail is located along that frontage and links the buildings to the open space/environmental feature). For MU-MR Category 3 lots, at least 50% of the lots shall be oriented to a Type “A” frontage designation or toward a focal point such as a landscaped street, plaza, similar formal open space or an environmental feature (which shall be considered as a Type “A” frontage as long as a sidewalk or trail is located along that frontage and links the buildings to the open space/environmental feature).
 - b. Building Frontage: Lots and blocks along Type “A” frontages shall establish a minimum standard for building frontage per the Development Standards Table for each character zone. Lots and blocks along Type “B” frontages need not specify a minimum building frontage requirement. (see illustration in the Definitions section on how building frontage is to be calculated).
 - c. Building Setbacks and Build-to Zones: Buildings shall be built at or close to the sidewalk along Type “A” frontages to better define the pedestrian realm. Any off-street surface parking along Type “A” frontages shall be minimized, be located in the middle of the block, and screened by a minimum 3’ high vegetative screen. The specific minimum and maximum building setbacks shall be established by the applicant at the time of MCP application per the criteria Development Standards Table for each character zone. .
 - ii. Building Façade Standards:
 - a. Primary facades along Type “A” frontages shall contain the main entrance of any principal building located along that street.
 - b. All principal buildings located on a Type “A” frontage shall also have doors, windows, and other architectural features facing that street/frontage. Non-residential or mixed use corner buildings shall have at least one customer entrance facing each street or a corner entrance instead of two entrances.

- c. The minimum ground floor height as measured from the finished sidewalk to the bottom of the second floor structural member for all Required and/or Recommended Commercial Ready frontages shall be 12 feet.
 - d. The ground floor elevation of all residential buildings along a designated Type “A” frontage (attached, detached, and stacked) located less than 10’ from the front property line or sidewalk shall be raised a minimum of 18” above the finished level of the public sidewalk/trail in front of the residential structures. This standard does not apply to frontages where Commercial Ready ground floors are required.
 - e. All development shall provide ground floor windows on the building façade facing and adjacent to a street (with the exception of alleys) or facing onto a park, plaza, or other civic space. The required area of windows and doors on each street façade along a Type “A” frontage, park, square, green, plaza, or other civic space as a percentage of that façade shall be established by the applicant at the time of MCP based on the character zone criteria. The required minimum area of windows and doors on all other street facades (Type “B” frontages with the exception of alleys) may be reduced by 20% of the corresponding requirement along a Type “A” frontage façade. Darkly tinted windows and mirrored windows that block two-way visibility shall not be permitted along ground floor facades along Type “A” frontages.
9. Architectural Design Standards: To ensure compatibility of building types and to relate new buildings to the building traditions of the region, architectural design shall be regulated, governed, and enforced through architectural design standards proposed by the applicant at the time of MCP. The applicant shall submit the proposed standards as a part of the MCP application for all development in the proposed MCP. The architectural design standards shall comply with Chapter 4, Article 6 of the GDC as the basis and may be varied as necessary. The Director of Planning shall review the proposed standards for compliance with this section and the GDC and shall be a part of the approval of the MCP. Architectural design standards for any proposed development in the MUC-PD shall:
- i. specify the materials and configurations permitted for walls, roofs, openings, street furniture, and other elements;
 - ii. be based on traditional/historical building precedents from the region;
 - iii. include the following:
 - a. architectural compatibility among structures within the different building types included in the different character zones;
 - b. human scale design;
 - c. pedestrian use of the entire PD;
 - d. relationship to the street, to surrounding buildings, and appropriate transitions to adjoining land uses (including existing neighborhoods); and
 - e. special architectural treatment of gateways/civic buildings.
 - iv. All building frontages along public and private streets (with the exception of alleys) shall break any flat, monolithic facades by including architectural elements such as bay windows, recessed entrances, or other articulations so as to provide pedestrian interest along the street level façade including discernible and

- architecturally appropriate features such as, but not limited to, porches, cornices, bases, fenestration, fluted masonry, bays, recesses, arcades, display windows, unique entry areas, plazas, courts, or other treatments to create visual interest, community character, and promote a sense of pedestrian scale.
- v. All buildings in the MUC-PD character zones shall be constructed with exterior building materials and finishes of a quality to convey an impression of permanence and durability. Materials such as masonry (stone, brick, 3-step stucco) and similar durable architectural materials are allowed as primary building materials and shall be approved with an MCP.
 - vi. Non-residential buildings and sites shall be organized to group the utilitarian functions away from the public view of any street (with the exception of alleys). Delivery and loading operations, HVAC equipment, trash compacting and collection, and other utility and service functions shall be incorporated into the overall design of the buildings and landscaping. The visual and acoustic impacts of all mechanical, electrical, and communications equipment (ground and roof-mounted) shall not be visible from adjacent properties and public streets, and screening materials and landscape screens shall be architecturally compatible with and similar to the building materials of the principal structures on the lot.
10. Design Standards for Data Centers: The following standards shall apply to any street facing facades of data centers in the MUC-PD. If data centers are located along Campbell Road or Lookout Drive, then the Special Frontage standards in Section VI.A.4.i.c shall supersede the standards below.
- i. Flat, blank walls shall not be allowed. If no windows and doors are provided along street facing façades, a minimum of one of the following treatments shall be required:
 - a. Color and textured panels to imitate the look of windows;
 - b. Horizontal or vertical articulations of the building façade; or
 - c. Changes in color, texture, or materials to provide horizontal and/or vertical rhythms



Desired street façade treatment for Data Centers

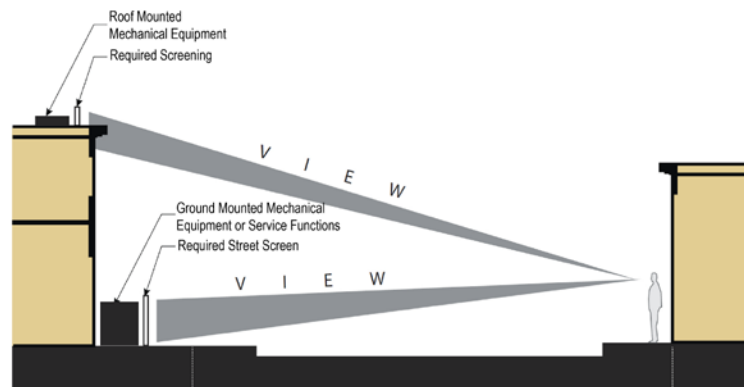
- ii. Any screening wall or security fence along a street shall meet the following standards:
 - a. Screening walls shall not be completely opaque.
 - b. They may be transparent or sem-opaque with architectural metal, wrought iron, galvanized steel or similar material or a combination of masonry columns and wrought iron with landscaping.

- c. Screening walls along sidewalks shall be set back a minimum of 3' to allow for landscaping.
- d. Screening wall height shall not exceed 10'
- e. To the extent possible, any frontage of such screening walls shall be minimized along Type "A" streets.



Images of desired screening/security fence design for data centers

- iii. In cases where a building may have to be setback more than the maximum setback allowed along a particular street for security or functional purposes, a screening wall or fence may be established within the build-to zone to provide for street wall definition. In such cases, the building shall be exempt from any maximum setback requirement in that character zone.
- iv. Any roof or ground mounted mechanical equipment shall be screened from view as shown in the illustration below. Design of such screening shall be architecturally integrated with the design of the building and use the same material as the primary façade material of the building.



Required screening of roof and ground mounted mechanical equipment

- v. In lieu of the above standards, the applicant may provide and request approval of alternative design standards for building facades and screening fences along street frontages. Such requests shall be reviewed by the Director of Planning and approved if the alternative standards submitted provide the same or greater level of design treatment as it relates to the street and adjoining neighborhood context and meets the intent of the standards in this section.
11. Location and Design of Parking and Service Areas: The number of off-street parking spaces provided shall be as set forth within Section 2.51 of the GDC unless the applicant provides alternative standards for the quantity of off-street parking proposed (both automobile and bicycle parking) for the MUC-PD character zones based on an analysis of the parking demand and a transportation management study for the mix of uses proposed and availability of on-street parking in the PD at the time of MCP application. The MCP shall establish the parking standards based on documented parking demand and transportation management study provided by the applicant. The standards set forth in the GDC shall be used if the applicant does not specifically provide alternative standards. Every effort should be made to incorporate shared parking as outlined within Chapter 4, Article 2 of the GDC. In addition, the location of surface parking on individual lots shall be regulated as follows:
- i. Except as described in Section VI.A.4, surface parking lots for non-residential uses shall be located at the side or rear of a building. Specifically, the frontage of off-street surface parking lots shall be minimized along Type "A" frontage designations. If located adjacent to a Type "B" frontage or a residential use, screening shall be provided in the form of a landscaped/vegetative or combination fence which is at least 3 feet in height.
 - ii. A surface parking lot may not be adjacent to a street intersection with a Type "A" frontage or civic space such as a plaza or square, or occupy a lot that terminates a street vista.
 - iii. Shared parking facilities are encouraged for uses in the Employment Mixed Use, Retail Mixed Use, Mixed Use-Mixed Residential, and Transition character zones.
 - iv. Bicycle parking shall be provided for non-residential uses, multi-family uses, and especially for schools, parks, trails, and other recreational facilities. Bicycle parking shall be provided at a rate of 2.5% of all off-street automobile parking spaces provided for all non single-family residential uses (attached and detached) unless an alternative standard is established in conjunction with a parking study for specific MCP. Bicycle parking may be shared between uses and should be centrally located, easily accessible, covered/protected from the elements, lit at night, and visible from streets or parking lots. They may be located between the roadway and the building facades as long as their location does not impede pedestrian walkways.
 - v. Any off-street parking provided for residential uses shall be located in such a manner as to minimize the impact of garages and driveways along the residential street. All residential lots that are 49 feet or less in width shall have off-street parking and/or garages accessed from alleys. All lots 50' or wider may have

front loaded garages, but in no case shall the width of the garage exceed 50% of the front façade width of the entire building. In addition, the garage shall be set back at least five (5) feet from the front façade of the home and at least twenty (20) feet from the front property line. J-swing garages may be permitted if they meet the standards above on lots 50' or wider. Shared driveways on adjoining lots are permitted on lots 50' or wider.

- vi. Front facing garage doors must employ at least four (4) architectural elements which may include balconies or other decorative overhangs above doors, columns flanking doors, decorative banding or moldings, multiple panel door designs or other architectural detailing with larger decorative brackets, windows/openings on garage doors, arches, decorative vent covers on gable just above garage, or sconce lighting flanking the garage doors.

12. Design of Automobile Related Site Elements (Drive Throughs, service bays, etc.)

- i. Drive-through lanes, drive up windows, service bays, and other auto-related site elements shall not be located along or be visible from any Type "A" Frontages.
- ii. Along Type "B" Frontages, no more than 60% of the lot's frontage along a Type "B" Frontage shall be dedicated to auto-related site elements such as driveways, surface parking lots, or drive through/service bays).
- iii. Drive-through lanes shall be hidden behind a screening device (min. 3' in height) along the Type "B" frontage. There shall be no limit to the number or frontage of drive-through lanes located along alleys or internal driveways.
- iv. All off-street loading, unloading, and trash pick-up areas shall be located along alleys only. Such uses may be located along Type "B" Frontages only if the lot has no access to an alley. Any off-street loading, unloading, or trash pick-up areas shall be screened in accordance with Section VI.A.10.
- v. Driveways shall be located along Type "B" Frontages unless the site has no access to a Type "B" Frontage or alley. Two lane driveway widths shall be a maximum of 24' unless providing service access in which case they shall be no wider than 30'. Three lane driveways shall have maximum width of 36 feet and may only be located off Type "B" frontages or alleys. Driveways shall maintain a continuous and level sidewalk across the curb cut. Driveway spacing shall be per the GDC or as approved by the Director of Transportation. Driveways along PGBT access road are under the purview of Texas Department of Transportation (TxDOT) and shall meet TxDOT standards.
- vi. Driveways and streets shall meet the city's sight distance standards in the GDC.

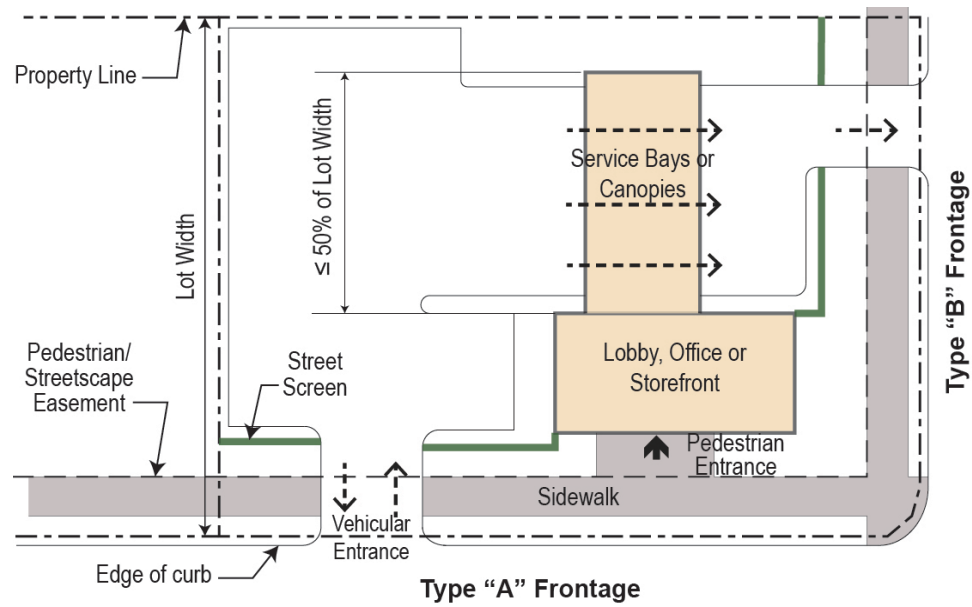


Image showing appropriate design of auto-related site elements

13. Design of Parking Structures

- i. All frontages of parking structures located on Type "A" frontages shall be lined by active edges or commercial ready frontages on the ground floor to a minimum depth of 30 feet.
- ii. Parking structure facades on all public streets (except alleys) shall be designed with both vertical (façade rhythm of 20' – 30') and horizontal (aligning with horizontal elements in the block) articulation.
- iii. All above-grade parking structures shall be designed with a distinguishable first floor, upper façades and roofs. Parking garage first floors shall be designed at human scale with pedestrian-scale elements such as awnings, canopies, window breaks and door openings. Above-grade parking garages may be designed using decorative metal elements such as ornate meshes, screens and the like, but shall not be allowed to have non-decorative steel guard cables that are visible to the public or to adjacent properties.
- iv. Where above ground structured parking is located at the perimeter of a building, it shall be screened in such a way that the majority of cars on all parking levels are not visible from adjacent buildings or a Type "A" street. Parking garage ramps shall, generally, be oriented so they are not visible from any Type "A" street. Ramps shall not be located along the perimeter of the parking structure with frontage along a Type "A" designation. Architectural screens shall be used to articulate the façade, screen parked vehicles, and shield car bumpers and headlights.



Images showing appropriate design of parking structures

14. Landscaping Standards

- i. The purpose of landscaping in the MUC-PD is to enhance pedestrian and open space areas, to help delineate active areas from passive areas, to provide a screening buffer between pedestrians and vehicular circulation, utility functions, and incompatible adjacent developments.
- ii. The applicant shall submit a landscape concept plan in conjunction with the MCP application. The landscape concept plan establishes the design direction and general schematics for all proposed landscaping including all major aspects of the public realm such as street trees, plant/tree palette, streetscape treatments, pavement treatments, front yards, and medians; proposals for required parking lot landscaping, screening, design concepts for all open spaces, and lighting concepts.
- iii. Proposed landscaping shall meet the following standards:
 - a. Be pedestrian oriented.
 - b. Designed in such a way to not create a security or physical hazard to pedestrians, bicyclists or motorists.
 - c. Enhance or complement the architectural design of the mixed-use development.
 - d. Provide visual interest year-round. Utilize water conservation methods and drought tolerant planting where possible.
 - e. Shall be provided between parking lots and all adjacent sidewalks.
 - f. Meet the standards for Installation and Maintenance in the GDC Section 4.32.
 - g. Propose a plant/tree palette that mostly includes indigenous species. (Plant list in Section 4.48 of the GDC shall be used for the vegetation palette)

B. Site Development Standards by Character Zone

Standards in the MUC-PD are intended to facilitate the development of unique and pedestrian-friendly environments within the different character zones. To this end, design and development standards are intended to be tailored to create such an environment. In order to provide flexibility in use with prescription of the building form, some development standards for each MCP in the PD shall be established via the Master Concept Plan consistent with the requirements in this PD.

The following standards shall apply to development in the MUC-PD. Most standards have a numerical range and few have a specific numerical value. Due to the inapplicability of one development standard across all character zones and to encourage a diversity of development proposals, the developer shall propose the standards indicated as “Flexible” or “Permitted/Flexible” on the following table (Table 6-3) for the proposed development at the time of Master Concept Plan application submittal. But the proposed standards shall be based on the Zoning Framework Plan and standards in this PD.

SH 190 FBC Zoning District					
TABLE 6-3: DEVELOPMENT STANDARDS TABLE					
Character Zone Development Standard	Employment Mixed Use	Retail Mixed use	Mixed Use – Mixed Residential	Transition	Mixed Residential
1.0 Building and Site Standards					
a. Principal Building Height*	No maximum	No maximum	10 stories or 65'by right	5 stories or 40' (maximum)	3 stories or 40' (maximum)
* Building height shall be measured in number of stories. Habitable attics and mezzanines shall be excluded from the height calculation as long as they do not exceed 50% of the floor area of a typical floor in the same building. Height Compatibility Zone Along Holford Road (applies to all character zones): All development within 200 feet of Holford Road (as measured from the western edge of Holford Road ROW) shall be limited to no more than 3 stories. (see Zoning Framework Plan for location)					
b. Setbacks and build-to zones**	Note about measuring setbacks: In cases where the ROW is established at or behind the curb line of streets, setbacks shall be measured from the edge of the pedestrian easement or parkway /streetscape zone or utility easement closest to the building face along that street.				
Front – Type “A” frontages^	Min. setback = Flexible; Max. setback = 25'	Min. setback = 5' - 15'; Max. setback = 25'	Min. setback = 5' - 20'; Max. setback = 30'	Min. setback = 5' - 20'; Max. setback = 30'	Min. setback = 5' - 20'; Max. setback = 40'
Front – SH 190	Min. setback = 20'; Max. setback = Flexible	Min. setback = 20'; Max. setback = Flexible			
Type “B” Frontage	Min. setback = 5'; Max. setback = Flexible	Min. setback = 5'; Max. setback = Flexible	Min. setback = 10'; Max. setback = Flexible	Min. setback = 10'; Max. setback = Flexible	Min. setback = 10'; Max. setback = Flexible
Side	Flexible	Flexible	Flexible	Flexible	Flexible
Rear	Flexible	Flexible	Flexible	Flexible	Flexible
**Minimum and/or maximum setback standards shall be proposed by the applicant for each character zone based on the above criteria and Development Standards established in this PD. **Specific standards for curvilinear streets may be proposed. ^ Maximum setbacks along Type “A” frontages that are along improved public space (park, plaza or other civic feature) between the street/sidewalk and building face may exceed the standards established in this table.					
c. Minimum Building Frontage [€]					
Type “A” Frontages	60%	60%	60%	60%	60%
All other Frontages	None required	None required	None required	None required	None required
€Corner building facades at street intersections shall be built to the build-to-zone for a minimum of 30' from the corner along both streets or the width of the corner lot, whichever is less. This standard shall apply to any street intersection with a Type “A” Development Frontage designation (even if the cross street has a Type “B” Frontage designation).					
d. Accessory buildings	Permitted/Flexible	Permitted/Flexible	Permitted/Flexible	Permitted/Flexible	Permitted/Flexible
Standards for accessory uses and structures shall be provided by the applicant. The standards shall result in accessory buildings being subordinate in size and scale to the principal building. Standards in Division 4, Article 5, Chapter 2 of the GDC shall apply if the applicant does not specifically provide regulations for accessory uses and structures.					
e. Principal building orientation	Buildings shall be oriented to a Type “A” frontage or toward another focal point such as a park, plaza, square, other open space or environmental feature.				
f. Building façade & architectural design standards	The applicant shall propose appropriate building façade and architectural design standards for all the character zones in the development with the application for Master Concept Plan. They shall be based on the criteria established in this PD.				
2. Block and Lot Standards					

SH 190 FBC Zoning District					
TABLE 6-3: DEVELOPMENT STANDARDS TABLE					
Character Zone Development Standard	Employment Mixed Use	Retail Mixed use	Mixed Use – Mixed Residential	Transition	Mixed Residential
a. Block Type	Regular (square or rectangular) Irregular blocks may be permitted only if natural topography, existing roadways, and/or vegetation prevents a rectilinear grid			Regular or irregular (square, rectangular, or curvilinear based on topography, existing roadways and vegetation)	
b. Block Perimeter	Max. block perimeter = 2,500	Max. block perimeter = 3,000'	Max. block perimeter = 3,000' (unless limited by unique site conditions such as topography and vegetation)	Max. block perimeter = 2,000' (unless limited by unique site conditions such as topography and vegetation)	Max. block perimeter = 2,000' (unless limited by unique site conditions such as topography and vegetation)
c. Type "A" Development Frontage (Frontages along civic/open spaces shall be considered Type "A" development frontage)#	Minimum of 25% of all new block frontages to be designated as Type "A" Development Frontage	Minimum of 25% of all new block frontages to be designated as Type "A" Development Frontage	Minimum of 50% of all new block frontages to be designated as Type "A" Development Frontage	Minimum of 25% of all new block frontages to be designated as Type "A" Development Frontage	Minimum of 50% of all new block frontages to be designated as Type "A" Development Frontage
d. Lot Area	Flexible	Flexible	Flexible	Flexible	Flexible
e. Lot Width and Depth	Flexible	Flexible	Flexible	Flexible	Flexible
f. Minimum Lot Mix. Required	No	No	Yes (To be established to get a mix of residential building types)	No	Yes (To be established to get a mix of residential building types)
g. Maximum Lot Coverage	Flexible	Flexible	Flexible	Flexible	Flexible
# Blocks w/ more than 40% frontage along PGBT and Campbell need not meet minimum Type "A" block designation standards so long as they provide the following (i) continuous pedestrian path/trails on the major non-PGBT block faces at least 8 feet in width and shaded by trees; (ii) improved pedestrian crossings at all intersections from adjoining blocks even if private service drives; and (iii) utilize at least 5% of the 10% open space requirement for improved pedestrian gathering spaces connected through a continuous walkable environment to any adjoining development within the MUC-PD.					
3. Street Design Standards (This standard applies to all new streets, public and private, located in the SH 190 FBC Zoning District)					
Street design standards in the SH190 EC-PD shall be based upon creating a safe and inviting walking environment through an interconnected network of roads with sidewalks, street trees, street furniture, and amenities. Cul-de-sacs are prohibited unless natural features such as topography or stream corridors prevent a street connection. The right-of-way widths for streets in the SH 190 FBC shall be based on the palette of street types established in Appendix D. They are based on the ITE's Designing Walkable Urban Thoroughfares manual and NACTO's Urban Street Guide. They may be adjusted based on the specific Master Concept Plan with the approval of the City Engineer. Bicycle facility widths may be modified based on the City's adopted Master Thoroughfare Plan standards.					
a. Design speed	≤30 mph	< 25 mph	< 25 mph	< 25 mph	< 25 mph
b. Street types allowed	i. Boulevards: 4-lane divided) ii. Avenues: 3-lane divided iii. Main streets iv. Residential streets: 2-lane undivided v. Commercial Alleys	i. Boulevards: 4-lane divided) ii. Avenues: 3-lane divided iii. Main streets iv. Residential streets: 2-lane undivided v. Commercial Alleys	i. Boulevards: 4-lane divided) ii. Avenues: 3-lane divided iii. Residential streets: 2-lane undivided iv. Commercial and Residential Alleys	i. Boulevards: 4-lane divided) ii. Avenues: 3-lane divided iii. Residential streets: 2-lane undivided iv. Residential Alleys	i. Boulevards: 4-lane divided) ii. Avenues: 3-lane divided iii. Residential streets: 2-lane undivided iv. Residential Alleys
c. Travel lane widths	Appendix D, ITE's Designing Walkable Urban Thoroughfares manual or NACTO's Urban Street Design Guide shall guide the development of street design standards and shall be established as part of the MCP with the approval of the City Engineer.				
d. Turning radii					
e. On-street Parking (along all internal streets except alleys) • Parallel	Permitted	Permitted	Permitted	Permitted	Permitted

SH 190 FBC Zoning District					
TABLE 6-3: DEVELOPMENT STANDARDS TABLE					
Character Zone Development Standard	Employment Mixed Use	Retail Mixed use	Mixed Use – Mixed Residential	Transition	Mixed Residential
• Angled (head-in or reverse angled).	Permitted	Permitted	Permitted	Permitted	Permitted
• Head in perpendicular	Not permitted	Not permitted	Not permitted	Not permitted	Not permitted
f. Parking lane width					
• Parallel	8 feet	8 feet	8 feet	8 feet	8 feet
• Angled	18-20 feet	18-20 feet	18-20 feet	18-20 feet	18-20 feet
g. Alleys*	Permitted/Flexible	Permitted/Flexible	Permitted/Flexible	Permitted/Flexible	Permitted/Flexible
4. Streetscape Standards					
a. Sidewalks/Trails/ Walkways	10 feet (min. along Type “A” Frontages) 6 feet (minimum along all other streets except alleys)	6 feet (minimum)	6 feet (minimum)	6 feet (minimum)	5 feet (minimum)
b. Planter/Planting Strip Type	Required - Tree wells or Planters	Required - Tree wells or Planters	Required - Tree wells or Planters	Required - Tree wells or Planters	Required - Planters
c. Planter/Planting Strip width	6 feet (min.) wide tree well or planting strip	6 feet (min.) wide tree well or planting strip	6 feet (min.) wide tree well or planting strip	6 feet (min.) wide tree well or planting strip	6 feet (min.) wide planting strip
d. Street trees	Required/Flexible	Required/Flexible	Required/Flexible	Required/Flexible	Required/Flexible
The applicant shall submit a proposed street tree planting plan, including a tree palette and spacing as a part of the Landscape Concept Plan, which shall be reviewed as part of the Master Concept Plan and must be approved at time of Master Concept Plan. The requirements for the landscape concept plan are outlined in Section VI.A.14 of this PD.					
5. Open/Civic Space Standards					
a. Open/Civic Space	Required/Flexible Squares and plazas are appropriate	Required/Flexible Squares and plazas are appropriate	Required/Flexible, Squares and greens are appropriate	Required/Flexible, Squares and greens are appropriate	Required/Flexible, Squares and greens are appropriate
*Overall open/civic space allocations in the MUC-PD shall be a minimum of 10% of the gross area of the entire site included in the Master Concept Plan and shall be distributed appropriately between the character zones. The location and design of appropriate open spaces shall be based on Section VI.A.6 of this PD.					
6. Parking & Screening Standards					
a. Off-street parking	The number of off-street parking spaces provided shall be as set forth within Section 2.51 of the GDC. The applicant may provide alternative standards for the quantity of off-street parking proposed (both automobile and bicycle parking) for the MUC-PD character zones based on an analysis of the parking demand and a transportation management study for the mix of uses proposed and availability of on-street parking in the PD at the time of MCP application. The PD shall regulate the location and design of all proposed off-street parking including any structured parking proposed per Section VI.A.12 and VI.A.13.				
Parking standards in the FBC Zoning District are intended to be flexible due to the mixed use nature, shared parking opportunities, and availability of on-street parking.					
b. Off-street loading	Section 4.22 of the GDC applies unless alternative standards are provided				N/A

* Alleys shall be required for all residential development with lots 50 feet or less in width.

SH 190 FBC Zoning District					
TABLE 6-3: DEVELOPMENT STANDARDS TABLE					
Character Zone Development Standard	Employment Mixed Use	Retail Mixed use	Mixed Use – Mixed Residential	Transition	Mixed Residential
c. Screening 1. Trash/recycling receptacles	Required/Flexible	Required for non-residential uses Flexible for residential uses (along alleys if alleys are provided)	Required for non-residential uses Flexible for residential uses (along alleys if alleys are provided)	Required for non-residential uses Flexible for residential uses (along alleys if alleys are provided)	Flexible for residential uses (along alleys if alleys are provided)
2. Other utility equipment	See Sec. VI.A.11				
3. Loading spaces	Screening required for non-residential uses. Section 4.41 and Section 4.42 of the GDC applies for non-residential uses only unless alternative standards are provided				
4. Surface parking areas	Required/Flexible (Standards in Section 4.35 and Section 4.44 of the GDC shall apply to any surface parking located along any public street with the exception of alleys unless the applicant proposes alternative screening standards at the time of Master Concept Plan.)				
7. Landscape and Streetscape					
a. Landscaping# 1. Landscape buffer between surface parking and sidewalks/trails and streets (except alleys)	Required/Flexible	Required only for non-residential uses	Required only for non-residential uses	Required only for non-residential uses	N/A
2. Parking lot minimum interior landscaping	Flexible	Flexible	Flexible	Flexible	N/A
#The applicant shall provide a landscape concept plan with the Master Concept Plan application that identifies landscape themes and general design approach addressing street tree planting, streetscape treatments, any required screening, parking lot landscaping, and landscaping proposed in all the identified open space areas. Information provided at the Master Concept Plan phase may be schematic meeting the design intent of the proposed development. Detailed landscaping plans shall be required at the site plan stage for all non-residential development. The requirements for the landscape concept plan are outlined in Section VI.A.14 of this Code.					
b. Lighting 1. Street Lighting 2. Building entrances 3. Parking areas, trails, and streets	Required/Flexible (As a part of the Master Concept Plan application, the applicant shall propose lighting standards that includes street light standards and other amenities as a part of the streetscape treatment plan. The landscape concept plan may be combined with a concept plan for lighting.)				
8. Signs					
Flexible (Flexible signage in the SH 190 MUC-PD may be proposed by the applicant and approved by the Plan Commission as part of the Master Concept Plan application or as a separate Master Sign Plan. Signage in the SH 190 MUC-PD shall integrate the streetscape and architectural design of the district through a palette of signs that enhance the pedestrian environment and create a unique identity. If no standards are proposed by the applicant, standards in Chapter 4, Article 5 of the GDC shall apply.)					
9. Stormwater Drainage: Detention of storm water runoff is only required for drainage areas abutting the Spring Creek Forest Preserve Ecological Boundary an approximately 450 to 550-foot wide strip of property north of the SH 190 service road between Campbell and Holford Roads and / or when the development generates a runoff greater than the downstream storm sewer system is designed for.					

VII. Definitions

Many terms used in this Section are defined in GDC. Definitions are only included here if not defined in Chapter 6 of the GDC, or if the definition for this PD differs from Chapter 6 of the GDC. In case of a conflict between the definitions under this Section and the GDC, the definitions in this section shall supersede.

Block Perimeter

Is the sum total of all block face dimensions circumscribed by public or private streets and pedestrian facilities with public access easements per the requirements in this PD.

Build-to Zone (BTZ)

Is the area between the minimum and maximum front setbacks from the edge of the pedestrian easement closest to the building facade. The principal building façade line shall be located within this area.

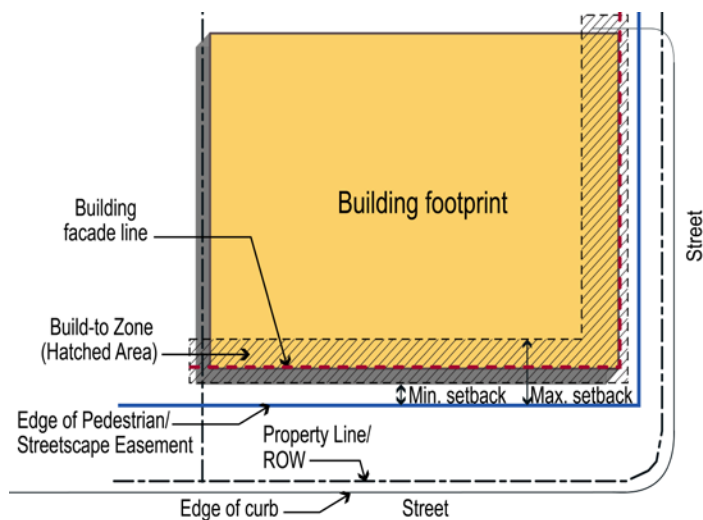
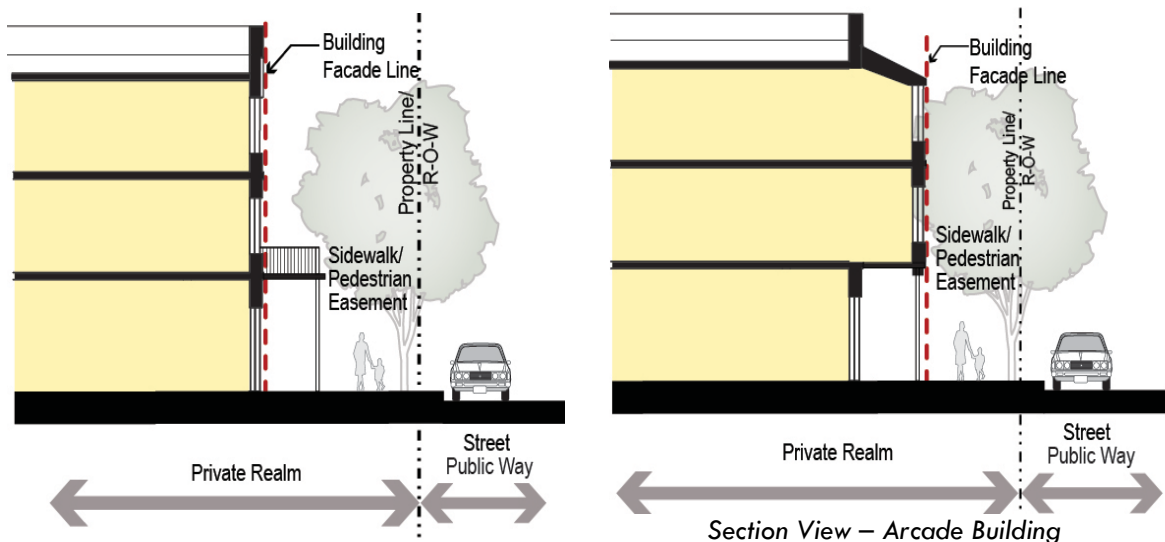


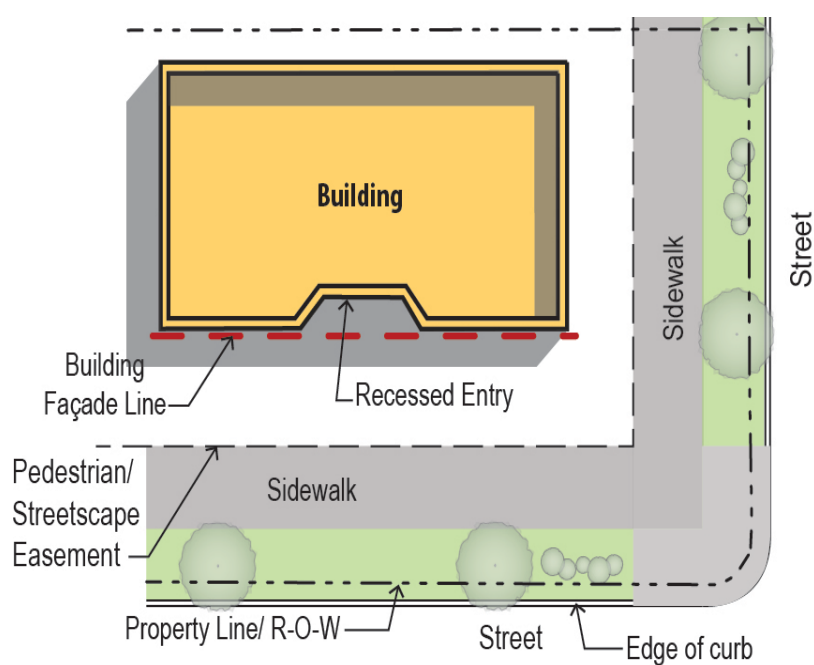
Illustration indicating the location of the build-to zone relative to the minimum and maximum setbacks and the building façade line

Building Façade Line

Is the location of the vertical plane of a building along a street frontage.



Section View – Gallery Building



*Plan View
Building Façade Line Illustrations*

Building Frontage

Is the percentage of a building's façade line that is required to be located within the Build-to Zone (BTZ) as a proportion of the lot's width along the fronting public street. Required driveways, stairs to access entrances, parks, plazas, squares, improved forecourts, and pedestrian breezeway frontages shall count towards the required building frontage.

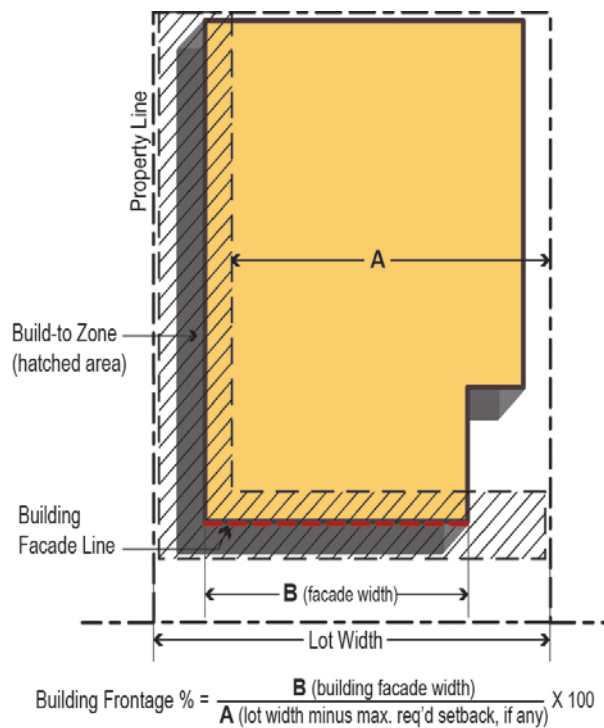


Image showing Building Frontage calculation

Building Step-back

Building step-back is the setting back of the building façade line away from the street at a specific floor or height.

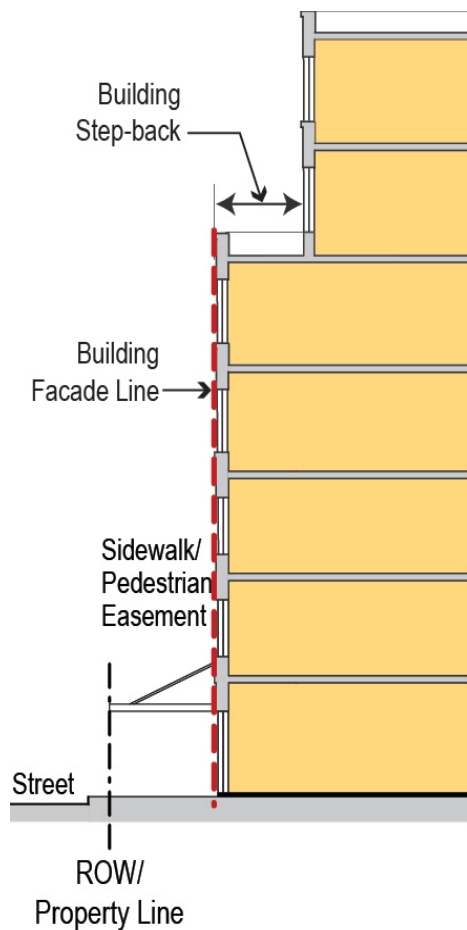


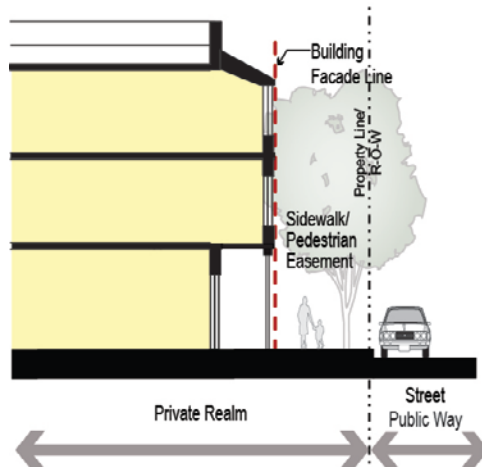
Illustration of a Building Step-back

Colonnade

Is a portion of the main façade of the building that is at or near the property line and a colonnade supports the upper floors of the building. Colonnades are intended for buildings with ground floor commercial or retail uses. The ground floor area within the colonnade may be conditioned or non-conditioned space.



Images of colonnade buildings



Images of colonnade buildings

Character Zone

Means an area within any SH 190 MUC-PD District that is intended to preserve and/or create an urban form that is distinct from other areas. Arrangement and allocation of the Character Zones are in the Zoning Framework Plan.

Commercial Use or Mixed Use Building

Means a building in which at least the ground floor of the building is built to Commercial Ready standards and any of the floors are occupied by non-residential or residential uses.

Commercial Ready or Commercial Required

Means a ground floor space constructed with appropriate building orientation, entrance and window treatment and floor-to-floor height in order to accommodate ground floor retail/commercial uses (including but not limited to commercial, retail, restaurant, entertainment, and lobbies for civic, hotel, or multi-family uses). Standards for Commercial Ready or Active Edge frontages are to be established based on the requirements of this PD. Prior to the issuance of a certificate of occupancy for a retail/commercial use in a Commercial Ready space, the space must comply with all building and construction Sections for commercial uses. The intent of Commercial Ready or Commercial Required space is to provide the flexibility of occupying a space in accordance with market demand and allowing the use in such space to change to retail/commercial uses accordingly.

Comprehensive Plan:

Is Envision Garland, the City of Garland's comprehensive framework for informed decision making and establishes the blueprint for the long-term growth and development of the City.

Data Center:

Is a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communications connections, environmental controls (e.g., air conditioning, fire suppression) and various security devices.

Director of Planning

Shall be the City of Garland Director of Planning or his/her designee.

Dwelling, Single-Family Attached (Townhouse)

One of a group of no less than three nor more than six attached dwelling units, separated from each other by fire-rated walls in compliance with the City's building codes or separated from each other by no more than 5 feet. Each dwelling unit occupies its own separately platted lot and may be two or more stories in height. Does not include Dwelling, Multi-Family or Dwelling, Single-Family Detached.

Encroachment

Means any structural or non-structural element such as a sign, awning, canopy, terrace, or balcony that breaks the plane of a vertical or horizontal regulatory limit, extending into a setback, into the public right-of-way, or above a height limit.

Façade Area

Means the surface area of a building's elevation (including all floors) not counting minor indentations fronting a particular street. Ground floor façade area is the surface area of a building's ground floor elevation not counting minor indentations fronting a particular street. Upper floor façade area is the surface area of a building's upper floor elevations not counting minor indentations fronting a particular street.

Frontage Designation

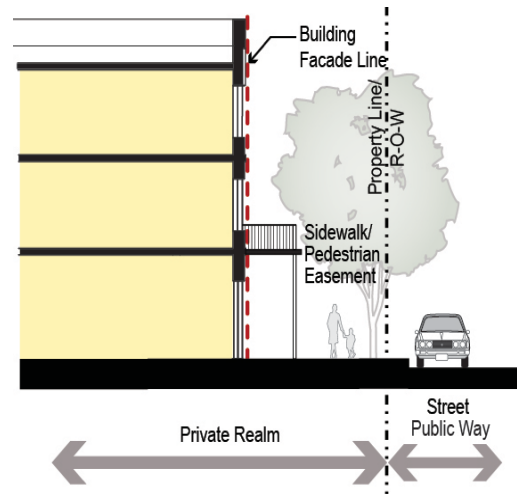
As identified on the approved Master Concept Plan, future streets in the SH 190 MUC-PD Districts are designated as Type "A" or Type "B". Each frontage designation establishes a certain development context in order to improve walkability and pedestrian orientation within the district.

Gallery

Is a roofed promenade or canopy, especially one extending along the wall of a building and supported by arches or columns on the outer side. The gallery space is unenclosed (non-conditioned) space and may be 2 or more stories tall.



Images of Galleries



ITE's Designing Walkable Urban Thoroughfares Manual

Daisa, James M., *Designing walkable urban thoroughfares: a context sensitive approach*. Washington, DC: Institute of Transportation Engineers. (most recent edition)

Live-Work Unit

Means a dwelling unit that is also used for work purposes, provided that the 'work' component is restricted to the uses of professional office, artist's workshop, studio, or other similar uses and is

located on the street level and constructed as separate units under a condominium regime or as a single unit. The 'live' component may be located on the street level (behind the work component) or any other level of the building. Live-work unit is distinguished from a home occupation otherwise defined by the TDS in that the work use is not required to be incidental to the dwelling unit, non-resident employees may be present on the premises and customers may be served on site.

Master Concept Plan (MCP):

A Master Concept Plan is a detailed plan for development that establishes the standards and specifications for all the critical elements of the built environment based on a specific development vision per all the requirements of this Section.

Minor Amendments

Means a requested amendment to an approved plan (site plan or MCP) per Table 4-1 __. The Director of Planning shall have the authority to approve or approve with conditions or deny a minor amendment to an approved plan.

Multi-Unit home

Means a Residential building containing between 2 and 6 units either as leasable units or individually owned. Architecturally, multi-unit homes are designed to appear similar to single-family homes with only one or two primary entrances per street frontage. Additional entrances are permitted along other non-street facing facades.

NACTO's Urban Street Design Guide

Urban Street Design Guide. New York City: National Association of City Transportation Officials. (most recent edition)

Open Space

Is publicly accessible open space in the form of parks, courtyards, forecourts, plazas, greens, playgrounds, squares, etc. provided to meet the standards in of this PD. Open space may be privately or publicly owned and/or maintained.

Primary Entrance

Means the public entrance located along the front of a building facing a street or sidewalk and provides access from the public sidewalk to the building. It is different from a secondary entrance which may be located at the side or rear of a building providing private controlled access into the building from a sidewalk, parking or service area.

Residential Use Building

Means a building that is built to accommodate only residential uses on all floors of the building such as a detached single family home, attached single family home (i.e. townhome), two family home (i.e. duplex), multiple family (3 or more), apartment building (under single ownership or under multiple owners within a condominium regime).

Sample Illustrative Plan

is to provide guidance on how to translate the Zoning Framework Plan into a Master Concept Plan that establishes the details required to develop under this PD including, but not limited to, the allocation of component zones, layout of streets and open spaces, and mix and intensity of uses. These Sample Illustrative Plans will then be the basis to create final Master Concept Plan by property owners/developers at the time of new development.

Service-related site functions

Means all uses that support the principal use on the site including parking access, garbage/trash collection, utility meters and equipment, loading/unloading areas, and similar uses.

Street Screen

Is a freestanding wall or living fence or combination fence built along the frontage line or in line with the building façade along the street. It may mask a parking lot or a loading/service area from view or provide privacy to a side yard and/or strengthen the spatial definition of the public realm.



Image of a combination masonry and living street screen

Street Wall

Indicates the creation of a “wall” or a sense of enclosure along the street with buildings placed immediately adjacent to the street/sidewalk. A street wall has a “void” if there is a surface parking lot or service area adjacent to the sidewalk/street.

Type 1 – 2 Applications:

Are the different types of applications with specific review and approval processes tailored to the scope of proposed development within the SH 190 MUC-PD. The application and development review flow charts in Appendix C summarizes the different application types and their respective processes.

Type “A” Frontage

Means the block frontages identified as such on the adopted MCP. Type “A” frontages are the primary pedestrian frontages and buildings along Type “A” frontages shall be held to the highest standard of pedestrian-oriented design. If Type “A” frontages are facing Type “B” frontages along the same street, the Type “B” frontages shall utilize enhanced streetscaping and/or landscaping to complement the streetscaping or landscaping utilized by the facing Type “A” Frontage including the screening of surface parking lots along the Type “B” Frontage in order to minimize the interruption to the quality of pedestrian experience along such frontage.

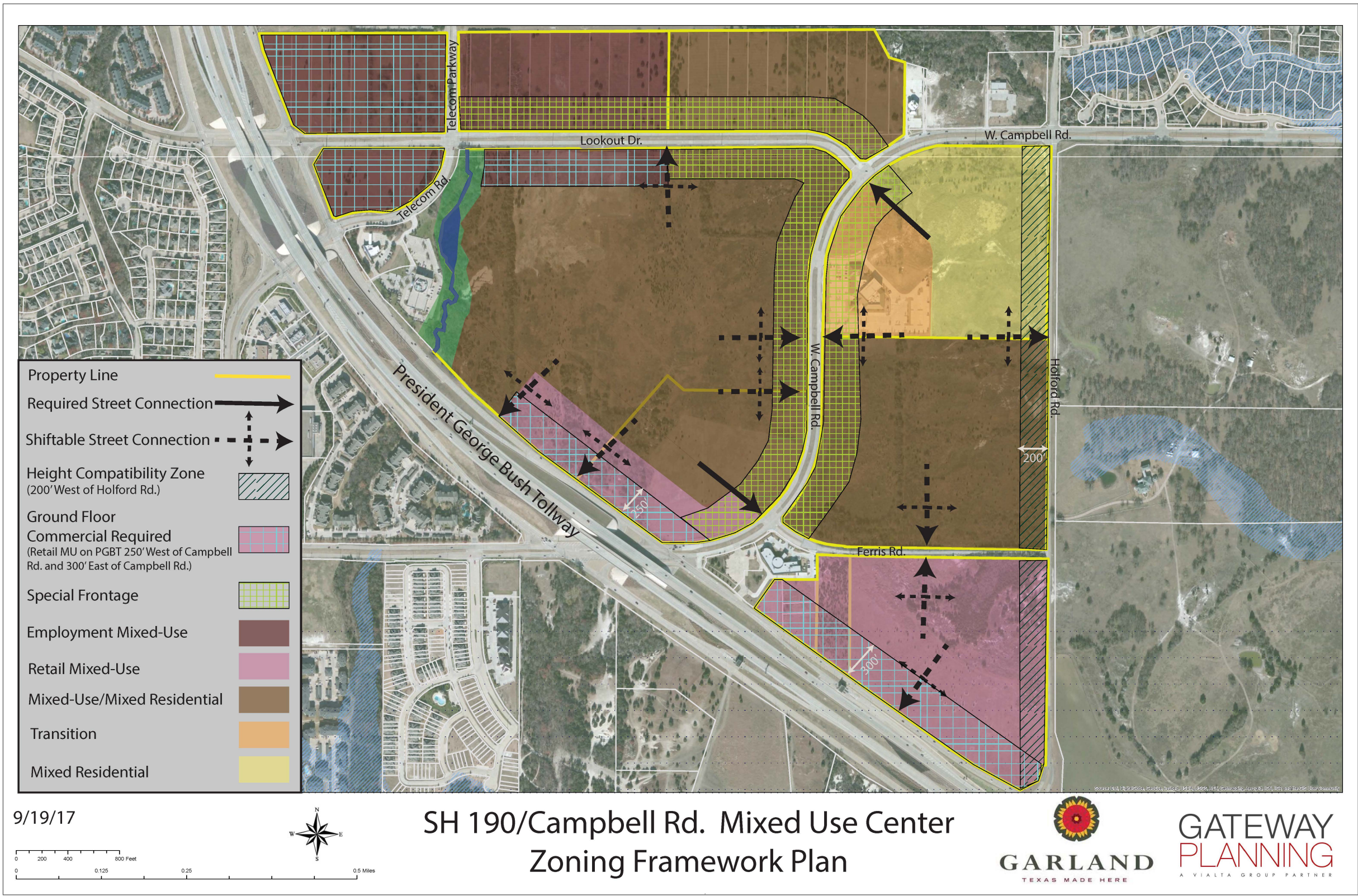
Type “B” Frontage

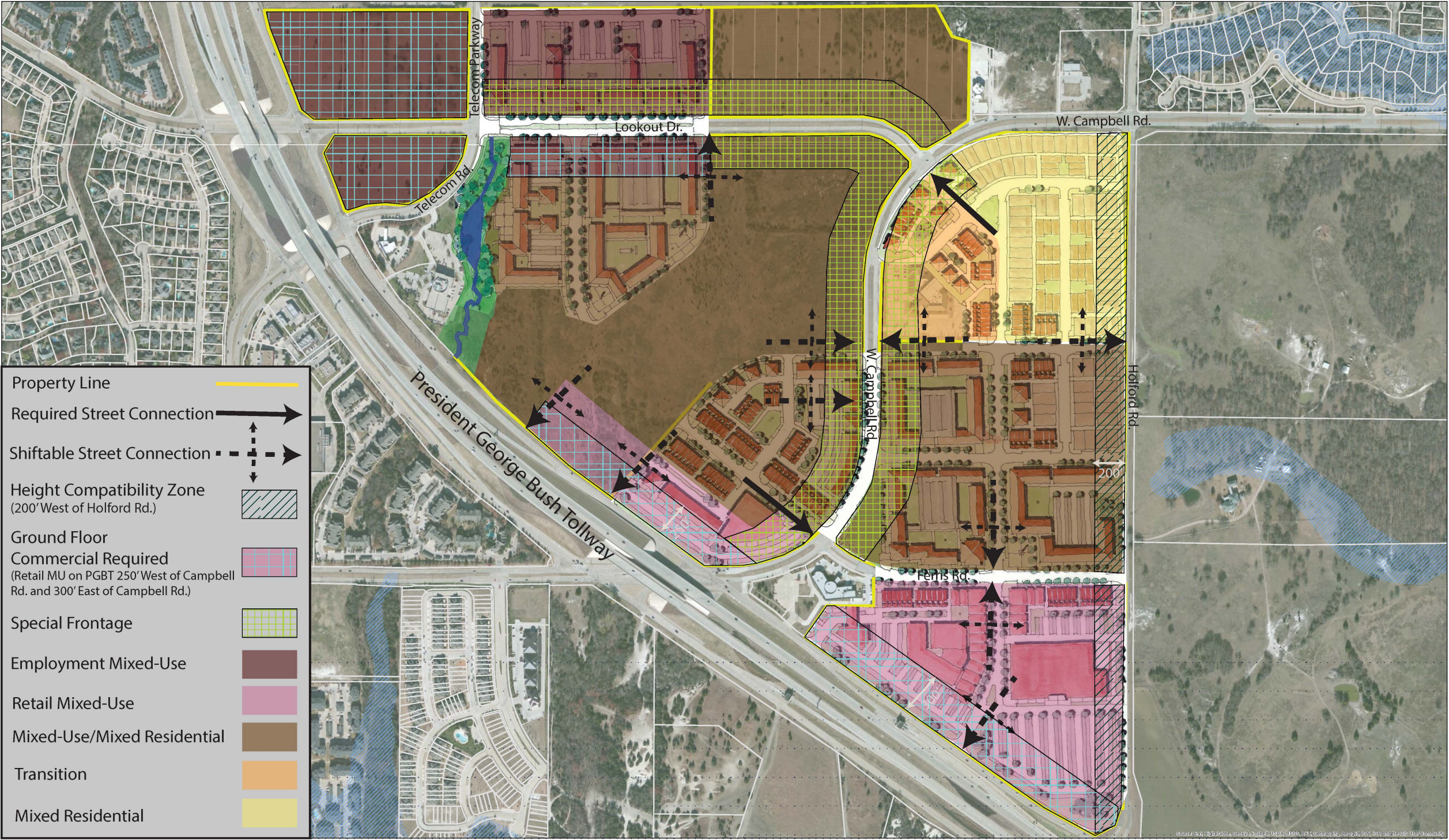
Means the block frontages identified as such on the adopted MCP. Type “B” frontages are intended to primarily accommodate access to parking, service, utility, and other auto-related functions. See above requirement when Type “B” Frontages are located facing Type “A” Frontages along the same street

Zoning Framework Plan

Shall be the Zoning Map for the SH 190 MUC-PD which shall establish the boundaries of the different character zones, major roadway network, and open space locations.

Appendix B
Sample Illustrative Plans





9/19/17



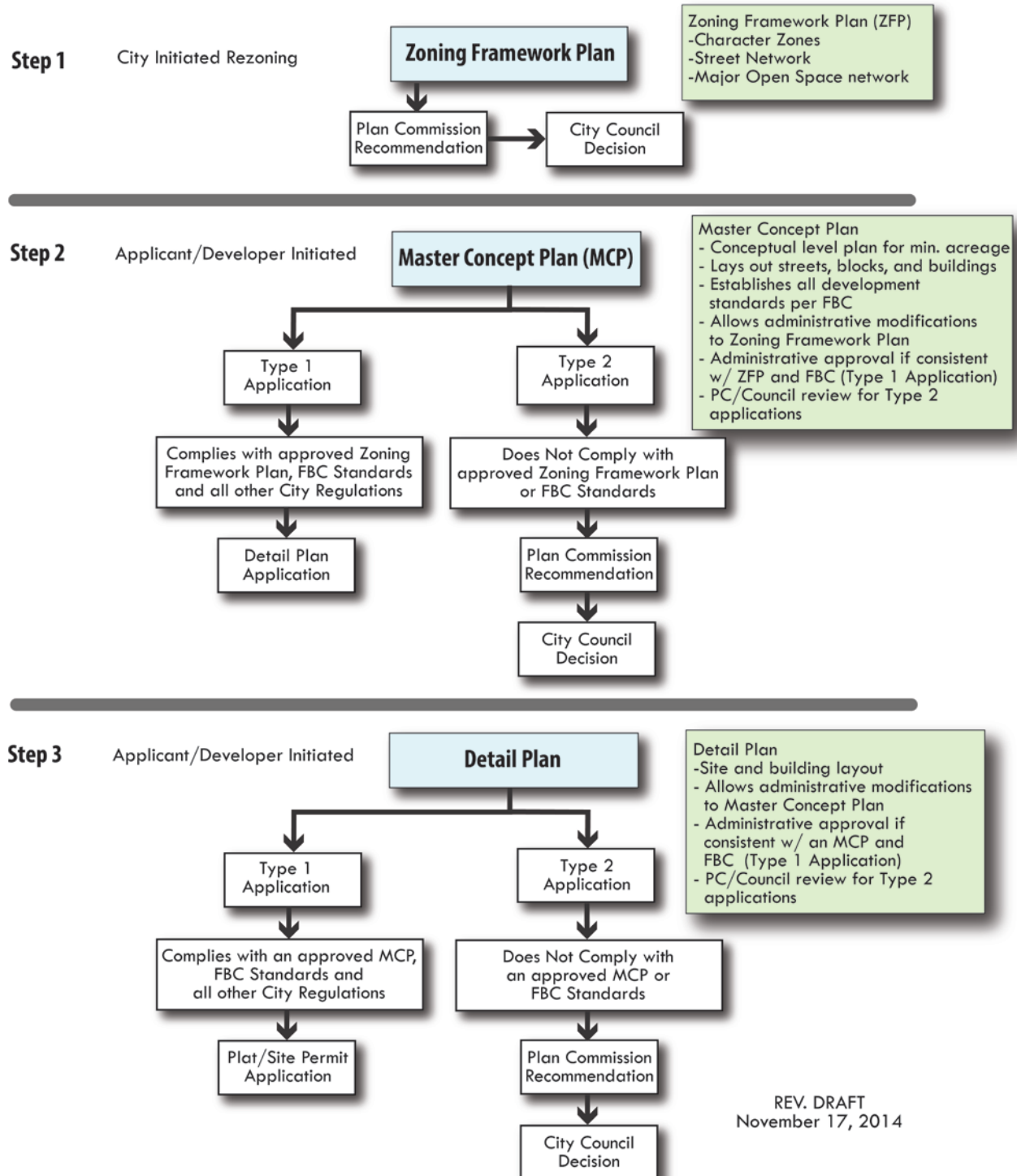
SH 190/Campbell Rd. Mixed Use Center Zoning Framework Plan



GATEWAY
PLANNING
A VIALTA GROUP PARTNER

Appendix C
Flow Chart

SH 190 FBC Structure and Review Process



Appendix D

Street Design Standards and Typical Cross Sections

190 Campbell Road - Mixed Use Center

Street Type	Residential Alley (20' ROW)	Commercial Alley (20'-35' ROW)		Residential Street (50'-60' ROW)		Commercial Street (35'-70' ROW)					Avenue (50'-80' ROW)					Boulevard (70'-110' ROW)					Parkway (100'- 110' ROW)			
Number of Lanes	1	1	2	2	2	2	2	2	2	2	2-3	2-3	2-3	2-3	2-3	4	4	4	4	4	4-6	4-6	4-6	4-6
Lane Width (ft.)	10	12	12	13	18	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	11	11	11	11
Two Way (ft.)	-	-	24	26	36	26	26	26	26	26	36	36	36	36	36	48	48	48	48	48	66	66	66	66
Median (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Width (Ft.)																14	14	14	14	14	14	14	14	14
On Street Parking?	N	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N	N	N	N
Parallel (8'x22') (ft.)								16					16					16						
Angled (19') (ft.)									36					36					36					
Head-In (18') (ft.)										36					36									
Parkway (from face of curb to ROW) each side	5	4	5.5	12	12	4.5	4	4	4	4	7	4	4	4	4	4	6	6	6	9	10	10	10	10
On Street Bike Lanes #	N	N	N	N	N	N	Y	N	N	N	N	Y	N	N	N	N	Y	N	N	N	N	N	N	N
Width (Ft.) (Total ROW Req'd)							16					16					16							
ROW (ft.) (minimum)	20	20	35	50	60	35	50	50	70	70	50	60	60	80	80	70	90	90	110	80	100	100	100	100
Design Speed	<20mph (10mph)	<20mph (10mph)	<20mph (10mph)	20 mph	20 mph	25 mph	25 mph	25 mph	25 mph	25 mph	30-35 mph	30-35 mph	30-35 mph	30-35 mph	30-35 mph	35-40 mph	35-40 mph	35-40 mph	35-40 mph	35-40 mph	40-45 mph	40-45 mph	40-45 mph	40-45 mph
Right Turn Lane? *	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Width (Ft.)																10	10	10	10	10	10	10	10	10
ROW (ft.) with right turn lane *																80	100	100	120	90	110	110	110	110
Landscape/Furnishing Zone (ft.)	3-5	5	5																					
Sidewalk (ft.) (minimum)	-	-	-	4	4	8-12	8-12	8-12	8-12	8-12	6	6	6	6	6	6	6	6	6	6	6	6	6	6

*Fire Lane Exception
Bicycle facility widths may be modified based on the City’s adopted Master Thoroughfare Plan standards and adopted design standards.



**GARLAND
CITY COUNCIL ITEM SUMMARY SHEET**

City Council Regular Session Agenda

4.

Meeting Date: September 19, 2017

Item Title: 2017 Homeland Security Grant Program Application Resolution

Submitted By: Kwa heri Harris, Emergency Management Coordinator

Summary of Request/Problem

Council is requested to adopt a resolution approving the City of Garland 2017 Homeland Security Grant (HSGP) application. The Department of Homeland Security Grant Program (HSGP) is managed, at the state level, by the Texas Office of the Governor (OOG). A requirement mandated by OOG, in order to receive HSGP funding, is to have a Council approved resolution each year prior to receiving HSGP awarded funds.

Approving the resolution will assist the City of Garland with acquiring funding to help support public safety. This funding will be used to purchase resources that will support the Garland Special Weapons and Tactical (SWAT) Teams by purchasing 54 Ballistic Plates (Body Armor), 2 Ballistic Blankets (SWAT currently has none) 8 pairs of helmet mounted vision goggles and 30 Tactical Communications and Hearing Protection Devices. The funding will also support the Garland Explosive Ordinance Disposal (EOD) Bomb Unit operations by providing a portable X-Ray equipment. Finally, the funding will support the OEM by funding a staff position responsible for emergency operations planning sustainment.

This item was considered by Council at the September 5, 2017 Work Session

Recommendation/Action Requested and Justification

The Office of Emergency Management (OEM) staff recommends passing a resolution in support of the HSGP application to gain access to grant funding.

Attachments

HSGP Resolution

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE SUBMISSION OF A GRANT APPLICATION TO THE OFFICE OF THE GOVERNOR OF THE STATE OF TEXAS FOR CERTAIN PUBLIC SAFETY, LAW ENFORCEMENT, AND HOMELAND SECURITY PROJECTS; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, the City Council finds it in the best interests of the citizens of Garland that the following projects be operated for the Fiscal Year of 2017 - 2018: 2017 Urban Area Security Initiative (UASI) and 2017 State Homeland Security Program (SHSP), both projects include Law Enforcement Terrorism Prevention Activities (LETPA). 2017 UASI Garland Emergency Management Planning Sustainment, 2017 UASI Garland SWAT Personal Protective Equipment (PPE) Enhancement (LETPA), 2017 UASI Garland EOD X-Ray System (LETPA), 2017 UASI Garland SWAT Communications Enhancements (LETPA), 2017 SHSP Garland SWAT Ballistic Blankets (LETPA) and 2017 SHSP Garland SWAT Night Vision (LETPA); and

WHEREAS, the City Council agrees that in the event of loss or misuse of the Office of the Governor funds, the City assures that the funds will be returned to the Office of the Governor in full;

WHEREAS, the City Council designates Kwa heri Harris/Director of the Garland Office of Emergency Management as the grantee's authorized official. The authorized official is given the power to apply for, accept, reject, alter or terminate the grant on behalf of the applicant agency.

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

Section 1

The City Council approves the submission of a grant application (whether one or more) for the following projects to the Office of the Governor: 2017 Urban Area Security Initiative (UASI) and 2017 State Homeland Security Program (SHSP), both projects include Law Enforcement Terrorism Prevention Activities (LETPA). 2017 UASI - Garland - Emergency Management Planning Sustainment, 2017 - UASI - Garland - SWAT Personal Protective Equipment (PPE) Enhancement (LETPA), 2017- UASI - Garland - EOD X-Ray System (LETPA), 2017 - UASI - Garland - SWAT Communications Enhancements (LETPA), 2017 SHSP -Garland - SWAT Ballistic

Blankets (LETPA) and 2017 SHSP - Garland-SWAT Night Vision (LETPA)

Section 2

The City Council hereby designates the Emergency Management Coordinator as the City's authorized official to act in all matters relating to the foregoing grant application(s) and that authorized official is hereby given the power to apply for, accept, reject, alter or terminate the grant on behalf of the City.

Section 3

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

PASSED AND APPROVED this the ____ day of _____, 2016.

CITY OF GARLAND, TEXAS

Mayor

ATTEST:

City Secretary

Grant Numbers:

2982303
3157002
3315301
3324701
3421101
3421301



GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

5.

Meeting Date: September 19, 2017

Item Title: Updated COG Hazard Mitigation Action Plan Adoption

Submitted By: Kwa heri Harris, Emergency Management Coordinator

Summary of Request/Problem

Council is requested to consider adoption of the City of Garland updated Hazard Mitigation Action Plan (HazMap) This plan is developed to meet the planning requirements set forth by the Texas Division of Emergency Management (TDEM), and the planning requirements set forth by the Federal Emergency Management Agency (FEMA). Local governments are required to develop a hazard mitigation action plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act (DMA) of 2000, provides the legal basis for state, local, and tribal governments to undertake a risk-based approach to reduce risks from hazards through mitigation planning.

This item was scheduled for Council consideration on September 5, 2017 Work Session.

Recommendation/Action Requested and Justification

Staff recommends adoption of the Garland Hazard Mitigation Action Plan (HazMAP).

Attachments

HazMap Resolution

HazMap FEMA APA LTR

Updated HazMap

RESOLUTION NO. _____

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GARLAND, TEXAS
ADOPTING THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) APPROVED
REVISED HAZARD MITIGATION ACTION PLAN**

WHEREAS, natural hazards in the City of Garland, Texas historically have caused significant disasters with losses of life and property; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and the Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update Hazard Mitigation Action Plans every five years in order to be eligible for the full range of pre-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Garland has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the City of Garland Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assess risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

WHEREAS, the City of Garland has received notification that the City's Hazard Mitigation Action Plan has been approved by the Federal Emergency Management Agency (FEMA) pending adoption.

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

I.

That the City Council hereby adopts the City of Garland Hazard Mitigation Action Plan.

II.

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

PASSED AND APPROVED this the ____ day of _____, 2016.

CITY OF GARLAND, TEXAS

Mayor

ATTEST:

City Secretary



FEMA

August 14, 2017

Ms. Sandra Fulenwider
State of Texas
Texas Division of Emergency Management
P.O. Box 4087
Austin, TX 78773-0220

RE: Approvable Pending Adoption of the Garland, Texas Single Jurisdiction Hazard Mitigation Plan.

Dear Ms. Fulenwider:

This office has concluded its review of the referenced plan, in conformance with the Final Rule on Mitigation Planning (44 CFR Part 201.6). Formal approval of this plan is contingent upon the adoption by resolution by the participants on Enclosure A, as well as the receipt of a CD containing all components of this plan.

Adopting resolutions must be submitted to this agency for review and approval no later than one year from the date of this letter. Failure to submit these resolutions in a timely manner could lead to a required update of the plan prior to FEMA approval.

Once this final requirement has been met, a letter of official approval will be generated. The Local Hazard Mitigation Planning Tool, with the reviewer's comments has been enclosed to further assist the jurisdictions in complying with planning requirements.

If you have any questions, please contact Jamie Leigh Price, HM Community Planner, at (940) 898-5440.

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald C. Wanhanen".

Ronald C. Wanhanen
Chief, Risk Analysis Branch

Enclosure
cc: Jeffrey Brewer, R6-MT-HM

Enclosure A

**Garland, Texas
Single Jurisdiction
Hazard Mitigation Plan Participants**

Attached is the list of approved participating governments included in the August 14, 2017 review of the referenced Hazard Mitigation plan.

Community Name	
1)	Garland city

Adoption Submittal (Final)

Region 6 recommends that all jurisdictions refrain from adopting a plan until it has received an Approvable Pending Adoption status from FEMA. Following the issuance of Approvable Pending Adoption letter, all participants are provided 1 year to adopt the plan and submit it through the State to FEMA. For multi-jurisdictional plans, multiple adoptions should be submitted as a complete package as outlined below.

All Plans must be submitted to the address contained in the header of these procedures; mark each submittal with Attn: Mitigation Planning. Each submittal must include:

1. State transmittal letter containing:
 - a. List of all participating jurisdictions.
 - b. Plan name, sub-grantee, FEMA funding source, grant or disaster number, and project number, as applicable.
 - c. Identification of plan developer (i.e. contractor, jurisdiction, planning commission, etc.)
2. CD or DVD of the revised final draft of the plan in MS Word or pdf format (hardcopies may be submitted at the States discretion) containing:
 - a. Labeled with the plan name as well as the State and date sent.
 - b. The final plan formatted as a single document.
 - c. Documentation demonstrating adoption by the participating jurisdictions seeking approval. (i.e. copies of signed resolutions, official meeting minutes, etc....)
 - d. Remove strikethroughs, highlights and all Track Changes must be accepted in the final plan.
3. Submittals which do not conform to the above requirements will be returned to the State for resubmission.

In addition to the CD/DVD the State may also submit the plan files via:

1. Floodmaps File eXchange (FFX) <https://www.floodmaps.fema.gov/ffx/>
2. Risk Management Directorate (RMD)SharePoint
<https://rmd.msc.fema.gov/Regions/VI/Mitigation%20Planning/Forms/AllItems.aspx>

Please forward an email addressed to the current HM Planning State Point of Contact or to the HM Planning Team Lead as notification that the electronic file has been submitted



HAZARD MITIGATION ACTION PLAN



GARLAND

For more information, visit our website at:

<http://www.garlandtx.gov/gov/lq/safety/emergency/default.asp>

Written comments should be forwarded to:

Office of Emergency Management
P.O. Box 469002
Garland, Texas 75040

oem@garlandtx.gov



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1. Introduction

Purpose

The City of Garland Hazard Mitigation Action Plan (HazMAP) is designed to meet the planning requirements set forth by the Texas Division of Emergency Management (TDEM), and the planning requirements set forth by the Federal Emergency Management Agency (FEMA). Local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act (DMA) of 2000, provides the legal basis for state, local, and tribal governments to undertake a risk-based approach to reduce risks from hazards through mitigation planning. The requirements and procedures for State, Tribal and Local Mitigation Plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 (44 CFR Part 201). Appendix A is reserved for the City Council Resolution, formally adopting the City of Garland Hazard Mitigation Action Plan.

Organization

The City of Garland Hazard Mitigation Action Plan is divided into nine sections. Each section is designed to address the planning requirements set forth by state and federal agencies tasked with oversight of DMA 2000. The City of Garland Hazard Mitigation Action Plan sections are identified below:

- Section One describes the purpose and authority of the Hazard Mitigation Action Plan and its organization.
- Section Two provides a description of the planning process the City of Garland followed to prepare the Hazard Mitigation Action Plan.
- Section Three describes the profile of the City of Garland and is a helpful tool in understanding how to best mitigate local hazards.
- Section Four provides detail on the hazard identification analysis and risk assessment, and shows how the Risk Summary (Table 4.5) was developed and hazard ranking.
- Section Five contains the hazard profiles that pose the greatest risk to the City of Garland. Each hazard profile contains: the location, severity, previous occurrences, probability of future events, impacts and vulnerability of those hazards.
- Section Six outlines the City of Garland's mitigation strategy, goals and objectives, reports progress on previous mitigation actions and addresses prioritizing mitigation actions.
- Section Seven outlines mitigation actions for the identified hazards.
- Section Eight describes the plan maintenance process for how the plan will be monitored, evaluated, incorporated and updated.
- Section Nine is the Appendix which provides additional information referenced in the plan.



2. Planning Process

The City of Garland Hazard Mitigation Action Plan was developed in accordance with Federal Emergency Management Agency (FEMA) and Texas Division of Emergency Management (TDEM) standards and regulations. The mitigation planning process followed established guidelines published by the FEMA. The Planning Process was divided into four (4) phases as depicted in Figure 2-1, below.

At the onset of the planning process, numerous organizations and interested parties were invited to participate in the HazMAP efforts. These partners included local, regional and state agencies, private residents, and community based associations. Involving a variety of planning partners helped ensure a strong foundation for the Hazard Mitigation Action Plan.

Meetings were held with the Hazard Mitigation Planning Team, where risks were assessed and mitigation goals and actions created. Many local and regional contacts were also important in the planning process by providing information to the Planning Team. Some of these contacts include the Garland Geographic Information Systems, Garland Fleet Services, Texas Department of Emergency Management Recovery Division and other regional personnel.

Figure 2.1. Mitigation Planning Process



Source: Federal Emergency Management Agency

Planning Team

During the first phase the Planning Team members were identified based on their expertise and authority to implement the mitigation actions that would be developed. The following are the members of the Hazard Mitigation Action Planning Team:

- *Garland Building Inspection, Building Official
- *Garland Chamber of Commerce, Vice President
- Garland Emergency Management Coordinator
- Garland Emergency Management Specialist
- Garland Emergency Management Specialist
- *Garland Engineering, Drainage and Development Engineer
- *Garland Environmental Health Manager
- Garland Facilities, Director
- Garland Fire Department, Assistant Fire Chief
- Garland Neighborhood Vitality, Administrator
- Garland Parks and Recreation, Services Manager
- Garland Police Department, Captain
- *Garland Power & Light, Chief Operation Officer
- Garland Public/Radio Amateur Civil Emergency Service (RACES)
- *Garland Water Department, Utilities Director

Kickoff and Subsequent Meetings

The kickoff meeting was held at the City of Garland Emergency Operations Center on September 12, 2016. This initial meeting was an opportunity to inform key department heads and Planning Team members about how the planning process pertained to their distinct roles and responsibilities. Progress of past mitigation activities were discussed, and the new hazard identification process began.

The Planning Team participated in additional meetings and did work outside of the group. The Planning Team performed the following activities: identified hazards, conducted risk assessments, ranked hazards, developed a public outreach strategy, planned implementation of mitigation actions, assisted in research and gathering information to include in the plan and participated in the draft plan review. The Team will also monitor progress of the new mitigation actions and will update the plan as needed. A summary of planning meetings are described in Table 2.2. Documentation of meetings are found in Appendix B.

Table 2.2. Meeting Summaries

Date	Purpose
September 12, 2016	Kickoff meeting Discussion about the purpose of mitigation and planning process Reviewed Previous Mitigation Goal Progress and Implementation Hazard Mitigation Survey Explained
October 10, 2016	Hazard Mitigation Survey Results = Identified Hazards Community Risk Assessment Explained
November 9, 2016	Public Outreach Strategy and Survey Questions Discussed Discussed potential mitigation strategies and Capabilities Assessment
January 12, 2017	Finalized Mitigation strategies

Mitigation Review and Development

The Planning Team developed the 2017-2022 mitigation strategy. During the initial kickoff meeting, the Planning Team gave progress reports on all of the mitigation actions listed in the 2012 Plan. After initial reports were given the Planning Team completed department updates with additional details regarding 2012 mitigation actions and information. Planning Team members reported accomplishments, obstacles, delays, and revisions of the 2012 mitigation actions and updated information, images, data and statistics that related to each mitigation action and other details of the plan. An example of such updates are located in Appendix C. Development of the mitigation actions for the 2017 HazMAP was ongoing throughout the planning process. An educational component was conducted at the November 9th, 2016 meeting to ensure Planning Team members were actively considering all mitigation actions for HazMAP. FEMA's (2013), document titled, *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* was used to further examine mitigation actions that the City of Garland could utilize. The City's Capital Improvement Plan and department budgets were also inspected to determine possible mitigation actions. Planning Team members identified proposed actions, hazard(s) addressed, costs and benefits, the responsible department(s), effects on new and existing structures, implementation schedules, and potential funding sources. Mitigation actions identified during the process were made available to the Planning Team for review. In addition, the draft Plan was made available for public review and comment on the City of Garland's website and partner site EngageGarlandTx.

Review of Existing Plans, Plan Integration and Implementation

A variety of existing studies, plans, reports, and technical information were reviewed as part of the planning process. Sources of the information included FEMA, TDEM, Dallas County Plans, City of Dallas Plans, and City of Garland's 2012 Hazard Mitigation Action (HazMap) Plan.

Other documents, including those from the National Oceanic and Atmospheric Administration (NOAA) that includes the National Climatic Data Center (NCDC), provided previous hazard occurrence data and descriptions of events in the area. Materials from FEMA and TDEM were reviewed for guidance on plan development requirements and utilized in the development of the Plan at all stages. The State of Texas Mitigation Plan, Dallas County HazMAP and City of Dallas Local Mitigation Action Plan, were reviewed in order to develop the initial hazards to address in early planning phases. Internally, the City of Garland's Capital Improvement Plan and Operating Budget were reviewed to identify what mitigating activities the City of Garland has currently budgeted to complete.

The annual budget review is an important tool in controlling and executing mitigation goals and objectives. It is this phase where identified mitigation actions may be funded. Each action has been assigned to a specific department that is responsible for tracking and implementing the mitigation actions contained in Section Seven. A funding source as well as an implementation time period has also been listed and may be used when departments begin that phase. The timeline will partially be directed by the City's comprehensive planning process, Capital Improvement Plan, budgetary constraints, and community needs.

Capabilities Assessment

The Planning Team identified current capabilities for completing and implementing hazard mitigation actions. Members ensured all planning/regulatory, administrative/technical, financial and educational capabilities were included in the document for all City of Garland departments. The City of Garland organizational chart (Figure 2.3) presents departments who have roles in the hazard mitigation process. The capabilities assessment describes policies, programs, resources, codes and ordinances to accomplish hazard mitigation through the listed departments.

Figure 2.3. City of Garland Organization Chart

Effective February 1, 2017

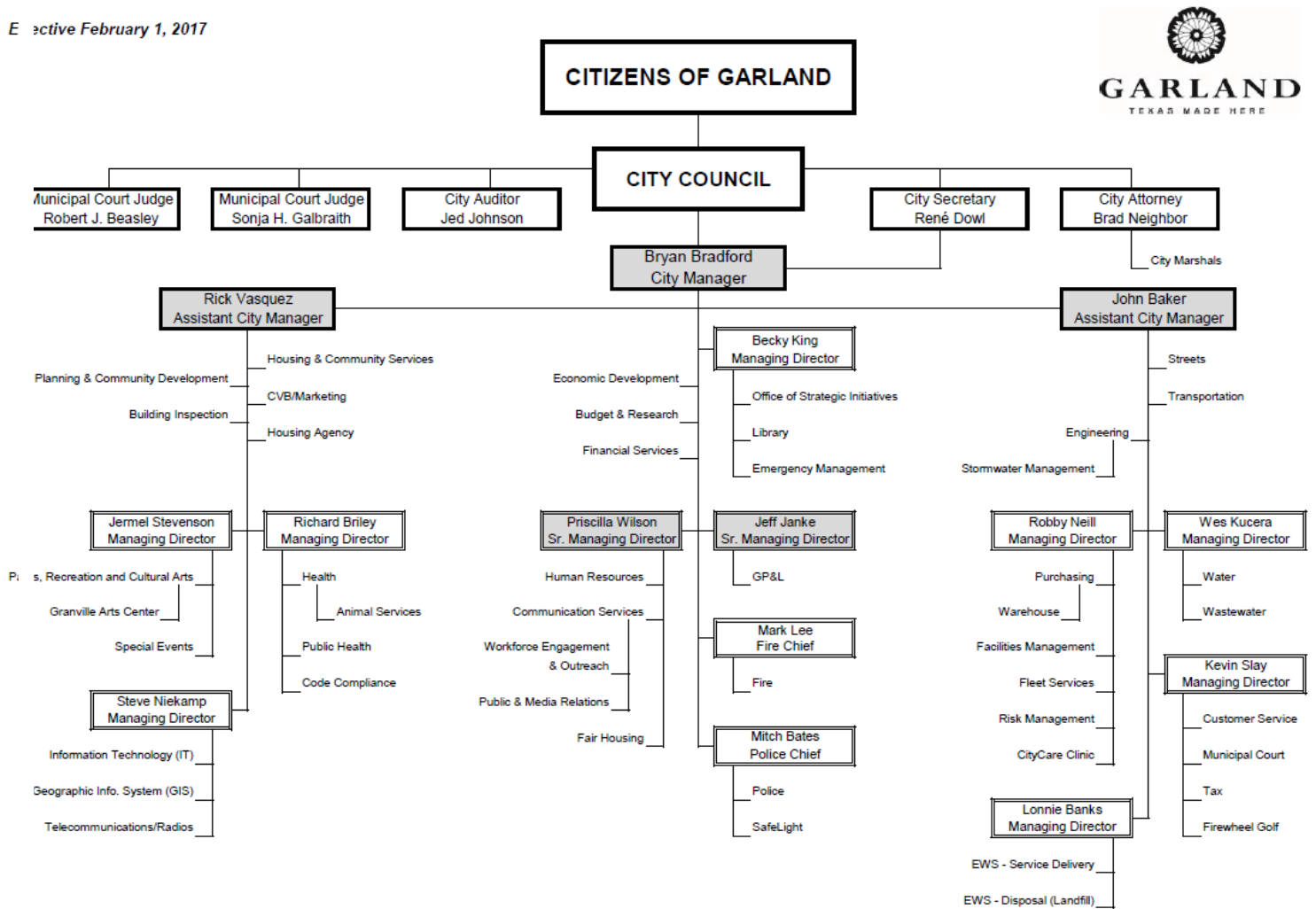


Table 2.4. Capabilities Assessment

Planning and regulatory capabilities are the plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. The following table presents those capabilities that the City of Garland possesses.

Regulatory Tools (ordinances, codes, plans)	City of Garland	Additional Information
Comprehensive / Master Plan	X	2030 Envision Garland
Capital Improvements Plan	X	2016 CIP Plan Adopted
Economic Development Plans	X	Economic Development Department, 2030 Envision Garland, Garland Economic Development Partnership (GISED, City of Garland and Chamber of Commerce)
Local Emergency Operations Plans	X	Comprehensive Emergency Management Plan – advanced level
Continuity of Operations Plans	X	Citywide Comprehensive Continuity of Operations (COOP) Plan
Transportation Plan	X	Thoroughfare Plan, Comprehensive Corridor Plan SH- 78, Strategic Transportation Enhancement Plan (STEP)
Building Code	X	Adopted 2015 International Building Code
Fire Department ISO Rating	X	ISO Rating 1 – highest rating
Site Plan Review Requirements	X	Approved by the City Engineering Department as part of the Site Permit.
Zoning Ordinance	X	Comprehensive Zoning List 4647. Includes the zoning districts, land use permissibility, definitions, parking requirements, and development standards.
Subdivision Ordinance	X	Garland Development Code
Flood Insurance Rate Maps	X	Engineering: Floodplain and Drainage - FEMA has published Flood Insurance Rate Maps (FIRMs) graphically showing the extents of approximately 2,400 acres in the 100-year floodplain in Garland. Passive recreational and park uses are encouraged while encroachments and obstructions are prohibited.
Growth management ordinances	X	Garland Development Code
Drought Management	X	Water Conservation Plan, Drought Contingency Response Plan

Administrative and Technical capabilities include staff, their skills and tools that can be used for mitigation planning and to implement mitigation actions.

Staff /Personnel Resources	City of Garland	Additional Information
Planning Commission	X	Composed of 9 members appointed by the City Council. One member is appointed to represent each of the 8 Council districts, and 1 member is appointed at-large.
Mitigation Planning Committee	X	Fourteen department representatives, Garland resident and volunteer as well as the local Chamber of Commerce serve on the Planning Committee.
Mutual aid agreements	X	Dallas County mutual aid agreement, Interlocal agreements with Rowlett and Sachse.
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	X	Code Compliance: Single Family Rental Program (requires properties to be permitted), Code Cares (tree trimming, fence maintenance, trash/debris removal) GP&L: Annual tree trimming/vegetation management program
Planner(s) / engineer(s) with knowledge of land management practices	X	Planning & Community Development, Engineering, Stormwater
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	X	Code Compliance, Building Inspection, Engineering, Streets, Stormwater, Wastewater Treatment
Planners or Engineer(s) with an understanding of natural hazards	X	Engineering, GP&L, Office of Emergency Management, Risk Management, Stormwater
NFIP Participation	X	Engineering: Floodplain and Drainage – 100 year floodplains are near Duck Creek, Rowlett Creek, Spring Creek, and their tributaries. All new development projects are reviewed for compliance with the flood prevention ordinance.
Chief Building Official	X	Full Time - Building Inspection – Jim Olk
Emergency Manager	X	Full Time – Office of Emergency Management – Kwa heri Harris, Director and Barbara Neville, Sr. Specialist
Floodplain Administrator	X	Full Time – Engineering – Michael Polocek
Community Planner	X	Full Time – Planning & Community Development – Will Guerin
Drainage and Development Engineer	X	Full Time – Lyle Jenkins
Surveyors	X	Engineering - land surveying, easements, platting and right-of-way
Staff with education and experience to assess the community's vulnerability to hazards	X	Hazard Mitigation Planning Team, Building Inspection, Engineering, Office of Emergency Management, Stormwater
Personnel skilled in GIS	X	Information Technology: Geographic Information Services (GIS)
Scientists familiar with hazards of the community	X	Full Time - Epidemiologist – Don Hart National Weather Service
Warning Systems/Services	X	CodeRED, Sixteen Outdoor Warning Sirens

Expanding and Improving

The City of Garland is progressive and forward thinking when it comes to expanding and improving existing policies and programs for the wellbeing of the community. For example, Garland recently adopted the 2015 International Building Code requiring storm shelters in critical emergency operations facilities where such facilities in geographical areas where tornadoes are highest. New Federal regulations and best practices are adopted through various ordinances to strengthen current policies. The City Council and City Manager address the budget, policies, regulations and codes, hire staff, approve plans, and determine the direction of the city overall. Ability to implement and approve mitigation actions, expand existing mitigation actions, and integrate mitigation into existing policies and programs is function of this group. Additional positions will be considered for staffing the Office of Emergency of Management as there are currently gaps in local capacity regarding community preparedness education. Funding constraints make increased staffing a challenge.

Stakeholder and Public Involvement

Stakeholders provide an essential service in hazard mitigation planning; therefore, throughout the planning process, local government, members of community groups, and local businesses were invited to participate. The Chamber of Commerce business community, Garland Area Service Providers, a group of non-profits and aid organizations, the Community Leaders Group multicultural representatives, and the Multicultural Commission were all sent hazard mitigation information/surveys and encouraged to participate. In addition to the public outreach campaign, the City of Garland sought input on the HazMAP from its neighboring jurisdictions, county emergency management office, and regional Council of Government. The table below lists the individuals contacted and method of contact. All input received was implemented into the plan. Many stakeholders also participated as members of the Planning Team. Those members contacted through email are denoted with an asterisk next to their title in the Planning Team section above.

Organization	Name-Title	Method of Contact
City of Richardson	Misti Gardner Emergency Management Coordinator	Email
City of Mesquite	Cindy Carlo Emergency Management Coordinator	Email
City of Plano	Carrie Little Emergency Management Coordinator	Email
Dallas County	Doug Bass Hazard Mitigation Specialist	Email
City of Dallas	Kevin Oden Assistant Emergency Management Coordinator	Email
North Central Texas Council of Governments	Molly McFadden Emergency Preparedness Director	Email

Input from individual residents and the community as a whole provided the Planning Team with a greater understanding of local concerns, and increases the likelihood of successfully implementing mitigation actions. The City of Garland incorporated several methods to actively engage the public throughout the planning process, prior to official Plan approval and adoption. These methods included two public surveys, posting information to the city's website, designated point of contact for HazMap questions and comments, the opportunity for public review and comment and inclusion of the general public on the Planning Team.

On January 16, 2017, the Office of Emergency Management placed a survey link on the City's website requesting public input. The survey was circulated to a wide audience through many channels that included:

- Distribution of the survey and mitigation information electronically via City of Garland Facebook, Twitter, COGNOTES employee news, and Garland's Nextdoor social network. Residents were also able to access the survey at all four public libraries computers and could request a paper copy of the survey from the HazMAP point of contact.
- Fliers were distributed and posted in six recreation centers, four public libraries, and at customer service sites within the City of Garland. Customer service site locations include: Building Inspection, Public Health, CityCare Clinic, Parkland Health Center, Police Department, Municipal Courts, Customer Service, Animal Shelter and the Pawsibilities pet adoption center.

The survey solicited public feedback on the hazards residents felt had the greatest impact on Garland. Residents were asked to review the list of hazards identified by the City's Planning Team and rank those hazards in order of importance and of greatest impact. The survey was a total of 7 questions and was available in English, Spanish and Vietnamese. A total of 269 surveys were completed, the survey and results are included in Appendix E.

The purpose of the survey was to solicit public input during the planning process, confirm the Planning Teams findings with the public, and determine any other areas of concern. The survey results were reviewed and incorporated into the Plan and are also summarized in Table 4.5, Risk Summary. Because 64% of residents report being only "somewhat prepared" for a disaster and 16% "not prepared" (80% combined) several public education and awareness mitigation actions or components were added to the Plan.

During hazard analysis it was determined that the Public ranked hazards based on their personal capabilities and experiences while the Planning Team ranked hazards according to the City of Garland capabilities to respond to each hazard.

After the initial public survey results were analyzed the Office of Emergency Management further surveyed and interviewed residents regarding hazard ranking and the rationale behind their ranking decisions. These public conversations occurred at City of Garland Open Dialogue Forum held on March 3, 2017 and confirmed what the original survey had unveiled. The Public ranks hazards based on personal experiences not the community as a whole. Statements regarding ranking were made such as:

- “Some of these hazards have never impacted me.”
- “I lived in California and am used to earthquakes but not tornadoes.”
- “I worked in customer service so I know people are mad when they don't have power.”
- “We are in severe weather season right now.”

Closing this perception gap will require public education. Instructing individuals to see beyond themselves and understand the whole community concept of hazard mitigation will require much education.

Throughout the process of creating the Hazard Mitigation Action Plan updates were made to the City of Garland Office of Emergency Management website (www.garland-oem.com). The information posted on the website included:

- A definition of hazard mitigation
- An explanation of the planning process
- Why Garland needs a plan
- Hazards identified by the Planning Team
- Examples of mitigation actions
- Point of contact

The website also housed valuable information on the warning systems in the City of Garland to keep residents aware of hazards that may impact them.

The Plan was placed on the Office of Emergency Management website, EngageGarlandTx website and placed at the public libraries for public comment and review prior to plan adoption, on insert date. A point of contact was also provided for residents to send additional comments privately or at length.

Documentation of public outreach methods are found in Appendix C.

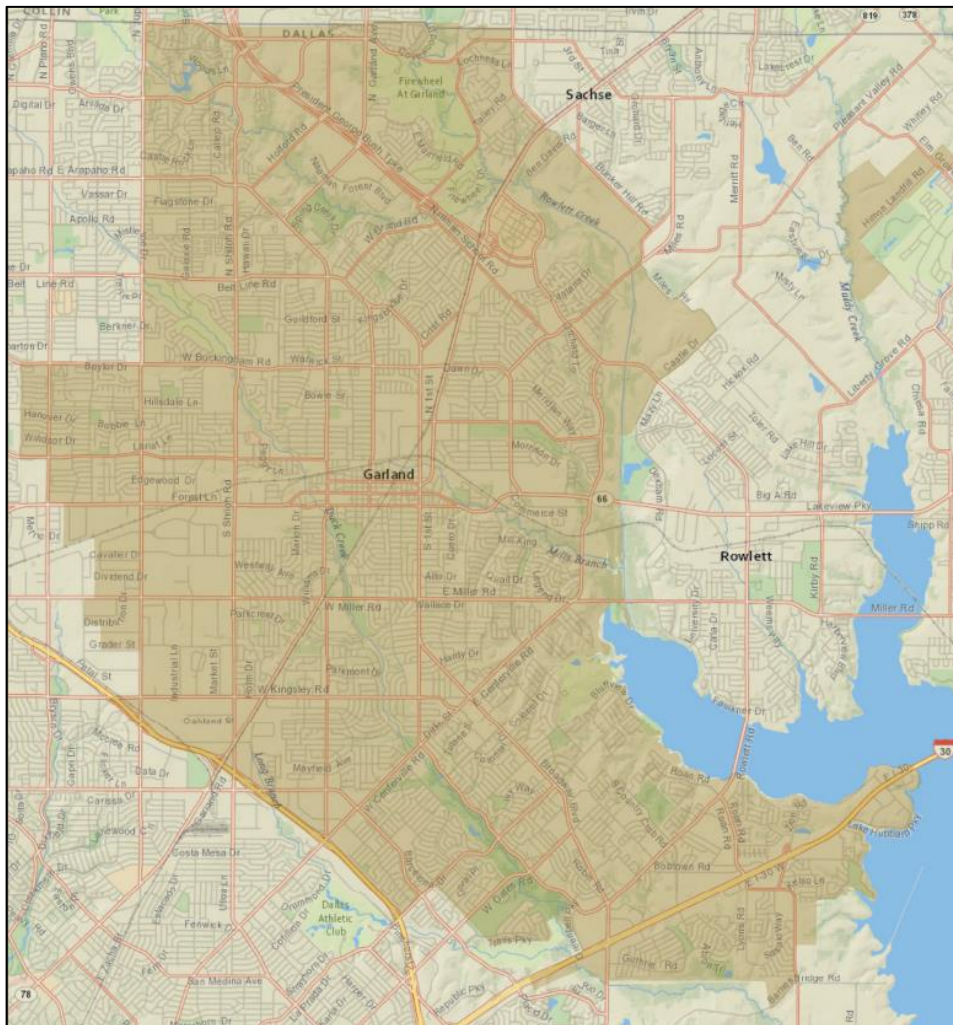


3. Community Profile

Planning Area

The planning area for the Hazard Mitigation Action Plan includes the City of Garland incorporated areas. The planning area is indicated by the darker tan shading in Figure 3.1. The City of Garland is primarily located in northeast Dallas County, although a small portion of the city extends into Collin County which is the landfill. Garland shares common boundaries with the City of Dallas, Richardson, Mesquite, Rowlett, Sachse, and Sunnyvale. The City of Garland covers a land area of 57.1 square miles, six percent of the total area of Dallas County.

Figure 3.1. City of Garland Incorporated Area



Source: City of Garland GIS Department, 2016

Population

The City of Garland, like many other Dallas-Fort Worth communities, continues to grow significantly. Much of Garland's population growth occurred during the 1960s, 1970s, and 1980s. Growth now has slowed due to undeveloped land becoming scarcer as Garland approaches buildout. The City of Garland is the second largest city in Dallas County, and is home to an estimated 236,897 residents. Table 3.2 represents the City of Garland's population change from 1980-2015.

Table 3.2. Population Change

Year	1980	1990	2000	2009	2015
Population	138,857	180,650	215,768	228,858	236,897

Source: Garland Planning & Community Development, 2015 U.S. Census Data Garland Profile

Community Features and Special Considerations

Building Stock

The Dallas County Appraisal District Estimated Values Report for the City of Garland will be used in order to establish an accurate inventory of the types of buildings within the City of Garland. Table 3.3 shows the amount of parcels, estimated market value, and taxable value for commercial property, business personal property, residential property, and the combined totals for all three separate categories.

**Table 3.3. Certified Estimated Values Report (EVR)
July 25, 2016 for tax year 2016**

Type of Building	Parcels	Market Value	Taxable Value
Commercial	4,698	\$ 4,549,594,430	\$ 3,529,696,76
Business Personal Property	5,751	\$ 2,062,673,650	\$ 1,665,191,893
Residential	64,199	\$ 8,807,329,810	\$ 7,137,745,537
Grand Total	74,648	\$ 15,419,597,890	\$ 12,332,634,195

Source: Dallas Central Appraisal District (DCAD)

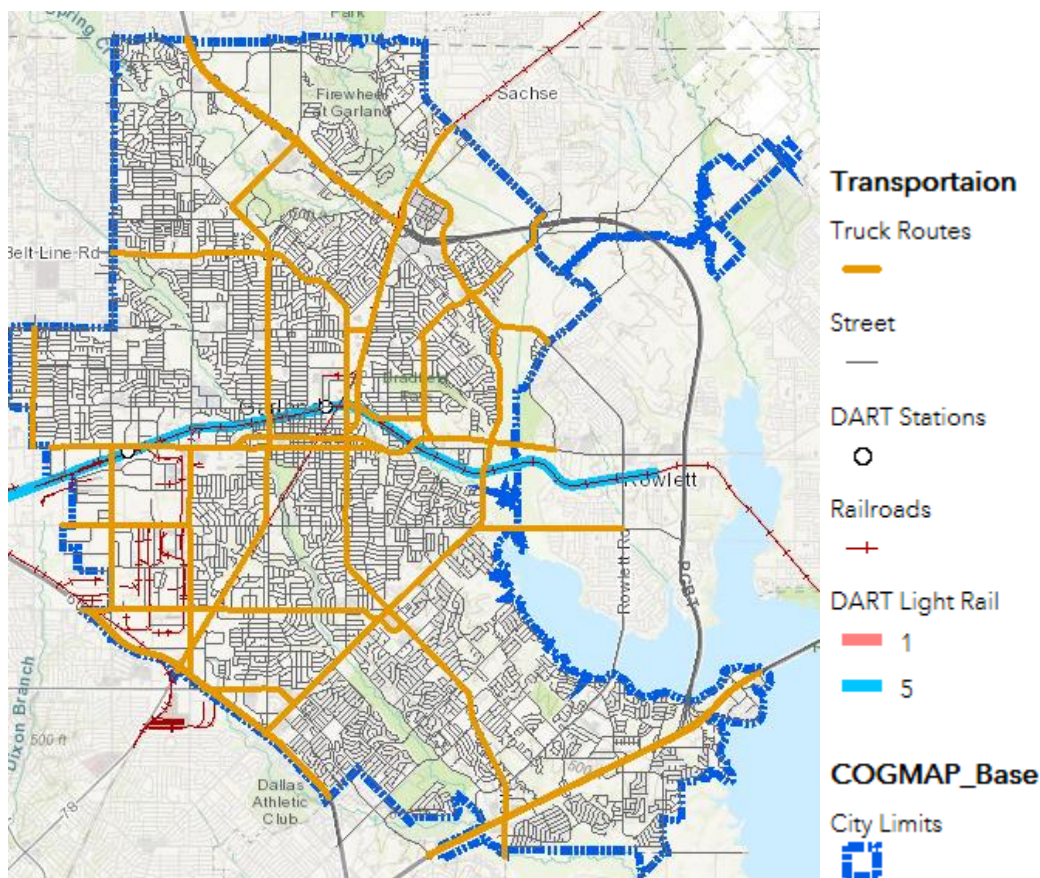
Transportation Systems

The City of Garland offers many transportation opportunities. Active transportation options include: the Dallas Area Rapid Transit (DART) light rail system, railroads, highways, and a heliport.

There are five highways and thoroughfares that serve the City of Garland: Lyndon Baines Johnson (LBJ) Freeway (IH-635), President George Bush Turnpike (SH 190), IH-30, State Highway 78 and State Highway 66. LBJ Freeway, IH-30, State Highway 66, and the President George Bush Turnpike run primarily east to west. State Highway 78 runs primarily north to south.

In addition to the highway routes that pass through the City, several major transportation arteries cross through the City. Figure 3.4 identifies the transportation routes and speed limits on those routes.

Figure 3.4. Transportation Routes

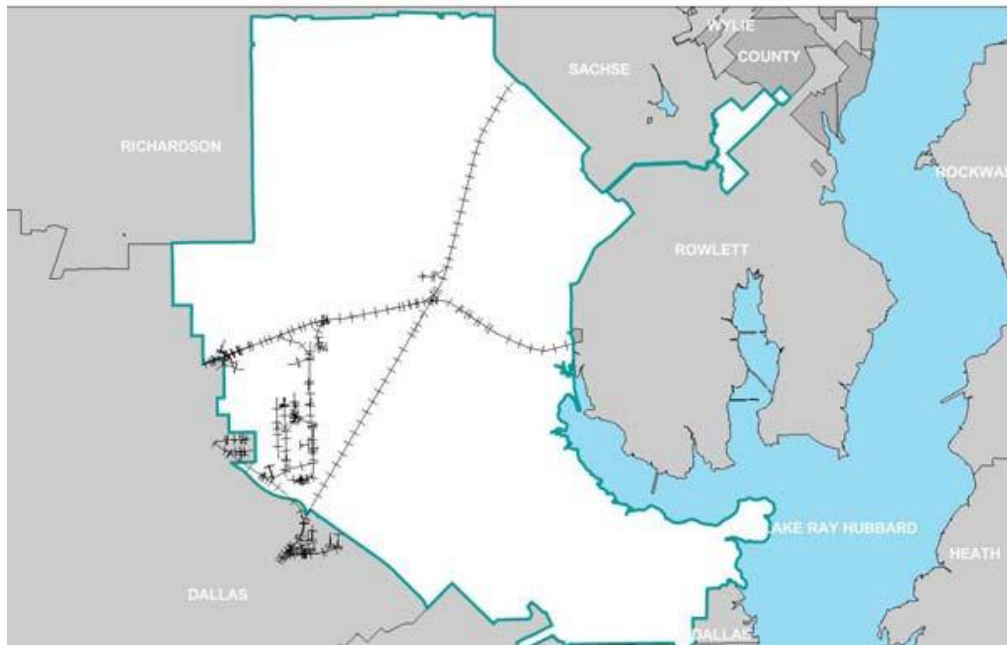


Source: Garland GIS

Two freight rail lines serve the City of Garland. Dallas Garland and Northeastern Railroad (DGNR) and Kansas City Southern Railroads pass through the city limits. Figure 3.5 depicts the rail systems in Garland.

The freight rail lines intersect with the DART passenger light rail system in central Garland. The DART light rail system is a public transportation system that links downtown Garland to the rest of the Dallas-Fort Worth area and extends east into Rowlett.

Figure 3.5. Railroads



Garland GIS

The City of Garland is also home to a heliport. The Garland Heliport is a public heliport located within the city limits. The Garland Heliport opened in 1989 and is owned by the City of Garland, which, since 1993, has contracted with Sky Helicopters to manage the facility. The heliport operates as both a commercial entity and flight school.

Lifeline Utility Systems

The City of Garland owns and operates two state-of-the-art advanced biological wastewater treatment facilities. Wastewater is collected for each facility in two separate drainage basins, the Duck Creek Basin and the Rowlett Creek Basin. Wastewater is then received and treated at two separate facilities, the Rowlett Creek and Duck Creek Wastewater Treatment Centers. The Duck Creek Treatment Plant receives wastewater from the west side of Garland, and from portions of the cities of Dallas, Richardson and the City of Sunnyvale. The Rowlett Creek Treatment Plant serves the east side of Garland including the cities of Rowlett and Sachse.

Since 1923, the City of Garland has been providing electric service to its residents through Garland Power & Light (GP&L), a locally owned and controlled not-for-profit municipal utility. With more than 69,000 customers, GP&L is the fourth largest municipal utility in Texas and the 42nd largest in the nation.

GP&L's diverse energy portfolio includes power from natural gas, coal, wind, solar and hydroelectric resources. The utility owns natural gas and hydroelectric generation facilities, and has power purchase contracts for coal, wind and solar energy.

GP&L's electric distribution system has 388 linear miles of overhead lines and 591 linear miles of underground lines. The transmission system consists of 28 substations and 200 linear miles of transmission lines. The utility's peak load for 2015 was 473 megawatts, with annual operating revenues of \$339 million.

The other 15% of Garland residents are served by Oncor, a transmission and distribution provider that serves much of north Texas.

Economic Elements

The labor force within the City of Garland stands at 126,151 according to the Texas Workforce Commission (10/2016). The unemployment rate for the City as of October 2016 is 3.5%. The Garland Independent School District is the largest employer within the City, employing 7,300. The top ten major employers are listed in Table 3.6.

Table 3.6. Top Ten Major Employers

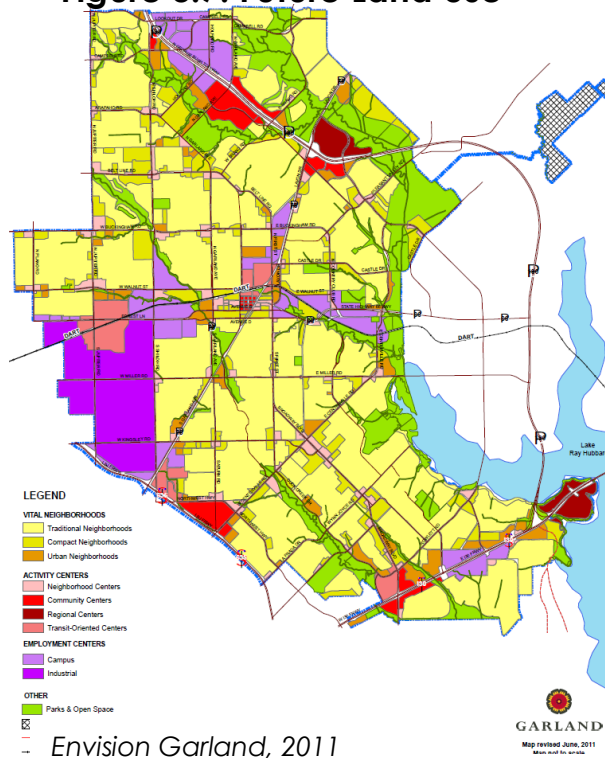
Garland Independent School District	7,300
City of Garland	2,000
Baylor Scott & White Medical Center - Garland	1,185
Kraft Foods	650
US Food Service	520
Hatco (Resistol)	401
L-3 Communications	400
Silver Line by Andersen	400
KARLEE	330
Atlas Copco	300

City of Garland Economic Development Partnership, Updated August 2016

Future Development Consideration

The City of Garland is legally required to have and maintain a comprehensive plan. Garland's first comprehensive plan was developed in the 1960s. A second plan was developed in the 1980s and was periodically updated. Envision Garland is the current comprehensive plan that addresses the community's future through 2030. This HazMAP has been extensively revised to reflect not only infrastructure and residence development which has been minimal but also reflects the changes in hazards that now greatly impact the City. No significant changes in development has occurred in the past five years in Garland. Therefor the vulnerability to all hazards is unchanged.

Figure 3.7. Future Land Use





4. Risk Overview

Hazard Identification and Analysis

This section begins the risk assessment. The purpose of this section is to provide background information for the hazard identification and risk analysis process. Section five provides a hazard profile for each of the Planning Team's identified hazards for the City of Garland. Each hazard profile includes a description of the hazard, location, severity, previous occurrences, probability of those hazards occurring in the future, impacts and summary of vulnerability to each hazard.

The City of Garland Planning Team initially reviewed the full range of natural hazards suggested under FEMA planning guidance. The team also considered the State of Texas Hazard Mitigation Plan identified hazards, Dallas Counties Hazard Mitigation Action Plan identified hazards, City of Dallas Local Mitigation Action Plan identified hazards and other neighboring jurisdiction's hazards and risk assessments. Based on this analysis and historical occurrences that have impacted Garland, the Team identified a total of 31 natural and human-caused hazards that pose risk to Garland, Texas. Those hazards are listed below.

Active Shooter

Aircraft Incident

Biological Event

Bomb Threat

Civil Disturbance

Communications Failure

Dam Failure

Drought

Earthquake

Erosion

Expansive Soil

Extreme Cold

Extreme Heat

Flood

Fuel Shortage

Hail

Hazardous Materials (Fixed and Transport)

Information Systems Failure

Lightning

Plant Explosion

Power Outages

Railroad Incidents

Severe Winter Weather

Sewer Failure

Subsidence

Terrorism

Tornado

VIP Situation

Water Failure

Wildfire

Wind

Those 31 potential hazards were included in the hazard assessment (Appendix F). The hazard assessment identified high risk hazards, provided justification for resources spent and ensured risk and mitigation actions aligned. Because the City of Garland has limited funding, the Planning Team prioritized the hazards that have the greatest risk and impact to the City. As additional funding becomes available the Planning Team will reassess the list of hazards. The Hazard Assessment used a formula that accounted for: Geographic Area Affected, Probability of Future Events in the Next Year, Possibility of Death or Injury, Interruption of Business Services, Preparedness, Response Time, and Effectiveness and Resources Available. Each member of the Planning Team completed a Hazard Assessment and assigned a percentage to all 31 previously identified hazards for each parameter to collectively determine the risk for each hazard for Garland. The results of the hazard assessment determined Garlands top hazards that were then further evaluated in the Community Risk and Impact Assessment.

Hazard Ranking

Listed are the ten natural hazards and four technological hazards that were identified from the result of the hazard assessment. These are the hazards that will be addressed in the Hazard Mitigation Action Plan. FEMA “recognizes that a comprehensive strategy to mitigate the nation’s hazards cannot address natural hazards alone” and “that natural events can trigger technological disasters.”¹ Technological hazards are distinct from natural hazards primarily in that they originate from human activity.

Tornado
Severe Winter Weather
Flood
Drought
Biological Event
Terrorism/Cyber Attacks
Extreme Heat

Power Outages
Earthquake
Communications Failure/ Infrastructure Failure
Severe Thunderstorms
Hail
Erosion
Expansive Soil

Each member of the Planning Team completed a Community Risk and Impact Assessment located in Appendix G. This assessment estimated the potential impact each hazard would have on specific areas of the community. These areas include: Geographic Scope, Duration, Health Effects, Displacement, Economic Impact, Environmental Impact, Built Environment, Transportation, Critical Services, Confidence in Government, Frequency and Cascading Effects.

¹ Source: Technological Hazards, FEMA

Two scenarios were considered during the Community Risk and Impact Assessment, the most likely/typical scenario of a hazard occurring and the maximum impact/worst case scenario of a hazard occurring. Definitions of the parameters were provided for each impact type and level. These definitions are also located in Appendix G.

- **A collective risk score was calculated using the Community Risk and Impact Assessment for each hazard based on the given definitions.** The higher the score the higher the collective risk to the City of Garland.
- **The Community Risk and Impact Assessment also assessed the Severity of Impact** each hazard may have on the City of Garland and further prioritized the hazards to develop relevant mitigation actions.
- **The Public Ranking** represented in the Risk Summary table was **derived from the results** of the **public survey** (Figure 4.1).
- A statistical approach was also used to analyze the identified hazards. **Data from the National Climatic Data Center (NCDC) was used in determining Frequency.** Occurrences divided by the number of years of reliable data. That number was then compared to the frequency definitions in Table 4.2.

The combined analysis is shown in the Hazard Risk Summary in Table 4.5 (Frequency, Severity of Impact, Risk Score, Planning Team Risk Ranking and Public Ranking)

Figure 4.1 Public Survey Question

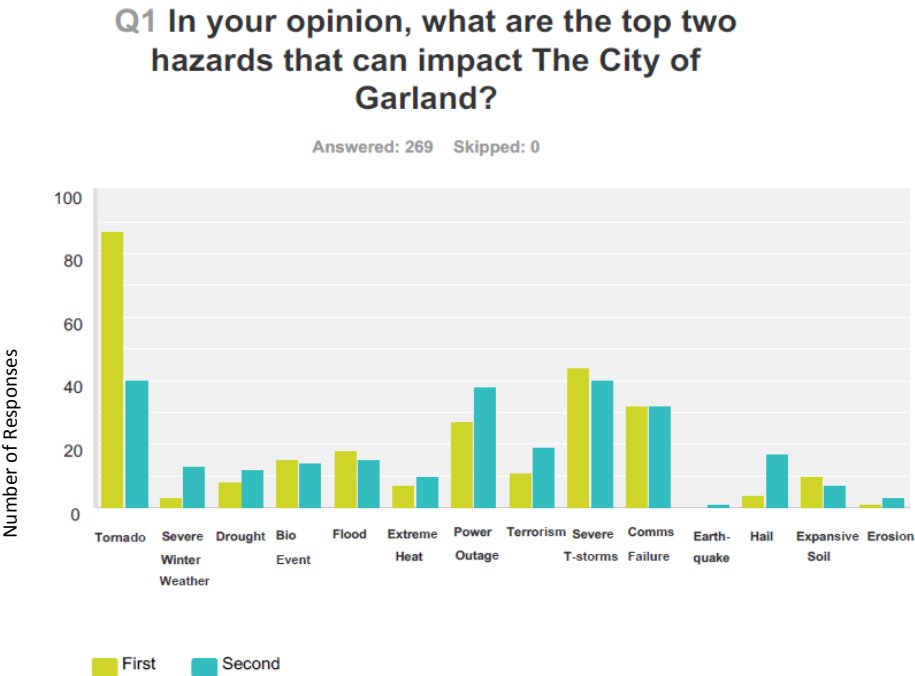


Table 4.2. Public Survey Hazard Ranking		Total
Tornado		127
Severe Thunderstorms (including wind)		84
Power Outage		65
Communications Failure (transmission lines, broadcast, satellites and/or utility capabilities)		64
Flood		33
Terrorism / Cyber Attacks		30
Biological Event (disease outbreak ex. H1N1, Smallpox)		29
Hail		21
Drought		20
Extreme Heat (Heat Index of 105 degrees or higher)		17
Expansive Soil (soils that expand when water is added, and shrink when they dry out)		17
Severe Winter Weather (snow, freezing rain, or sleet)		16
Erosion (gradual wearing away of land masses)		4
Earthquake		1

TABLE 4.3. Hazard Frequency Ranking

FREQUENCY	CALCULATION	PROBABILITY DEFINITION
Highly Likely	NCDC Data Calculations > .8 Or continuous hazards	Event is probable in the next year.
Likely	NCDC Data Calculations > .4	Event is probable in the next 3 years.
Occasional	Previous Occurrence	Event is probable in the next 6 years.
Unlikely	No unlikely hazards in HazMAP	Event is probable in the next 10 years.

	Table 4.4. SEVERITY of IMPACT
Substantial	Multiple deaths or Complete shutdown of critical facilities and services for 1 week or more or More than 50 percent of property or residents impacted
Major	Multiple Injuries and/or illnesses or Complete shutdown of critical facilities/services for at least 1 or more days but < a week or More than 25 percent of property or residents impacted
Minor	Injuries and/or illnesses do not result in permanent disability or Critical facilities and services modified or More than 10 percent of property or residents impacted
Limited	Injuries and/or illnesses that are treatable with first aid or; Minor quality of life lost or No shutdown of critical facilities and services Less than 5 percent of property or residents impacted

Table 4.5. Hazard Risk Summary

HAZARD	FREQUENCY/ YEAR	SEVERITY of IMPACT	RISK SCORE	RISK RANKING	PUBLIC RANKING
Tornado	highly likely	substantial	34.071	high	high
Severe Winter Weather	highly likely	substantial	31.224	high	low
Terrorism/Cyber Attacks	occasionally	substantial	30.871	high	moderate
Biological Event	likely	major	29.661	moderate	moderate
Flood	highly likely	major	27.822	moderate	moderate
Earthquake	likely	major	26.696	moderate	low
Severe Thunderstorms/ Wind	highly likely	minor	26.604	moderate	high
Communications Failure / Infrastructure Failure	occasionally	minor	25.898	moderate	high
Drought	likely	minor	25.827	moderate	moderate
Extreme Heat	highly likely	limited	24.676	low	low
Power Outages	highly likely	limited	24.022	low	high
Expansive Soil	highly likely	limited	21.918	low	low
Hail	highly likely	limited	21.765	low	moderate
Erosion	highly likely	limited	21.098	low	low

RISK SCORE (0-24.99) = LOW
PUBLIC RANKING (0-19) = LOW

RISK SCORE (25-29.99) = MODERATE
PUBLIC RANKING (20-60) = MODERATE

RISK SCORE (30-35) = HIGH
PUBLIC RANKING (61- 130) =HIGH

The following hazard profiles fall into two categories, natural and man-made/technological hazards. The hazards are addressed in order of ranking priority as shown above in Table 4.5 above.



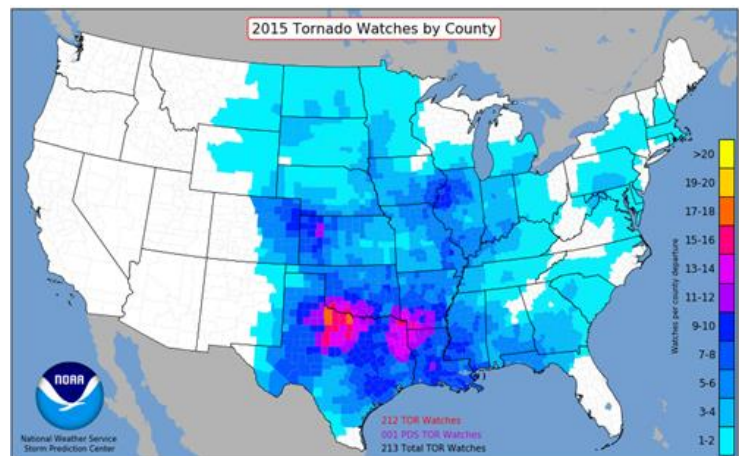
5. Hazard Profiles

Tornado

Hazard Description

A tornado is defined as a rapidly rotating vortex or funnel of air extending ground ward from a cumulonimbus cloud. Most of the time, vortices remain suspended in the atmosphere. Spawned from powerful thunderstorms, tornadoes can cause fatalities and devastate neighborhoods in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with winds that can reach 300 miles per hour. According to the National Weather Service, the City of Garland is issued an average of 9-10 tornado watches per year as depicted in Figure 5.1.

Figure 5.1. NOAA's Storm Prediction Center



Location

Due to the unpredictable nature of tornadoes, it is impossible to determine the exact area of future tornado occurrences. The entire planning area, the City of Garland, is equally vulnerable to tornadoes.

Severity

The severity of a tornado can be determined by the Enhanced Fujita Scale. The Enhanced Fujita Scale rates tornadoes within the United States by estimating the amount of damage they cause. Table 5.2 provides a better understanding of the possible magnitude of tornado events. The table correlates the Enhanced Fujita Rating with the wind speed and severity of damage tornadoes may cause. An EF 4 tornado has impacted Dallas county before and it is expected that an EF 5 will occur in Garland sometime in the future.

Figure 5.2. Enhanced Fujita Scale

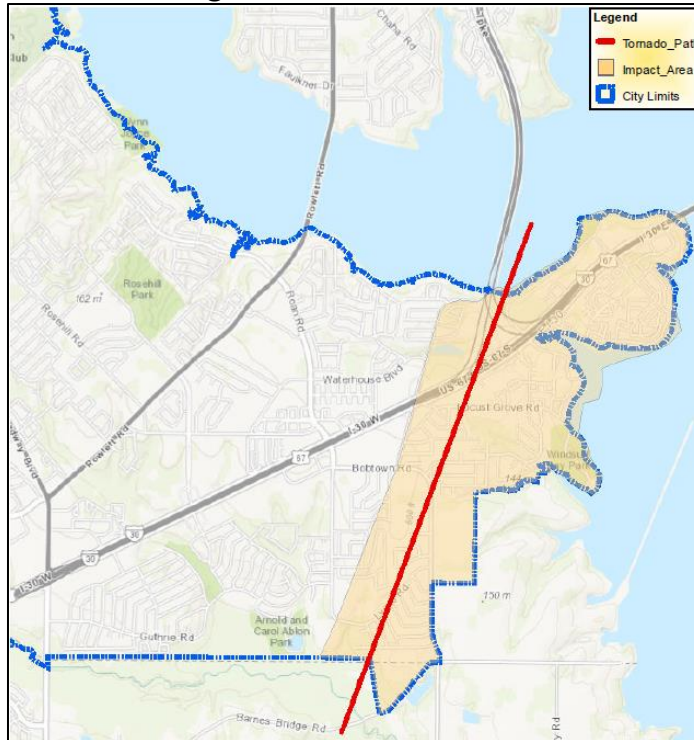
EF Rating	Wind Speeds	Expected Damage	
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.	
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.	
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.	
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.	
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.	
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.	

Source: <https://weather.com/storms/tornado/news/enhanced-fujita-scale-20130206>

Previous Occurrences

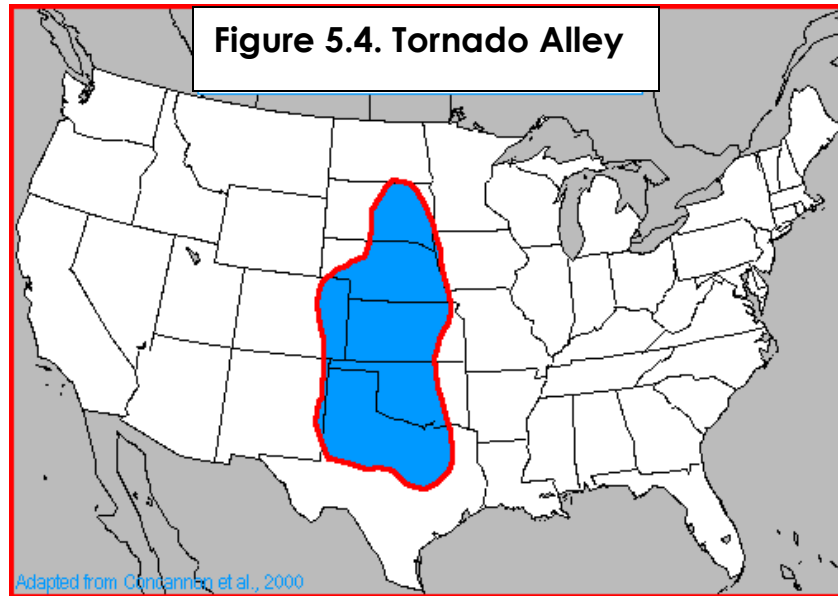
On December 26, 2015 an EF 4 tornado with wind speeds of 180 mph impacted the City of Garland. The tornado left a 13 mile long and 550 yard wide path of destruction. The tornado caused nine fatalities on the George Bush Turnpike and caused damage to 440 single family homes, 753 apartment units, 17 commercial buildings and 2 churches. About 48,000 cubic yards of debris had to be removed from the impacted area and 26 animals rescued. This tornado cost the City of Garland roughly \$1,703,320.00

Figure 5.3. Tornado Path



Probability of Future Events

The City of Garland sits in “Tornado Alley,” and has a high vulnerability to tornadoes. Previous historical data in Table 5.5 shows a total of ninety seven tornadoes occurring within Dallas County since 1952. Data is not currently available specifically for the City of Garland. Calculations from this data suggests that a tornado will impact Dallas County 1.5 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely for a tornado to occur within Dallas County in the next year.



National Oceanic and Atmospheric Administration

Impact on Community

A future event is obviously capable of doing substantial damage to the community. The city is the second largest in Dallas County with an estimated 236,897 residents as of July 1, 2015. Infrastructure within the region is also for the most part built out. This makes warning time critical. A large population of residents would have little time to react to such an event. A tornado of medium severity (EF2-EF3) would be capable of doing great damage in such a heavily populated area.

Table 5.5 shows previous tornado occurrences from the National Climatic Data Center for all of Dallas County, Texas between 1/1/1952 and 12/31/2015. A total of 97 tornados have been reported in Dallas County. They have caused 23 deaths, 836 injuries, and an estimated \$594,259,030 dollars in damage.

Summary of Vulnerability

The entire planning area is equally vulnerable to tornados. A large tornado event is capable of producing winds that can reach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long. The Hazard Mitigation Planning Team has determined that the City of Garland is at high risk of substantial impacts from tornados due to the number of previous occurrences combined with the impacts of those occurrences. All residential neighborhoods, businesses, critical facilities, infrastructure and populations are vulnerable to tornadoes. In addition, there is 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GISD schools at risk from impact of a tornado.

5.5. Tornado Historical Data

COUNTY	DATE	EVENT TYPE	EF SCALE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
DALLAS CO.	3/2/1952	Tornado	F0	0	0	2,500	0
DALLAS CO.	4/2/1957	Tornado	F3	10	200	2,500,000	0
DALLAS CO.	4/3/1957	Tornado	F0	0	0	250	0
DALLAS CO.	4/20/1957	Tornado		0	0	30	0
DALLAS CO.	6/12/1957	Tornado	F3	0	0	2,500	0
DALLAS CO.	8/12/1958	Tornado	F2	0	0	2,500	0
DALLAS CO.	10/4/1959	Tornado	F3	0	0	250,000	0
DALLAS CO.	5/5/1960	Tornado	F0	0	0	0	0
DALLAS CO.	5/5/1960	Tornado	F0	0	0	2,500	0
DALLAS CO.	4/11/1961	Tornado	F2	0	3	25,000	0
DALLAS CO.	5/27/1963	Tornado	F0	0	0	0	0
DALLAS CO.	5/29/1963	Tornado	F0	0	0	0	0
DALLAS CO.	9/5/1963	Tornado		0	0	0	0
DALLAS CO.	5/23/1966	Tornado	F2	0	0	25,000	0
DALLAS CO.	3/26/1967	Tornado	F0	0	0	0	0
DALLAS CO.	5/13/1968	Tornado	F1	0	0	250	0
DALLAS CO.	5/25/1968	Tornado	F0	0	1	25,000	0
DALLAS CO.	5/8/1969	Tornado	F0	0	0	0	0
DALLAS CO.	10/12/1969	Tornado	F3	0	2	2,500	0
DALLAS CO.	4/25/1970	Tornado	F2	0	12	2,500,000	0
DALLAS CO.	2/18/1971	Tornado	F1	0	0	2500	0
DALLAS CO.	10/19/1971	Tornado	F1	0	2	250,000	0
DALLAS CO.	12/14/1971	Tornado	F1	0	1	2,500,000	0
DALLAS CO.	12/14/1971	Tornado	F1	0	1	25,000	0
DALLAS CO.	12/14/1971	Tornado	F1	0	0	250,000	0
DALLAS CO.	12/14/1971	Tornado	F2	0	4	2,500,000	0
DALLAS CO.	12/14/1971	Tornado	F1	0	4	2,500,000	0
DALLAS CO.	11/12/1972	Tornado	F1	0	0	25,000	0
DALLAS CO.	11/12/1972	Tornado	F1	0	0	250,000	0
DALLAS CO.	5/1/1973	Tornado	F1	0	0	25,000	0
DALLAS CO.	4/11/1974	Tornado	F2	0	0	250,000	0
DALLAS CO.	6/12/1974	Tornado		0	0	0	0
DALLAS CO.	6/8/1975	Tornado	F0	0	0	0	0
DALLAS CO.	7/25/1975	Tornado	F0	0	0	0	0
DALLAS CO.	3/26/1976	Tornado	F1	0	0	250	0
DALLAS CO.	5/26/1976	Tornado	F3	0	1	2,500,000	0
DALLAS CO.	7/4/1976	Tornado		0	0	2500	0
DALLAS CO.	4/20/1977	Tornado	F2	0	0	25,000	0
DALLAS CO.	5/3/1979	Tornado	F1	0	0	25,000	0
DALLAS CO.	5/3/1979	Tornado	F1	0	0	25,000	0
DALLAS CO.	5/3/1979	Tornado	F2	0	5	25,000,000	0
DALLAS CO.	5/3/1979	Tornado	F0	0	0	250	0
DALLAS CO.	5/8/1981	Tornado	F2	0	0	25,000	0
DALLAS CO.	10/13/1981	Tornado	F1	0	0	0	0
DALLAS CO.	3/14/1982	Tornado	F1	0	0	250,000	0
DALLAS CO.	4/16/1982	Tornado	F0	0	0	0	0
DALLAS CO.	5/11/1982	Tornado	F1	0	1	250,000	0
DALLAS CO.	3/23/1984	Tornado	F1	0	0	25,000	0

DALLAS CO.	12/13/1984	Tornado	F3	0	0	25,000,000	0
DALLAS CO.	12/13/1984	Tornado	F3	0	28	25,000,000	0
DALLAS CO.	5/13/1985	Tornado	F2	0	16	2,500,000	0
DALLAS CO.	3/16/1987	Tornado	F0	0	0	0	0
DALLAS CO.	1/19/1990	Tornado	F2	0	1	2,500,000	0
DALLAS CO.	10/7/1992	Tornado	F0	0	0	2,500	0
DALLAS CO.	5/9/1993	Tornado	F1	0	1	5,000,000	0
DALLAS CO.	4/25/1994	Tornado	F0	0	0	50,000	0
DALLAS CO.	4/25/1994	Tornado	F2	0	7	50,000,000	0
DALLAS CO.	4/25/1994	Tornado	F4	3	48	500,000	0
DALLAS CO.	4/29/1994	Tornado	F0	0	0	0	0
DALLAS CO.	10/21/1994	Tornado	F0	0	0	0	0
DALLAS CO.	10/21/1994	Tornado	F0	0	0	0	0
DALLAS CO.	10/21/1994	Tornado	F0	0	0	0	0
DALLAS CO.	10/21/1994	Tornado	F0	0	0	0	0
DALLAS CO.	3/25/1995	Tornado	F0	0	0	0	0
DALLAS CO.	4/19/1995	Tornado	F0	0	0	0	0
DALLAS CO.	4/19/1995	Tornado	F1	0	8	600,0000	0
DALLAS CO.	1/17/1996	Tornado	F1	0	1	750,000	0
DALLAS CO.	1/17/1996	Tornado	F2	0	0	750,000	0
DALLAS CO.	1/17/1996	Tornado	F1	0	0	0	0
DALLAS CO.	1/17/1996	Tornado	F1	0	0	0	0
DALLAS CO.	1/17/1996	Tornado	F0	0	0	0	0
DALLAS CO.	1/17/1996	Tornado	F0	0	0	0	0
DALLAS CO.	1/17/1996	Tornado	F1	0	0	0	0
DALLAS CO.	10/21/1996	Tornado	F1	0	7	3,000,000	0
DALLAS CO.	10/21/1996	Tornado	F0	0	1	120,000	0
DALLAS CO.	3/28/2000	Tornado	F2	0	0	0	0
DALLAS CO.	3/28/2000	Tornado	F0	0	0	0	0
DALLAS CO.	9/5/2001	Tornado	F1	0	0	125,000	0
DALLAS CO.	4/5/2003	Tornado	F0	0	0	1,000	0
DALLAS CO.	4/25/2005	Tornado	F0	0	0	0	0
DALLAS CO.	4/13/2007	Tornado	EF0	0	0	50,000	0
DALLAS CO.	6/26/2007	Tornado	EF0	0	0	60,000	0
DALLAS CO.	4/10/2008	Tornado	EF1	0	0	1,000,000	0
DALLAS CO.	9/8/2010	Tornado	EF1	0	0	200,000	0
DALLAS CO.	9/8/2010	Tornado	EF2	0	1	750,000	0
DALLAS CO.	5/24/2011	Tornado	EF1	0	0	150,000	0
DALLAS CO.	5/24/2011	Tornado	EF0	0	0	0	0
DALLAS CO.	4/3/2012	Tornado	EF2	0	10	400,000,000	3000
DALLAS CO.	4/3/2012	Tornado	EF0	0	0	4,000	0
DALLAS CO.	4/3/2012	Tornado	EF0	0	0	100,000	0
DALLAS CO.	4/3/2012	Tornado	EF0	0	0	150,000	0
DALLAS CO.	4/3/2012	Tornado	EF0	0	2	300,000	0
DALLAS CO.	5/8/2014	Tornado	EF0	0	0	80,000	0
DALLAS CO.	5/24/2015	Tornado	EF1	0	0	100,000	0
DALLAS CO.	5/24/2015	Tornado	EF1	0	0	600,000	0
DALLAS CO.	12/26/2015	Tornado	EF3	0	0	1,370,000	0
DALLAS CO.	12/26/2015	Tornado	EF4	10	468	26,000,000	0

National Climatic Data Center



Severe Winter Weather

Hazard Description

Severe winter weather can be a variety of precipitation that forms at low temperatures such as heavy snowfall, sleet or ice. Many winter depressions give rise to exceptionally heavy rain and widespread flooding. Conditions worsen if the precipitation is frozen.

Location

Due to the unpredictable nature of winter storms, it is impossible to determine the exact area of their future occurrences. The entire planning area, City of Garland, is equally subject to severe winter weather.

Severity

Table 5-10 shows the National Weather Service Wind Chill Temperature (WCT) index. It uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures. The index:

- Calculates wind speed at an average height of five feet
- Incorporates heat transfer theory which is heat loss from the body to its surroundings during cold windy days
- Lowers the calm wind threshold to 3 mph
- Uses a consistent standard for skin tissue resistance
- Assumes no impact from the sun (i.e., clear night sky)

The lowest temperature recorded in Garland was 2 ° in 1949, 0.8 inches of snow fell as well. Although temperatures are slowly increasing severe winter weather remains a threat to Garland and it is possible that temperatures could reach record lows again in the future.

Table 5.10



NWS Windchill Chart



Wind (mph)

	Temperature (°F)																		
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63	
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72	
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77	
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81	
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84	
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87	
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89	
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91	
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93	
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite Times

30 minutes

10 minutes

5 minutes

Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Table 5.11 is the Sperry–Piltz Ice Accumulation (SPIA) Index. This is a newly developed index that when combined with National Weather Service forecast data can help predict impacts from ice. It uses ice accumulation, wind speeds, and temperatures to predict the impact of winter storms on public utilities, particularly power lines. It is a tool used for risk management and winter weather preparedness.²

Table 5.11

The Sperry-Piltz Ice Accumulation Index, or “SPIA Index” – Copyright, February, 2009			
ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) * Revised-October, 2011	WIND (mph)	DAMAGE AND IMPACT DESCRIPTIONS
0	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	0.10 – 0.25	15 - 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
	0.25 – 0.50	> 15	
2	0.10 – 0.25	25 - 35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
	0.25 – 0.50	15 - 25	
	0.50 – 0.75	< 15	
3	0.10 – 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
	0.25 – 0.50	25 - 35	
	0.50 – 0.75	15 - 25	
	0.75 – 1.00	< 15	
4	0.25 – 0.50	> = 35	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
	0.50 – 0.75	25 - 35	
	0.75 – 1.00	15 - 25	
	1.00 – 1.50	< 15	
5	0.50 – 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 – 1.00	> = 25	
	1.00 – 1.50	> = 15	
	> 1.50	Any	

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

Previous Occurrences

Several major severe winter weather events have impacted Garland over the past few years. An arctic front moved into the Dallas area during the early morning hours of January 31, 2011. The timing of the cold front interacted with the moist air from the Gulf and caused precipitation to fall as freezing rain at first, then sleet and finally snow. This caused a thick sheet of ice to form on all of the roadways causing extremely hazardous driving conditions. Temperatures continued to stay below freezing for the next few days which prevented the drying and clearing of roadways. School districts were closed for the duration of the event and most municipal courts and solid waste services had to be cancelled or postponed. On Friday, February 4th, the City of Garland chose to close most City facilities at noon after another storm system brought an additional 6 inches of snow. The ice storm nearly paralyzed the Metroplex for four days. As if that wasn't enough, a band of moderate sleet moved through Garland in the early morning hours of February 9, 2011, leaving roadways and sidewalks with about a ¼" of ice on them.

² SPIA Index: <http://www.spia-index.com/>

A few years later, Winter Storm Cleon delivered snow, sleet, and freezing rain to a large swath of the Dallas Country from December 1, 2013 through the morning of December 7, 2013. Garland had the following impacts from this winter weather event: approximately 200 reports of downed trees, 3,500 power outages, 7 house fires, City facility walkways iced over, one fire station could not take calls due to affected power lines, City services and staffing levels were modified, Garland Independent School District closed early, Dallas Area Rapid Transit (DART) light rails were not operational and major increases of vehicle accidents.

Probability of Future Events

Severe winter weather within Dallas County occurs several times a year, although the severity of impact varies. Previous historical data in Table 5.12 shows a total of 58 severe winter weather events have occurred within Dallas County since 1996. Data is not currently available specifically for the City of Garland. Calculations from this data suggests that a severe winter weather event will impact Dallas County 2.9 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely for a severe winter weather event to occur within the next year.

Impact on Community

City of Garland residents are generally unfamiliar with snow, ice and freezing temperatures. When these conditions occur residents do not know how to prepare and respond. When temperatures fall below freezing this kills tender vegetation, such as flowering plants and citrus fruit crops. Wet snow and ice rapidly accumulates on trees with leaves, causing the branches to snap under the load. Motorists are unaccustomed to driving on slick roads and accidents increase exponentially. Some buildings are poorly insulated or lack heat altogether, forcing residents to live in freezing temperatures. While snowstorms are not frequent in Texas, ice storms create dangerous driving conditions causing an increase in accidents. Pipes freeze and leave residents without water and damage to their homes. Power lines and trees snap due to the weight of the ice on them leaving residents unable to run the heater in their homes. Because more than half of residents are impacted by large severe winter weather the Planning Team has determined that impacts are substantial.

The biggest concern with severe winter weather in the City of Garland is the previously stated nature of residents being unaccustomed to it. Although Dallas County is impacted by some form of severe winter weather several times a year large, incidents are not as frequent. This brings up safety concerns, as some are not educated on how to properly deal with large amounts of snow and ice. According to the National Climatic Data Center, 58 severe winter weather events have been reported in Dallas County, Texas between 1/1/1996 and 12/31/2016. They have caused 2 deaths, and caused an estimated \$201,500,000 dollars in property damage.

Table 5.12 Severe Winter Weather Historical Data

COUNTY	DATE	EVENT TYPE	DEATHS	PROPERTY DAMAGE
DALLAS	2/1/1996	Heavy Snow	0	0
DALLAS	11/24/1996	Winter Storm	0	0
DALLAS	1/6/1997	Heavy Snow	0	0
DALLAS	1/12/1997	Winter Weather	0	0
DALLAS	1/14/1997	Winter Weather	0	0
DALLAS	12/22/1998	Ice Storm	0	0
DALLAS	1/25/2000	Winter Storm	1	0
DALLAS	12/12/2000	Winter Storm	0	0
DALLAS	12/25/2000	Winter Storm	0	0
DALLAS	12/31/2000	Winter Storm	0	0
DALLAS	1/1/2001	Heavy Snow	0	0
DALLAS	11/28/2001	Ice Storm	0	0
DALLAS	2/5/2002	Winter Storm	0	0
DALLAS	3/2/2002	Winter Storm	0	0
DALLAS	2/24/2003	Winter Storm	0	0
DALLAS	2/14/2004	Heavy Snow	0	0
DALLAS	12/22/2004	Winter Weather	0	0
DALLAS	12/7/2005	Winter Storm	0	0
DALLAS	2/18/2006	Winter Weather	0	0
DALLAS	11/30/2006	Winter Storm	0	20,000
DALLAS	1/13/2007	Ice Storm	0	50,000
DALLAS	1/17/2007	Winter Weather	0	20,000
DALLAS	2/1/2007	Winter Weather	0	0
DALLAS	12/15/2008	Winter Weather	0	0
DALLAS	12/23/2008	Winter Weather	0	0
DALLAS	1/5/2009	Winter Weather	0	35,000
DALLAS	1/27/2009	Ice Storm	1	300,000
DALLAS	12/24/2009	Winter Weather	0	250,000
DALLAS	1/7/2010	Winter Weather	0	700,000
DALLAS	2/11/2010	Heavy Snow	0	16,000
DALLAS	3/20/2010	Winter Weather	0	100,000
DALLAS	2/1/2011	Ice Storm	0	500,000
DALLAS	2/3/2011	Heavy Snow	0	150,000
DALLAS	12/5/2013	Winter Storm	0	2,000,000
DALLAS	2/10/2014	Winter Weather	0	0
DALLAS	2/22/2015	Winter Storm	0	25,000
DALLAS	3/4/2015	Heavy Snow	0	0
DALLAS	3/4/2015	Sleet	0	0
DALLAS	3/4/2015	Sleet	0	0
DALLAS	3/4/2015	Winter Weather	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0

DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Heavy Snow	0	0
DALLAS	3/5/2015	Sleet	0	0
DALLAS	3/5/2015	Winter Weather	0	0
DALLAS	3/5/2015	Winter Weather	0	0

National Climatic Data Center

Summary of Vulnerability

The entire planning area is equally vulnerable to severe winter weather. The Planning Team has determined that the City is at high risk of substantial impact from severe winter weather. The biggest concern to the planning area is maintaining power to structures, as winter weather may cause disruptions. The other concern is the citizen's inexperience in preparing for the highly likely severe winter weather events. Severe winter weather have an increased impact on vulnerable populations and properties, including the elderly, transients and those in homes without adequate heating capabilities. These storms would also have an increase vulnerability on all overhead utility lines, streets and highways, especially overpasses. Electric services may be interrupted due to impacted overhead utility lines being damaged. In addition there is 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GISD schools at risk of impact from severe winter weather.



Terrorism

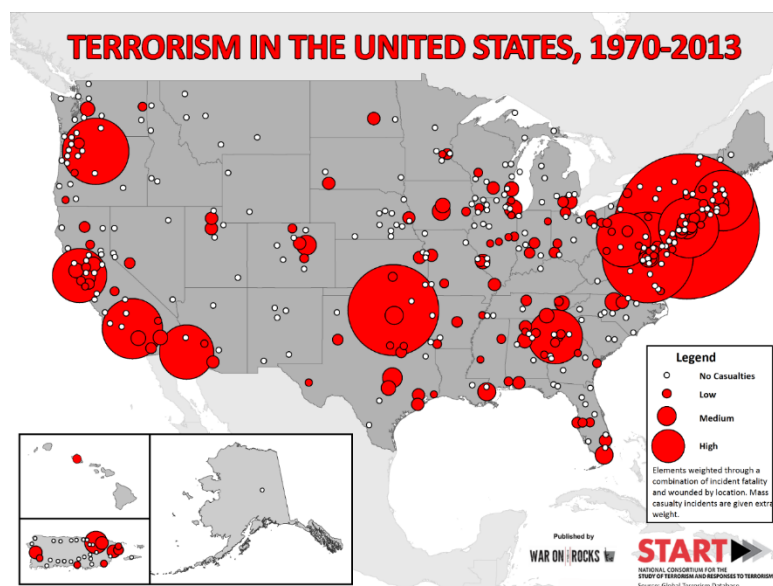
Hazard Description

According to the Homeland Security Act of 2002, terrorism is defined as activity that is dangerous to human life or potentially destructive of critical infrastructure or key resources. Terrorism can be a violation of the criminal laws of the United States or of any State or other subdivision. Terrorism can include intimidating or coercion of a civilian population to influence the policy or to affect the government by mass destruction, assassination, or kidnapping. There are different types of terrorism defined by the motivation behind attacks. There are also different methods and tactics that terrorists use in their attacks such as assassination, explosives, radiological threat, radicalization, chemical threats, biological threats, active shooters, infrastructure threats, arson, kidnapping and cyber threats.

Location

The entire planning area, the City of Garland, is subject to terrorism. It is thought that terrorism occurs most often where populations are high, at crowded events or symbolic venues that will generate the greatest media attention. Garland is a high population jurisdiction that is located near other areas that have had terrorism incidents occur. Figure 5.28 depicts all terrorist attacks over four decades. The size of the circle reflects the number of casualties from each attack. The data used was from the Global Terrorism Database. Terrorists often identify soft targets to attack. Soft targets are people or places that are relatively unprotected or vulnerable. Soft targets include public places like shopping malls, movie theaters, hotels, special events and community centers.³ The City of Garland is not a stranger to terrorism. In May of 2015, a terrorist event occurred at the local Curtis Culwell Center.

Figure 5.28



³ Global Risk Insights: <http://globalriskinsights.com/2016/07/soft-target-terrorist-attacks/>

Michael Jetter, a professor at the School of Economics and Finance at Universidad EAFIT in Medellín, Colombia, and a research fellow at the Institute for the Study of Labour in Bonn, Germany, conducted a study on more than 60,000 terrorist attacks reported in the New York Times between 1970 and 2012. His research was able to link media coverage of acts of terrorism to an increase of attacks committed in the same area. If this research is accurate, because of the media coverage of the Garland terrorism incident the city is at a greater risk of another attack at that location. In addition to the Curtis Culwell Center, there are other vulnerable locations within the City such as, local special events.

Severity

In 2014, a total of 13,463 terrorist attacks occurred worldwide, resulting in more than 32,700 deaths and more than 34,700 injuries. In addition, more than 9,400 people were kidnapped or taken hostage.⁴ Only a small percentage of these events occurred on American soil. However, with the ever changing political environment, it is not clear how much this percentage may shift over time. Only terrorist event has occurred in Garland. It is expected that another will occur in the future.

Table 5.29. Terrorist attacks and casualties worldwide

	Total Attacks		Total Fatalities		Fatalities per Attack		Total Injuries		Injured per Attack		Hostages Taken	
Year	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013
Worldwide	13,463	9,964	32,727	18,066	2.57	1.86	34,791	32,880	2.86	3.45	9,428	3,137

Previous Occurrences

On May 3, 2015, a cartoon drawing contest, "Draw the Prophet", was held at Garland Independent School District (GISD), Curtis Culwell Center. As the event was coming to an end, two males drove up to the front of the building. Both males were armed and opened fire, striking a GISD security officer. Garland police shot and killed both gunmen. The security guard's injuries were not life threatening, and Garland police officers were able to minimize the threat quickly. Police believed the suspects' vehicle may have contained an incendiary device and the Garland Explosive Ordnance Disposal (EOD) Team cleared and secured the vehicle and surrounding area. The surrounding businesses and event participants were evacuated until the scene was cleared.

Probability of Future Events

Because there has been a related terrorism attack in the City of Garland the Planning Team determined that a terrorist attack will occasionally occur in the City of Garland. Occasionally is defined as within the next six years. The likelihood of another terrorism event has also increased due to the recent release of "Attack in Garland" on March 26, 2017, a 60 Minutes Anderson Cooper broadcast. According to Michael Jetter's research described above, terrorist thrive on media attention so this media coverage has potential to heighten the terrorism threat in Garland.

⁴ U.S State Department: <https://www.state.gov/j/ct/rls/crt/2014/239416.htm>

Impact on Community

Terrorism is a rare occurrence in Garland, but because soft targets are the aim and because it's difficult to predict, the severity of impact would be substantial. The U.S Department of State reports that on average in 2014, there were 2.57 fatalities and 2.87 injuries per attack. The other risk of terrorism are regarding infrastructure and cyber-attacks that would impact government critical facilities and services.

Summary of Vulnerability

The entire planning area is equally vulnerable to terrorism. It is probable that there will be some type of terrorism in the City of Garland within the next six years. If a terrorist achieves their goal, the severity of impact would be substantial. Because of previous occurrences, the City of Garland Planning Team considers terrorism to be a high risk hazard.

Soft targets will remain a threat because they have operational characteristics that make them vulnerable and easy to exploit: open and spacious areas, multiple entrances and exits, parking in close proximity, lack of security, and individual screening. These characters give higher rates of success to terrorists and make the community more vulnerable.



Biological Event

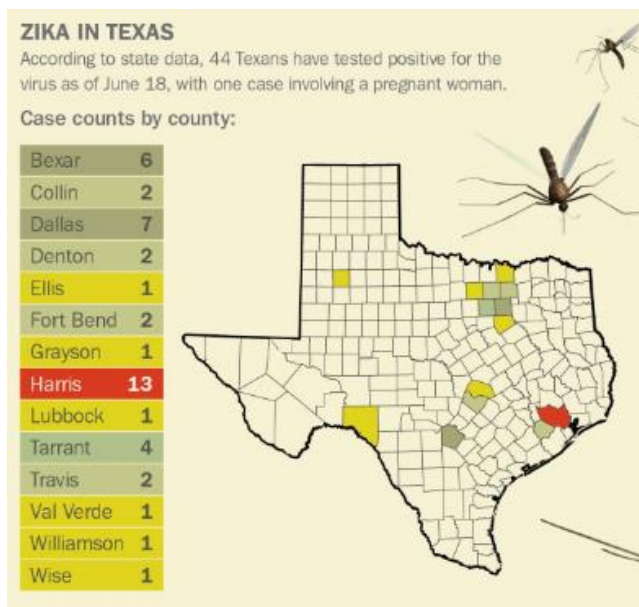
Hazard Description

In this section biological hazards refers to an accidental or naturally occurring disease outbreak of known or unknown origin that pose a threat to the health of living organisms, primarily that of humans. This definition also includes those biological agents found in the environment, or diagnosed in animals, that have the potential for transmission to humans. Intentional transmission of infectious agents is included in the terrorism profile. Examples of biological events include but are not limited to: Zika, H1N1, Ebola, and West Nile.

Location

Because of the mobile nature of populations, it is impossible to accurately map the location of biological events. The entire planning area, the City of Garland, is equally subject to biological events.

Figure 5.30

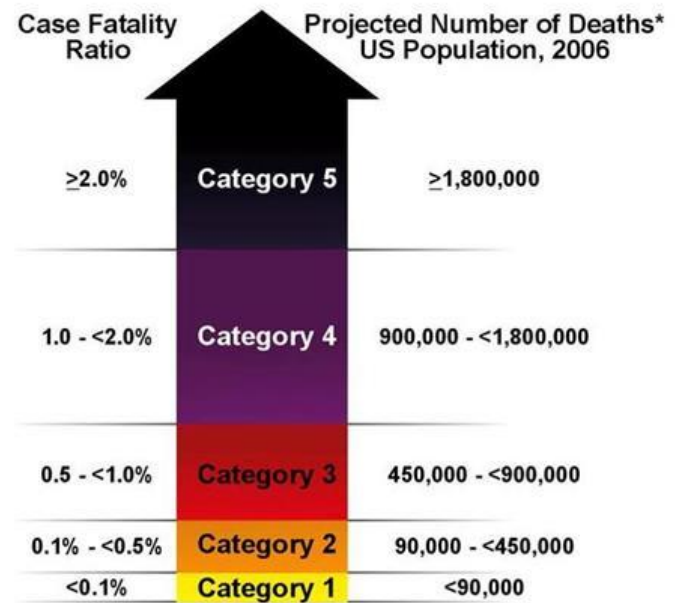


Severity

The Center for Disease Control and Prevention (CDC) determines the severity of pandemics and communicable disease outbreaks based on a measurement system known as the Pandemic Severity Index. The main criteria used to measure pandemic severity will be the case-fatality ratio (CFR), the percentage of deaths out of the total reported cases of the disease. Accompanying the Pandemic

Severity Index is the Interventions by setting table that can be used as a guide for mitigation actions during a biological event. In Table 5.31 below these tools are illustrated. Several biological events have impacted Garland and it is expected that another occur in the future.

Table 5.31



*Assumes 30% illness rate and unmitigated pandemic without interventions

Pandemic Severity Index			
Interventions* by Setting	1	2 and 3	4 and 5
Home Voluntary isolation of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	Recommend†§	Recommend†§	Recommend†§
Voluntary quarantine of household members in homes with ill persons*‡ (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally not recommended	Consider**	Recommend**
School Child social distancing -dismissal of students from schools and school based activities, and closure of child care programs -reduce out-of-school social contacts and community mixing	Generally not recommended Generally not recommended	Consider: ≤4 weeks†† Consider: ≤4 weeks††	Recommend: ≤12 weeks§§ Recommend: ≤12 weeks§§
Workplace / Community Adult social distancing -decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings) -increase distance between persons (e.g., reduce density in public transit, workplace) -modify postpone, or cancel selected public gatherings to promote social distance (e.g., postpone indoor stadium events, theatre performances) -modify work place schedules and practices (e.g., telework, staggered shifts)	Generally not recommended Generally not recommended Generally not recommended Generally not recommended	Consider Consider Consider Consider	Recommend Recommend Recommend Recommend

Previous Occurrences

On October 17, 2014 the City of Garland Public Health Department reported that three cases of Ebola had been confirmed in Dallas County since September 28. At least five contacts in Garland were monitored by Dallas County Health and Human Services. These contacts were on an airplane with a nurse that tested positive for the virus. One of the contacts in Garland was asked by Dallas County Health to stay home for 21 days and was monitored twice a day by phone and was told not to travel. The four additional Garland contacts were considered extremely low risk. They self-monitored twice a day by phone. Approximately 177 people in the Dallas area fell under some type of quarantine.⁵

On May 4, 2009, the Dallas County Department of Health and Human Services Department released a health alert which stated "the World Health Organization's pandemic alert level has been raised to 5, signifying human-to-human transmission and sustained community-wide outbreaks with the Novel Influenza A (H1N1) virus, and an imminent likelihood of a pandemic. Community transmission is currently occurring in Dallas County, with 58 probable and confirmed cases identified over the past 8 days."

Probability of Future Events

The occurrence of a biological event is largely impossible to predict, due to the mobile nature of humans and the speed at which a pathogen can spread and mutate. A total of 3 biological events have occurred within Dallas County, with a direct impact on the City of Garland, since 2009. Calculations from this data suggests that a biological event will occur in Dallas County and subsequently the City of Garland, 0.4 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is likely a biological event will occur in Garland within the next three years.

Impact on Community

The potential impact of loss of life and illness from a large biological event is major. Government service levels could potentially be modified to prevent the spread of illness.

Summary of Vulnerability

The entire planning area is equally vulnerable to biological events. The probability of a biological event occurring in Garland to some extent within the next three years is likely. This type of hazard has the potential to cause major impacts to the lives of Garland residents. These factors make a biological hazard a moderate risk for the City of Garland. The most vulnerable individuals to biological agents would be those who live and work in areas with frequent interpersonal contact, those with compromised immune systems, the young, the elderly, and individuals who travel frequently. There is 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GISD schools at risk of impact from biological event.

⁵ Vanity Fair: <http://www.vanityfair.com/news/2015/02/ebola-us-dallas-epidemic>



Flood

Hazard Description

Floods are the most prevalent hazard in the United States. A flood is defined as two or more acres of dry land or two or more properties that are covered by water temporarily. There are three types of flooding that occur in Garland: river flood, inland flooding and flash floods. Two types of floods that does not impact Garland are coastal floods and storm surges.

A river flood occurs when water levels rise over the top of river banks due to excessive rain or persistent thunderstorms over the same area for extended periods of time.

Inland flooding occurs when moderate precipitation accumulates over several days where intense precipitation falls over a short period.

A flash flood is caused by heavy or excessive rainfall in a short period of time, generally less than six hours. Flash floods are usually characterized by raging torrents after heavy rains that rip through river beds and urban streets. They can occur within minutes or a few hours of excessive rainfall. They can also occur when no rain has fallen in the area or after a levee or dam has failed. Flash floods are particularly dangerous in urban areas and cause the greatest damage. As more farmlands and wooded areas are converted to urban and suburban areas, the amount of surface area available for water infiltration into the soils decrease. Home sites, parking lots, buildings, and roadways all decrease the surface area of soil on the Earth's surface.

According to the National Weather Service, about 10% of the land in the United States is paved. Water that would have been absorbed into the ground now is redirected into sewage and storm drain systems. In addition to the increase in urban structures, there is a resulting decrease in vegetation which causes additional flooding._

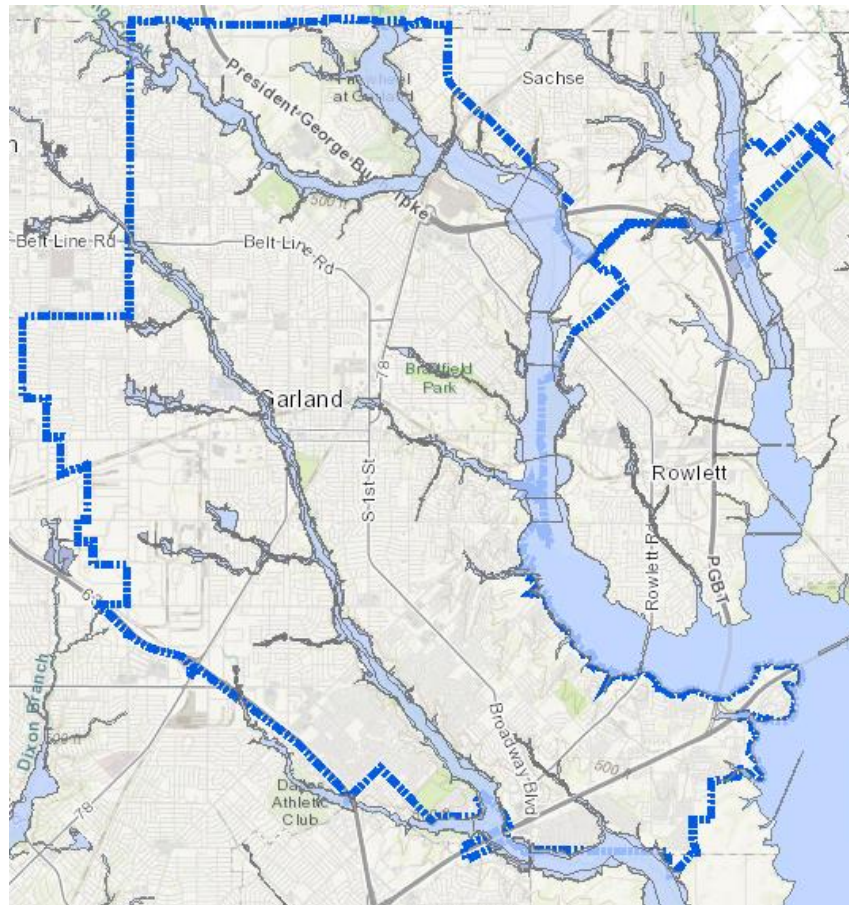


Garland, TX - 2015

Location

Figure 5.6 shows the City of Garland in relation to the 100 and 500 year floodplains. FEMA has published Flood Insurance Rate Maps (FIRMs) showing approximately 2,400 acres of the 100-year floodplain primarily along Duck Creek, Rowlett Creek, Spring Creek, Mills Branch and their tributaries.

Figure 5.6. FEMA 2014 100 and 500 Year Floodplain



City of Garland GIS. Note: FEMA-issued Flood Insurance Rate Maps should be used for detailed floodplain determinations.

Severity

Flood severities are determined by Federal Emergency Management Agency (FEMA) flood zone designations. Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map. Each zone reflects the severity of impact or type of flooding in the area. Only a few small areas within the City of Garland are Zone A. Historically, the worst flood Garland has seen was in 1990 and 1991 when water levels rose to 3 feet. After the flood control project the maximum water level in the same area was 2 feet in 2015. This was the result of a near 100 year flood and it impacted far less homes than in 1990. The City of Garland expects that the worst future flood level be the same as in 2015, 2 feet.

Table 5.7. FEMA Flood Zones**Moderate to Low Risk**

Zone	Description
B and X (Shaded light blue in figure?)	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 sq. mi.
C and X (Shaded light blue in figure?)	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.

High Risk Areas

Zone	Description
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths are shown within these zones.
AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
A99	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.

Zone	Description
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
VE, V1-30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

Zone	Description
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Insurance rates are commensurate with the uncertainty of the risk.

FEMA	Map	Service	Center
http://www.msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMA%20Flood%20Zone%20Designations			

Damaging flood events occurred on Duck Creek in 1949, 1957, 1962, 1966, 1969, 1971, 1977, 1981, 1989, 1990, 1991 and 2015. These floods caused considerable damage. Following the flooding events of 1990 and 1991, the City of Garland partnered with the United States Army Corps of Engineers to complete a channel improvement project for Duck Creek. This project was complete in 1998. As a result, the base flood elevation was lowered to a level where 514 structures now have the ground floor situated above the base flood elevation. The Letter of Map Revision (LOMR) indicates this change and was finalized on February 5, 2003. Since this improvement to Duck Creek, flood events have lowered dramatically, until 2015 when two flood incidents took the life of one person attempting to cross a flooded road. This was a result of an estimated 100 year flood. However, damage would have been much greater had the Army Corps of Engineers channel improvement project not been completed. Since the 2015 incidents, locking flood gates have been installed across frequently flooded roadways to minimize future loss of life to residents and increase safety.

The City of Garland is subject to flooding from Duck Creek, Rowlett Creek, Spring Creek, Mills Branch, and their tributaries. The planning area is subject to intense local thunderstorms of short duration and general storms extending over periods of several days. Flooding results primarily from stream overflow caused by rainfall runoff, ponding, and sheet flow. Most of the flooding events occur in the spring and summer months. However, severe flooding can be produced by rainfall at any time. Previous historical data in Table 5.8 shows 16 flood events have occurred within Garland since 1998. Calculations from this data suggests that a flood event will impact Garland 0.9 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely for a flood event to occur within the next year.

Impact on Community

A flood of the same magnitude as that of the 1991 Duck Creek flooding event would cause significantly less damage than it did before the channel widening project. Table 5.8 shows previous flood occurrence data from the NCDC. Sixteen flood events have been reported in Garland between 1/1/1998 and 12/31/2015. Those floods caused two deaths. The May 2015 flood caused an estimated \$8 million dollars in property damage impacting over 100 homes and caused \$884,506.19 of damage to City facilities and infrastructure. Another large flood event would undoubtedly cause major damage to the community.

Table 5.8. Flood Historical Data

COUNTY	TOWN	DATE	EVENT TYPE	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
DALLAS CO.	GARLAND	9/16/1998	Flash Flood	0	0	0
DALLAS CO.	GARLAND	11/24/1996	Flash Flood	0	0	0
DALLAS CO.	GARLAND	9/16/1998	Flash Flood	0	0	0
DALLAS CO.	GARLAND	12/4/1998	Flash Flood	1	0	0
DALLAS CO.	GARLAND	12/4/1998	Flash Flood	0	0	0
DALLAS CO.	GARLAND	6/11/2000	Flash Flood	0	0	0
DALLAS CO.	GARLAND	4/7/2002	Flash Flood	0	0	0
DALLAS CO.	GARLAND	10/18/2002	Flash Flood	0	0	0
DALLAS CO.	GARLAND	1/3/2005	Flash Flood	0	0	0
DALLAS CO.	GARLAND	6/26/2007	Flash Flood	1	0	0
DALLAS CO.	GARLAND	6/27/2007	Flash Flood	0	0	0
DALLAS CO.	GARLAND	9/9/2007	Flash Flood	0	25,000	0
DALLAS CO.	GARLAND	3/18/2008	Flash Flood	0	15,000	0
DALLAS CO.	GARLAND	5/29/2015	Flash Flood	0	0	0
DALLAS CO.	GARLAND	5/29/2015	Flash Flood	0	8,884,506	0
DALLAS CO.	GARLAND	5/30/2015	Flash Flood	1	0	0

National Climatic Data Center

Summary of Vulnerability

The principal flood problem in the City of Garland is the low-lying area adjacent to Duck Creek. The Duck Creek watershed is approximately 96 percent developed with only a small portion of the watershed available for future development. The United States Army Corps of Engineers (USACE) considers existing and future urbanization conditions to remain the same for the Duck Creek basin. The mitigation enhancements to the City which also include 8 flood gates and an aggressive floodplain management program has lessened the impact of a flood event. The Hazard Mitigation Planning Team has determined that the City of Garland is at moderate risk of major impacts from floods due to the number of previous occurrences, combined with the impacts of those occurrences, severe thunderstorms the area sustains and heavy development surrounding Garland. There are 452 total flood loss properties in Garland valued at roughly \$10 million dollars which are the most vulnerable to flooding. In addition to these parcels, there is 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GISD schools at risk of impact from flooding.

National Flood Insurance Program Overview

Summary

Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Participation in the NFIP is voluntary.

Flood insurance is designed to provide an alternative to disaster assistance and reduce the costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80 percent less damage annually than those not built in compliance.

Local Participation in the NFIP

Based on TCEQ records, the City of Garland enrolled in the NFIP Emergency Program on August 8, 1970 and the Regular Program on April 16, 1971. As of September, 2015 the City of Garland had 450 active flood insurance policies within the community. Between January 1, 1978 and September 1, 2016 the City of Garland had 462 total flood losses, damage valued roughly at \$10 million dollars. Table 5.8 shows all flood losses for the City of Garland. Through the Building Inspections and Engineering Department, Garland will continue to comply with NFIP. Garland will meet FEMA ordinances regarding new developments and will enforce ordinances and regulations in regards to existing developments.

Table 5.8

Federal Emergency Management Agency Loss Statistics from Jan 1, 1978 through 11/1/2016					
Community	Total	Closed	Open Losses	CWOP	Total
Garland	462	376	0	86	\$9,933,174.11

Source: <http://bsa.nfipstat.fema.gov/reports/1040.htm>

Repetitive Loss Properties

- Two or more claims of more than \$1,000 paid by the NFIP within any 10-year period since 1978.

To focus resources on those properties that represent the best opportunities for mitigation, Congress defined a subset called "Severe Repetitive Loss Properties" defined below. Garland has 56 repetitive loss properties, three of which are commercial properties.

Severe Repetitive Loss Properties

- Four or more claims of more the \$5,000; or
- Two to three claims that cumulatively exceed the building's value

Assessing Vulnerability: Addressing Repetitive Loss

The Federal Emergency Management Agency (FEMA) produces statistics on community flood losses. Losses are determined by claims made to the National Flood Insurance Program (NFIP). The following section is an assessment of claims to the NFIP, and properties within the City of Garland which are designated as repetitive loss structures.

Table 5.9 provides a summary of residential repetitive flood insurance claims for individual streets in Garland that include repetitive loss properties. Address data about individual sites has been omitted for confidentiality. The loss history includes all flood claims paid on an insured property, regardless of any change of ownership. The data begins at the building's construction or back to 1978 if the building was constructed prior to 1978. The history includes the number of repetitive loss properties on each street, average total amount paid to each structure, date of the last loss, and the average estimated structure value.

Table 5.9 City of Garland Repetitive Loss Properties

Street Name	Number of Properties with Losses	Total Number of Losses	Date of Last Loss	Average Amount Paid Per Structure	Average Structure Value
Glenbrook DR	24	78	9/10/2007	\$105,223.88	\$146,544.81
Ridgedale DR	13	32	3/19/2006	\$81,330.96	\$156,344.29
Forest LN	3	7	10/21/1994	\$57,938.14	\$269,333.33
Rock Creek	3	6	4/12/1991	\$35,177.48	\$138,866.67
Ranier Cir	3	6	4/11/1991	\$34,047.75	\$108,573.33
Pleasant Valley RD (commercial)	2	16	3/18/2008	\$218,739.30	\$71,160.00
University DR	2	5	4/12/1991	\$10,848.80	\$145,610.00
Frances DR	1	2	4/11/1991	\$25,616.67	\$96,580.00
ST George	1	2	4/15/1990	\$5,721.97	\$98,730.00
W Centerville RD (commercial)	1	4	6/11/2000	\$30,761.74	\$140,500.00
Iroquois	1	2	5/5/1995	\$7,233.95	\$119,590.00
Carroll DR	1	5	6/21/2000	\$51,770.75	\$234,170.00
Brookview	1	2	4/11/1991	\$16,393.64	\$67,000.00

FEMA – Garland Repetitive Loss Properties 08-31-2015



Earthquake

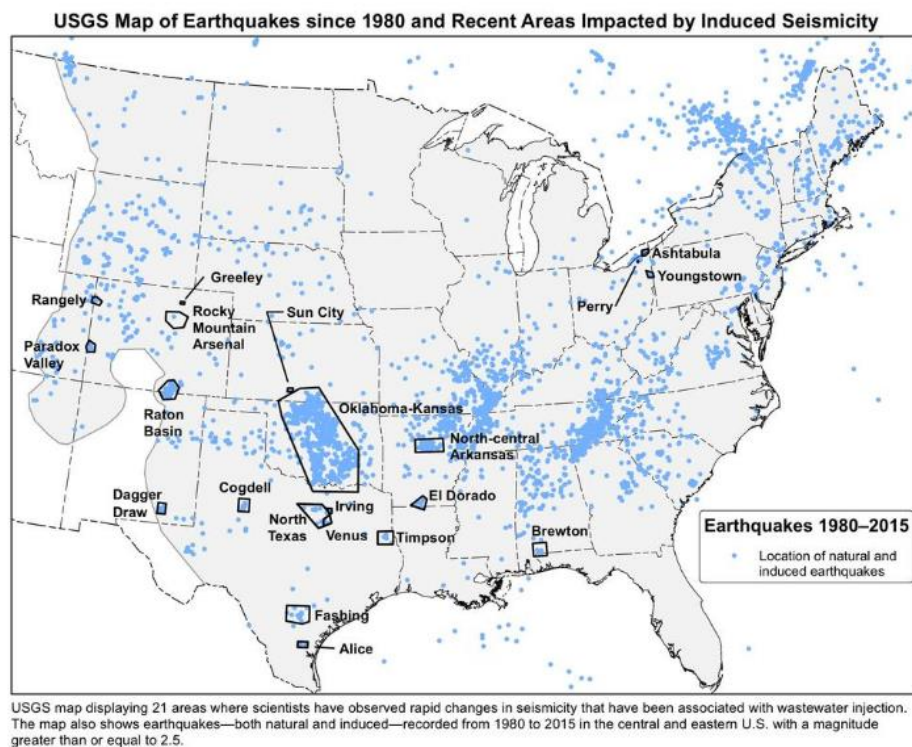
Hazard Description

Earthquakes are sudden rolling or shaking events caused by movement under the earth's surface. Earthquakes happen along cracks in the earth's surface, called fault lines, and can be felt over large areas. They usually last less than one minute but can cause substantial damage to infrastructure in a short amount of time.

Location

All 50 states and 5 U.S. territories are at some risk for earthquakes and they can happen at any time of the year. The most significant hazards from induced seismicity are in six states, listed in order from highest to lowest potential hazard: Oklahoma, Kansas, Texas, Colorado, New Mexico and Arkansas. Oklahoma and Texas have the largest populations exposed to induced earthquakes.⁶ The City of Garland, is equally subject to earthquakes.

Figure 5.23



Severity

None of the Texas earthquakes have exceeded a magnitude of 6.0, and most have been fairly small and caused little to no damage. The largest one in Dallas County was a 3.6 on the Richter Scale. Similar sized earthquakes are expected in the future. Table 5.24 below combines the Mercalli and Richter Scale which allows planners to assess the impact earthquakes have.

⁶ U.S Geological Survey: <https://www.usgs.gov/news/induced-earthquakes-raise-chances-damaging-shaking-2016>

Table 5.24. Mercalli and Richter scale

Richter	Mercalli	Earthquake Effects
2	I	Instrumental. Not felt except by a very few under especially favourable conditions detected mostly by Seismography.
	II	Feeble. Felt only by a few persons at rest, especially on upper floors of buildings.
	III	Slight. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to the passing of a truck.
3	IV	Moderate. Felt indoors by many, outdoors by few during the day. At night, some awakening. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like a heavy truck striking building. Standing motor cars rock noticeably.
	V	Rather Strong. Felt by nearly everyone; many awakened. Some dishes, windows broken. Un-stable objects overturned. Pendulum clocks may stop.
5	VI	Strong. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
	VII	Very Strong. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in ordinary structures; considerable damage in poorly built or badly designed structures.
6	VIII	Destructive. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of factory stacks, columns, monuments, walls. Heavy furniture overturned.
7	IX	Ruinous. Damage considerable in specially designed structures; well designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
	X	Disastrous. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bend greatly.
8	XI	Very Disastrous. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bend greatly.
	XII	Catastrophic. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Pacific Northwest Seismic Network

Previous Occurrences

Earthquakes have only recently been recorded in the region. The strongest quake to rattle Dallas County occurred on January 6, 2015, and registered a magnitude of 3.6. To date there have been no injuries, fatalities or major damage recorded. The magnitudes experienced in Dallas County are considered minor and only felt by humans but have not caused damage. Currently, there is not a significant amount of data for earthquakes in Dallas County.

Probability of Future Events

According to the North Central Texas Council of Governments, 11 earthquakes (within 3 days) have occurred in Dallas County since 2008 (Table 5.25). Data is not currently available specifically for the City of Garland. Calculations from this data suggests that a similar sized earthquake will occur 0.4 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is likely that an earthquake occur within the next 3 years.

Impact on Community

A 6.0 earthquake, the largest recorded in Texas, if in the City of Garland would have major impacts. Damage has occurred in at least twenty-five of the recorded earthquakes in Texas and one death has been attributed to a Texas quake.⁷

⁷ University of Texas Arlington: <https://www.uta.edu/ce/research/disaster/earthquake.php>

Because this hazard is new to the region, residents, businesses, built infrastructure and first responders have not been educated nor are they prepared for this type of event. The tremors could cause hairline cracks in underground pipes, gas lines and in walls of buildings. The majority of the damages to the community would be the result of property and infrastructure damages. Major could potentially be caused to large overpasses at I-30 and the George Bush Turnpike.

Table 5.25. Dallas County Earthquakes

County	Event Date	Latitude	Longitude	Depth	Magnitude
Dallas	1/6/2012	32.782	-96.685	5	2.1
Dallas	5/15/2009	32.79	-97.02	5	2.6
Dallas	11/1/2008	32.79	-97.02	8	3.3
Dallas	10/31/2008	32.87	-96.97	5	2.7
Dallas	10/31/2008	32.79	-97.03	5	2.9
Dallas	10/31/2008	32.83	-97.03	5	2.9
Dallas	10/31/2008	32.83	-97.01	5	2.9
Dallas	10/31/2008	32.76	-97.02	5	2.5
Dallas	10/31/2008	32.87	-96.97	5	2.6
Dallas	10/31/2008	32.84	-97.03	5	3
Dallas	10/31/2008	32.8	-97.02	5	2.6

Source: NCTCOG Regional Hazard Assessment Tool (RHAT)

Vulnerability

The entire planning area is equally vulnerable to earthquakes. The probability of a small earthquake occurring in Garland within the next 3 years is likely. Large scale earthquakes are considered to be an isolated event, however would cause major damage due to a low risk of high magnitude earthquakes in this area. The unpredictability and unschooled population regarding earthquakes is a concern. Because the region as a whole has not faced infrastructure complications regarding earthquakes the impacts of a large earthquake would be major. Therefore the risk of earthquakes to the City of Garland is moderate. Built environment including structures and overpasses would be the most vulnerable to an earthquake event. There is 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GISD schools at risk of impact from an earthquake.



Severe Thunderstorm

Hazard Description

The National Weather Service defines a severe thunderstorm as a storm that has winds of at least 58 mph (50 knots), and/or hail at least 1" in diameter. Severe thunderstorms also can be capable of producing a tornado. Structural wind damage may imply the occurrence of a severe thunderstorm. Straight-line winds are often responsible for wind damage associated with a severe thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. Downbursts or micro bursts are examples of damaging straight-line winds. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour. Lightening is a characteristic of thunderstorms. Lightening is a giant spark of electricity in the atmosphere between clouds, the air, or the ground. Air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges builds up, the insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning.

Location

The greatest severe thunderstorm threat in the U.S. extends from Texas to southern Minnesota. But, no place in the United States is completely safe from the threat of severe thunderstorms.⁸ Due to the unpredictable nature of severe thunderstorms, it is impossible to determine the exact area of their future occurrences. The entire planning area, the City of Garland, is equally subject to severe thunderstorms.

Severity

Table 5.19 shows the level of categorical risk of thunderstorms in Day 1-3 Convective Outlooks derived from probability forecasts of tornadoes, damaging winds and large hail.⁹ Table 5.20 shows The Beaufort Wind Scale. The Beaufort Wind Scale is representative of the damage from high winds this community may sustain. The Beaufort Wind Scale allows planners in the community to assess historical data and mitigate for future events. The highest winds to impact Garland in the past 20 years occurred in 2009 and 2011 when winds recorded exceeded 80 mph. This is not a rare occurrence in North Texas and it is expected that 80 mph winds or higher be expected in the future.

⁸ The National Severe Storms Laboratory: <http://www.nssl.noaa.gov/education/svrwx101/thunderstorms/>

⁹ Storm Prediction Center: <http://www.spc.noaa.gov/misc/about.html>

Table 5.20

Understanding Severe Thunderstorm Risk Categories					
THUNDERSTORMS (no label)	1 - MARGINAL (MRGL)	2 - SLIGHT (SLGT)	3 - ENHANCED (ENH)	4 - MODERATE (MDT)	5 - HIGH (HIGH)
No severe* thunderstorms expected	Isolated severe thunderstorms possible	Scattered severe storms possible	Numerous severe storms possible	Widespread severe storms likely	Widespread severe storms expected
Lightning/flooding threats exist with <u>all</u> thunderstorms	Limited in duration and/or coverage and/or intensity	Short-lived and/or not widespread, isolated intense storms possible	More persistent and/or widespread, a few intense	Long-lived, widespread and intense	Long-lived, very widespread and particularly intense
					
• Winds to 40 mph • Small hail	• Winds 40-60 mph • Hail up to 1" • Low tornado risk	• One or two tornadoes • Reports of strong winds/wind damage • Hail ~1", isolated 2"	• A few tornadoes • Several reports of wind damage • Damaging hail, 1 - 2"	• Strong tornadoes • Widespread wind damage • Destructive hail, 2" +	• Tornado outbreak • Derecho
* NWS defines a severe thunderstorm as measured wind gusts to at least 58 mph, and/or hail to at least one inch in diameter, and/or a tornado. All thunderstorm categories imply lightning and the potential for flooding. Categories are also tied to the probability of a severe weather event within 25 miles of your location.					

Table 5.19. Beaufort Wind Scale

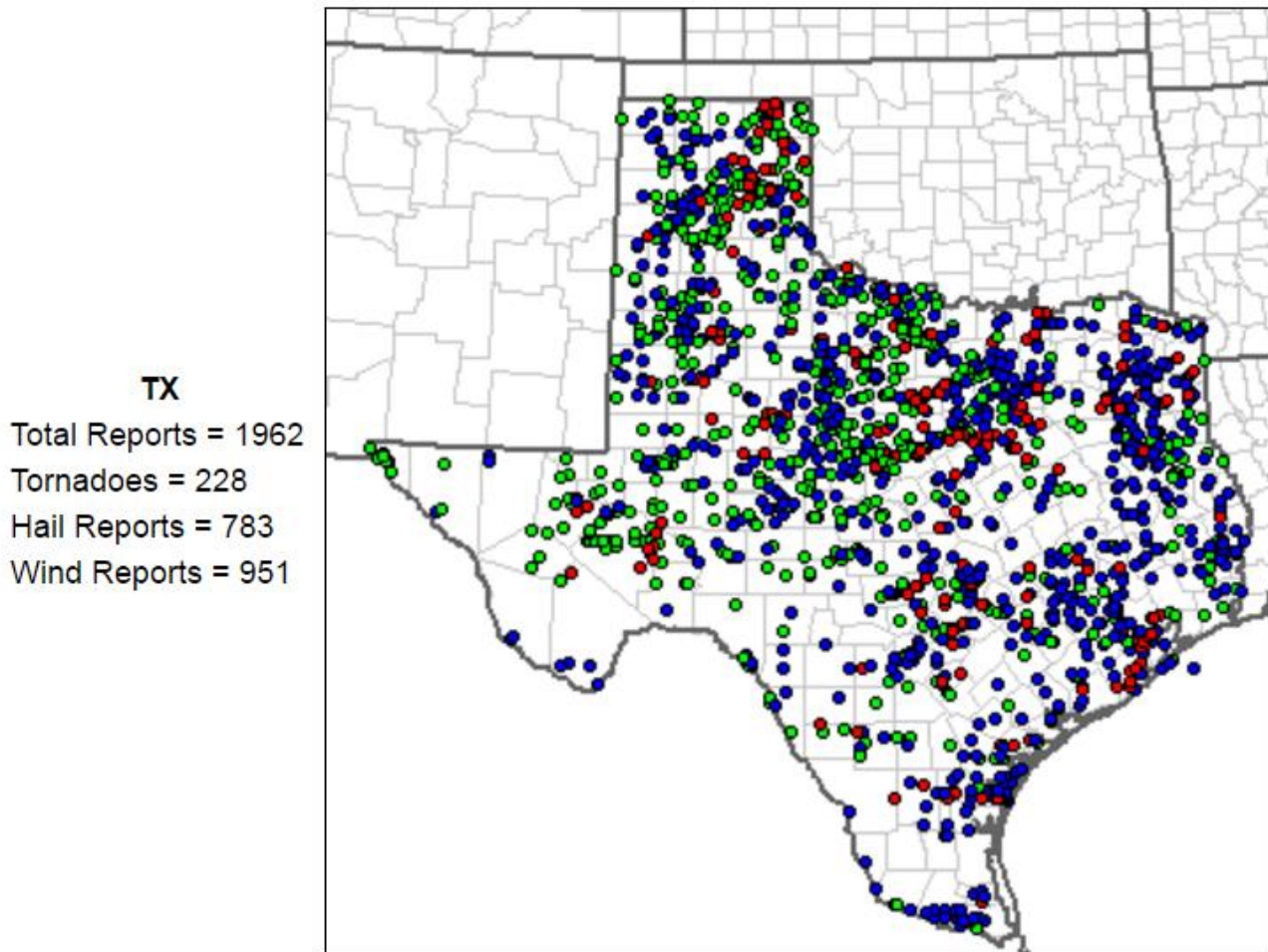
Beaufort Wind Scale				
#	MPH	Knots	Description	Specifications
0	< 1	< 1	Calm	Smoke rises vertically.
1	1-3	1-3	Light Air	Direction of wind shown by smoke drift but not by wind vanes.
2	4-7	4-6	Light Breeze	Wind felt on face; Leaves rustle; Wind vanes moved by wind
3	8-12	7-10	Gentle Breeze	Leaves and small twigs in constant motion; Wind extends light flag.
4	13-18	11-16	Moderate	Raises dust, loose paper; Small branches moved.
5	19-24	17-21	Fresh	Small trees begin to sway; Crested wavelets form on inland waters.
6	25-31	22-27	Strong	Large branches in motion; Whistling heard in telephone wires; Umbrellas used with difficulty.
7	32-38	28-33	Near Gale	Whole trees in motion; Inconvenience felt walking against the wind.
8	39-46	34-40	Gale	Twigs break off trees; Wind generally impedes progress; Mobile homes may shake.
9	47-54	41-47	Strong Gale	Slight structural damage occurs; Mobile homes, sheds, roofs, lanais, and RV's suffer minor damage.
10	55-63	48-55	Storm	Small trees uprooted; Moderate damage occurs to mobile homes and RV's; Brick and wood frame houses receive minor structural and roof damage; Some signs blown down.
11	64-73	56-63	Violent Storm	Moderate sized trees uprooted; Large branches snapped off trees; Chimneys and road signs toppled; Significant mobile home damage; Power lines downed.
12	74-95	64-83	Hurricane Category 1	Mobile homes overturned; Large trees and branches downed; Moderate roof damage to wood and brick homes; Minor pier damage.

Source: <https://www.weather.gov/tbw/beaufort>

Previous Occurrences

The National Weather Service's Storm Prediction Center reported 1,734 severe thunderstorm events in Texas during 2015. This excludes tornadoes as Garland's HazMAP classifies tornadoes as a separate hazard. Narrowing occurrences to the defined planning area of Garland, the National Climatic Data Center reported 22 thunderstorms have been reported between 2/29/1994 and 12/31/2016.

Figure 5.21. Annual Severe Thunderstorm Report Summary - 2015



Probability of Future Events

Calculations from historical data suggests that a severe thunderstorm will impact Garland at least 1 time a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely that severe thunderstorms occur in the next year.

Impact on Community

According to the National Climatic Data Center, 22 severe thunderstorms/thunderstorms with significant wind have caused an estimated \$200,000 in property damage. The most common impacts of severe thunderstorms are power outages and private property damage consisting of roof and vehicle damage from wind and hail.

Because severe thunderstorms are such a common occurrence, residents are prepared and practiced in mitigating damage. Public education is also a focus through many different channels: the National Weather Service, media outlets and several City departments push severe thunderstorm messaging year round. The City of Garland and Garland Power & Light both have tree trimming programs to help mitigate effects of severe thunderstorms. GP&L trims trees and other vegetation away from power lines to provide safe and reliable electric service. Because of this proactive vegetation management program, GP&L customers experience fewer outages than average as reported by the American Public Power Association (APPA). For these reasons it has been determined that severe thunderstorms impacts that do occur are minor.

Table 5.22. Severe Thunderstorm Historical Data

COUNTY	DATE	EVENT TYPE	WIND SPEED	PROPERTY DAMAGE
GARLAND	5/29/1994	Thunderstorm Wind	52 kts.	0
GARLAND	11/3/1994	Thunderstorm Wind	56 kts.	0
GARLAND	6/15/1996	Thunderstorm Wind	61 kts.	2,000
GARLAND	6/16/1997	Thunderstorm Wind	52 kts.	0
GARLAND	10/2/1998	Thunderstorm Wind	55 kts.	0
GARLAND	11/9/1998	Thunderstorm Wind	52 kts.	0
GARLAND	2/9/2001	Thunderstorm Wind	52 kts.	0
GARLAND	6/14/2001	Thunderstorm Wind	52 kts.	0
GARLAND	6/14/2001	Thunderstorm Wind	52 kts.	0
GARLAND	4/7/2002	Thunderstorm Wind	52 kts.	0
GARLAND	8/8/2005	Thunderstorm Wind	50 kts.	20,000
GARLAND	5/2/2007	Thunderstorm Wind	50 kts.	0
GARLAND	2/10/2009	Thunderstorm Wind	70 kts.	0
GARLAND	4/14/2011	Thunderstorm Wind	70 kts.	50,000
GARLAND	4/14/2011	Thunderstorm Wind	64 kts.	50,000
GARLAND	10/23/2011	Thunderstorm Wind	61 kts.	10,000
GARLAND	10/23/2011	Thunderstorm Wind	61 kts.	10,000
GARLAND	5/21/2013	Thunderstorm Wind	50 kts.	10,000
GARLAND	5/21/2013	Thunderstorm Wind	60 kts.	30,000
GARLAND	8/13/2013	Thunderstorm Wind	43 kts.	3,000
GARLAND	10/2/2014	Thunderstorm Wind	60 kts.	5,000
GARLAND	3/8/2016	Thunderstorm Wind	51 kts.	10,000

National Climatic Data Center

Summary of Vulnerability

The entire planning area is equally vulnerable to severe thunderstorms. All structures and populations within the City are equally vulnerable to the effects of severe thunderstorms. In addition to these parcels, there is 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GISD schools at risk of impact from severe thunderstorms. The highly likelihood of severe thunderstorm is a concern but because the City of Garland is so accustomed to severe thunderstorms and have current mitigation programs the impacts are minor, therefore the risk of severe thunderstorms are moderate.



Infrastructure and Communications Failure

Hazard Description

Infrastructure is the basic facilities and services needed for a community. The City of Garland infrastructure includes roads, wastewater treatment plants, water and wastewater pipes, power plants, electrical lines, bridges, an airport, railroads, and schools. Infrastructure also includes telecommunications equipment, which if impacted may cause a communications failure. A communications failure is the interruption or loss of communications systems including transmission lines, communications satellites, and associated hardware and software necessary for the communications system to function. It can include telecommunications, radio and information technology failures. A communications failure may be the result of an equipment failure, human act (deliberate or accidental) or the result of another hazard event.

Location

Because of the large array of possible infrastructure and communications failures it is impossible to map the location they would occur. The entire planning area, the City of Garland, is equally subject to infrastructure and communications failures.

Severity

When an infrastructure/communications failure occurs, it can have a wide range of effects on a community. Deteriorating infrastructure is a problem all of America is facing. Every four years, the American Society of Civil Engineers Committee on America's Infrastructure provides a comprehensive assessment of the nation's 16 major infrastructure categories grading A to F. The components that are considered when grading include: capacity, condition, funding, future need, operation and maintenance, public safety and resilience. The 2012 Report Card for Texas' Infrastructure was an overall grade of "C".¹⁰

Previous Occurrences

Most past occurrences have been small incidents that were quickly addressed and to date there has not been a significant infrastructure failure within the City of Garland. There was however a communications failure. On March 8, 2017, there was a nationwide issue. AT&T cell phone were unable to call 911 for several hours.

Probability of Future Events

The occurrence of an infrastructure/communications failure is largely impossible to predict. The likelihood of a large-scale extended communications failure is low. However, small scale failures with a short duration is not abnormal. Therefore, according to Table 4.3 Hazard Frequency Ranking the Planning Team has concluded that an infrastructure/communications failure may occasionally occur in the City of Garland in the next six years.

¹⁰ 2012 Report Card for Texas' Infrastructure: <https://www.infrastructurereportcard.org/wp-content/uploads/2013/02/2012-Texas-Report-Card-FINAL.pdf>

Impact on Community

Nearly every aspect of modern life is dependent on digital infrastructure. Critical infrastructure services, such as emergency services, utility services, water services and telecommunications can be impacted by a communications or infrastructure failure. Failures can result in a 911 or emergency warning system failure, a delay of response times by emergency service providers, and has the potential to impact the entire community.

Flooding typically damages the infrastructure of a community, including roads, bridges, power lines and plants. It can take a significant amount of time to fully repair these facilities and infrastructure, depending on the nature of the damage and the resources available that can be dedicated.

A 2016 report estimates that continued underinvestment in infrastructure will cost each U.S. family \$3,400 a year over the next decade. "Poor infrastructure means more congestion on our roadways, broken water lines, power outages and an inability to get our goods to market," said Greg DiLoreto, chair of ASCE's Committee for America's Infrastructure. "From lost time, to inconvenience, to spending money to fix our cars or a flooded basement, it's a very real cost that we're paying."¹¹ The potential impacts can be great. However, because historical occurrences of infrastructure/communications failure have been small incidents the planning team determined the potential impact from this type of incident would be minor.

Summary of Vulnerability

The entire planning area is equally vulnerable to infrastructure and communications failures. This type of failure will occasionally occur to some extent within the next six years. This type of hazard has historically caused minor impacts to the City of Garland. These factors make infrastructure/communications failure a moderate risk for the City of Garland.

¹¹ American Society of Civil Engineers: <http://www.infrastructurereportcard.org/wp-content/uploads/2016/05/2016-FTA-Report-Close-the-Gap.pdf>



Drought

Hazard Description

Drought is a period of time without substantial rainfall that persists from one year to the next. Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of anticipated natural precipitation reduction over an extended period of time, usually a season or more in length. Droughts can be classified as meteorological, hydrologic, agricultural and socioeconomic.

- Meteorological drought is an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply.
- Agricultural drought occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought and can affect livestock and other dry land agricultural operations.
- Hydrological drought refers to the deficiencies in surface and subsurface water supplies. It is measured as stream flow, snow pack, and as lake, reservoir and groundwater levels. There is usually a delay between lack of rain or snow and less measurable water in streams, lakes, and reservoirs. Therefore, hydrological measurement tends to lag behind other drought indicators.
- Socio-economic drought occurs when physical water shortages start to affect the health, well-being and quality of life of people, or when the drought starts to affect the supply and demand of an economic product.

Droughts are one of the most complex natural hazards as it is difficult to determine their precise beginning or end. In addition, droughts can lead to other hazards such as extreme heat and wildfires. Their impact on wildlife and environment is enormous, often killing crops, grazing land, edible plants and trees.

Location

Due to the unpredictable nature of a drought, it is impossible to determine the exact area of their future occurrences. The entire planning area, the City of Garland, is equally subject to drought.

Severity

The Severity of drought periods is measured using the U.S. Drought Monitor (USDM) (Table 5.17). The USDM was developed by Mark Svoboda in 1999 and is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. The USDM uses a process that synthesizes multiple indices, outlooks and local impacts, into an assessment that best represents current drought conditions and reflects observed precipitation. The final outcome of each Drought Monitor map is a consensus of federal, state and academic scientists. The maps, which are based on analysis of the data, are released each Thursday at 8:30 a.m. Eastern Time.¹² Historically, the City of Garland has already experienced exceptional (D4) drought conditions. Due to increasing temperatures Garland could fall into the D4 drought category for much longer periods of time.

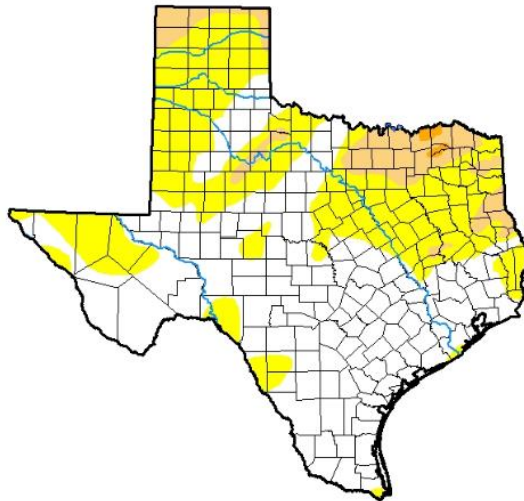
Table 5.17. Drought Severity Classification and Map

Drought Severity	Return Period (years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

*NDMC - National Drought Mitigation Center

¹² National Centers for environmental Information: <https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/overview>

U.S. Drought Monitor Texas



March 28, 2017
(Released Thursday, Mar. 30, 2017)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)						
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	55.06	44.94	8.67	0.40	0.00	0.00
Last Week 03-21-2017	53.46	46.54	8.63	0.93	0.00	0.00
3 Months Ago 12-27-2016	75.85	24.15	6.97	1.77	0.04	0.00
Start of Calendar Year 01-03-2017	81.50	18.50	6.29	1.97	0.04	0.00
Start of Water Year 09-27-2016	94.83	5.17	0.62	0.00	0.00	0.00
One Year Ago 03-28-2016	75.16	24.84	2.96	0.00	0.00	0.00

Intensity:
■ D0 Abnormally Dry ■ D3 Extreme Drought
■ D1 Moderate Drought ■ D4 Exceptional Drought
■ D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Eric Luebbehusen
U.S. Department of Agriculture



<http://droughtmonitor.unl.edu/>

Previous Occurrences

According to the National Climatic Data Center, Dallas County, Texas was in a drought for 28 months during the last 20 years. This consisted of seven separate droughts that continued for multiple months. The longest of which was almost a full year and began in January 2006 through November 2006. Data is not currently available specifically for the City of Garland.

Probability of Future Events

Drought events are not expected to occur every year, but are prevalent enough to be a concern. Previous historical data in Table 5.18 shows that seven drought events (28 months) have occurred within Garland since 1996. Calculations from this data suggests that a drought event will impact Garland 0.4 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is likely a drought will occur in the next three years.

Impact on Community

The impact of a drought within the City of Garland is expected to be minor. This considers the large water supply available to the community. The major damages associated with droughts are typically on crops and livestock. However, Garland is a more urbanized area and contains very little agricultural land or livestock to cause major financial disruptions. For Garland, the financial burden of droughts is on structures. The primary causes of structural damage associated with drought are foundation issues. This is caused by expansive soil, resulting in structural repairs. Since 1996 droughts have caused \$500,000 dollars in structural damage and \$1,345,000 in crop damage within Dallas County.

The Water Conservation Plan and Drought Contingency Response Plan have been put into place in the City of Garland to negate the effects of drought. These consist of a strict seasonal water use schedule that goes into effect within the City between April and October. Details of this plan include: customers may water twice-per-week using an in-ground sprinkler system. November through March watering with sprinkler systems are limited to one day a week. Sprinkler system use is not allowed between 10 a.m. and 6 p.m. to prevent excessive evaporation. Newly planted landscape and/or sod requiring water more than 1 time a week, must request a variance. In stage 3 of a drought, no lawn watering at any time is allowed within the City. These actions make the community more resilient during drought events.

Table 5.18. Drought Historical Data

COUNTY	DATE	EVENT TYPE	PROPERTY DAMAGE	CROP DAMAGE
DALLAS	5/1/1996	Drought	0	0
DALLAS	8/1/1996	Drought	0	0
DALLAS	7/1/1998	Drought	0	0
DALLAS	8/1/2000	Drought	0	0
DALLAS	9/1/2000	Drought	0	0
DALLAS	6/1/2005	Drought	0	0
DALLAS	7/1/2005	Drought	0	0
DALLAS	8/1/2005	Drought	0	0
DALLAS	9/1/2005	Drought	0	0
DALLAS	10/1/2005	Drought	0	0
DALLAS	11/1/2005	Drought	0	0
DALLAS	12/1/2005	Drought	0	0
DALLAS	1/1/2006	Drought	0	0
DALLAS	2/1/2006	Drought	0	0
DALLAS	3/1/2006	Drought	0	0
DALLAS	4/1/2006	Drought	0	0
DALLAS	5/1/2006	Drought	0	0
DALLAS	6/6/2006	Drought	0	0
DALLAS	7/1/2006	Drought	0	0
DALLAS	8/1/2006	Drought	0	0
DALLAS	9/1/2006	Drought	0	0
DALLAS	10/1/2006	Drought	500,000	500,000
DALLAS	11/1/2006	Drought	0	800,000
DALLAS	4/1/2011	Drought	0	5,000
DALLAS	8/1/2011	Drought	0	10,000
DALLAS	9/1/2011	Drought	0	25,000
DALLAS	10/1/2011	Drought	0	5,000
DALLAS	8/7/2012	Drought	0	0

Summary of Vulnerability

The entire planning area is equally vulnerable to drought. Drought is of moderate risk to the community. Although it is a likely event, it has minor impact on the City due to the low agricultural industry and ongoing mitigation actions taken by the City and residents. While there is no data to currently suggest an effect on any population, drought often coincides with Extreme Heat events, which impact elderly, low-income, and transient populations. The hazard does not have an effect on structures or properties.



Extreme Heat

Hazard Description

Extreme heat is characterized by a combination of exceptionally high temperatures and humidity. When these conditions persist over a period of time, it is called a heat wave. Although heat can damage buildings and facilities, it presents a more significant threat to the safety and welfare of residents.

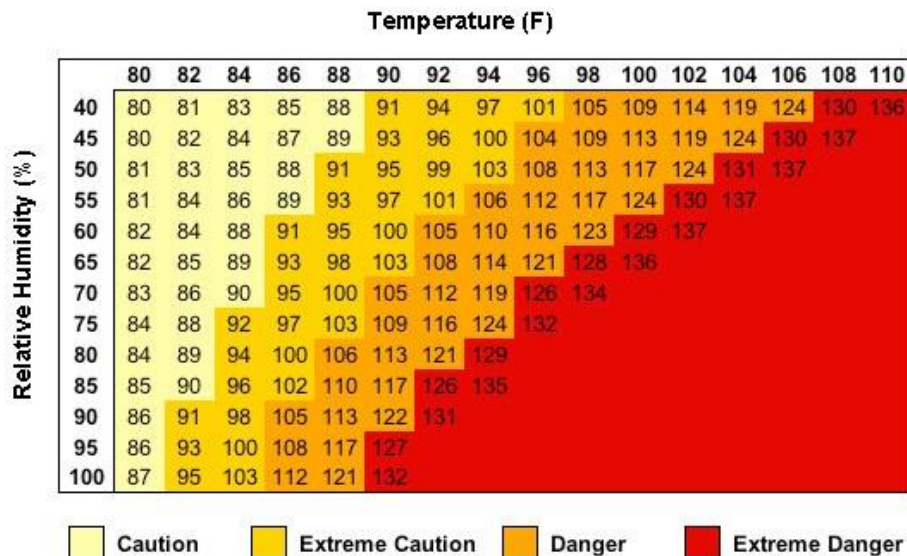
Location

Due to the unpredictable nature of extreme heat, it is impossible to determine the exact area of their future occurrences. The entire planning area, the City of Garland, is equally subject to extreme heat.

Severity

The danger of extreme heat is gauged by using the Extreme Heat Index (Figure 5.15). The Heat Index, as seen below, displays the relative danger in regards to Air Temperature and Relative Humidity. The record high temperature was recorded in Garland at 112° in 1980. With increasing temperatures it is expected that by the end of this century, the average number of days where temperatures are above 95° will likely increase by as much as 14 times. This means that instead of having nine days per year of extreme heat at temperatures above 95, as we currently do, we can expect future number of days of extreme heat temperatures above 95 to rise as many as 123 days per year.

Figure 5-15. Extreme Heat Index



Source: http://www.nc-climate.ncsu.edu/images/climate/heat_index.jpg

Previous Occurrences

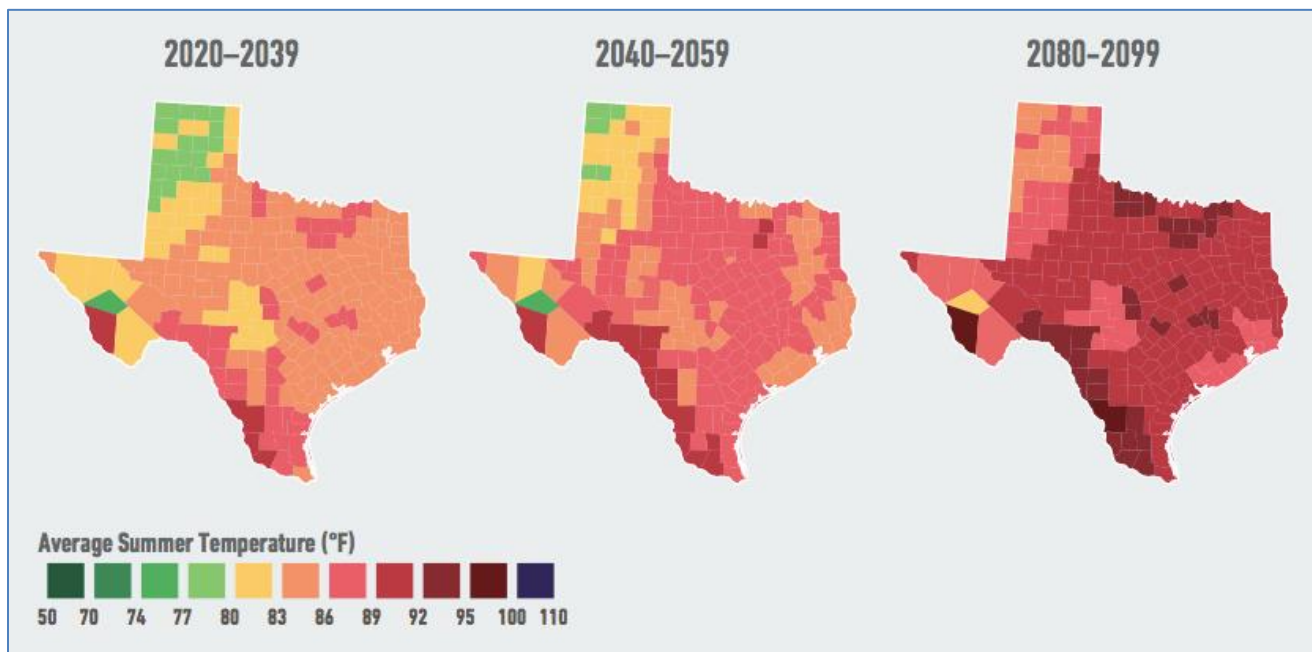
According to the National Climatic Data Center, 27 extreme heat events have been reported in Dallas County, Texas between 7/1/1996 and 12/31/2016.

Probability of Future Events

Temperatures remain warm throughout the summer months and are relatively warmer throughout the year than other areas of the country. The occurrence of extreme heat events is likely within the area given the humidity levels and high summer temperatures. Previous historical data in Table 5.16 shows 27 extreme heat events have occurred in Dallas County since 1996. Data is not currently available specifically for the City of Garland. Calculations from this data suggest that an extreme heat event will impact Dallas County 1.4 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely for an extreme heat event to occur within the next year.

According to the Southeast Report released by the Risky Business Project, average temperatures are likely to increase across Texas due to climate change. The prospectus states dangerous levels of extreme heat are projected to threaten lives, dramatically reduce labor productivity and increase energy demand and cost. The study predicts over the next 5 to 25 years extreme heat will likely cause as many as 2,570 additional deaths per year.

Figure 5.16. Future Average Summer Temperatures in Texas



Source: American Climate Prospectus

Impact on Community

The major human risks associated with extreme heat include: sunburn, dehydration, heatstroke, heat exhaustion, heat syncope, heat cramps and in severe cases death. The most at risk populations are outdoor laborers, the elderly, children, and the disabled who frequently live on low or fixed incomes and do not run air conditioning on a regular basis. These populations are sometimes isolated, with no immediate family or friends to look out for their well-being. The effects of extreme heat are always more pronounced in urbanized areas than in rural areas. According to the Journal of Applied Meteorology and Climatology, the problem is exacerbated in Garland by what is known as the heat island effect. The concrete and metal infrastructure absorbs radiant heat energy from the sun during the day and radiates that heat energy during the night. This cyclical process essentially “traps” the heat in the urbanized area and makes it as much as 5.4°C warmer.¹³ Since 1996 there have been 85 fatalities and 704 injuries caused by extreme heat in Dallas County. The Planning Team has determined that because of available cooling centers and programs in place to mitigate extreme heat the impacts of this hazard are limited.

5.16 Extreme Heat Historical Data

COUNTY	DATE	EVENT TYPE	DEATHS	INJURIES
DALLAS	8/13/2007	Excessive Heat	1	0
DALLAS	7/23/2008	Excessive Heat	1	0
DALLAS	7/28/2008	Excessive Heat	2	0
DALLAS	8/1/2008	Excessive Heat	4	0
DALLAS	8/1/2011	Excessive Heat	4	130
DALLAS	7/20/2012	Excessive Heat	1	0
DALLAS	5/17/2013	Excessive Heat	1	0
DALLAS	7/18/2015	Excessive Heat	1	0
DALLAS	7/1/1996	Heat	2	0
DALLAS	7/19/1997	Heat	2	0
DALLAS	6/1/1998	Heat	1	0
DALLAS	7/1/1998	Heat	23	0
DALLAS	8/3/1998	Heat	5	0
DALLAS	8/1/1999	Heat	3	0
DALLAS	7/1/2000	Heat	8	0
DALLAS	8/1/2000	Heat	3	0
DALLAS	9/1/2000	Heat	4	0
DALLAS	7/14/2006	Heat	1	0
DALLAS	7/27/2006	Heat	1	0
DALLAS	8/10/2006	Heat	0	0
DALLAS	6/23/2009	Heat	1	0
DALLAS	4/29/2010	Heat	0	0
DALLAS	6/20/2010	Heat	1	0
DALLAS	6/13/2011	Heat	3	140
DALLAS	7/1/2011	Heat	9	223
DALLAS	8/6/2011	Heat	3	210
DALLAS	6/15/2016	Heat	0	1

National Climatic Data Center

¹³ <http://www.uta.edu/faculty/awinguth/Publications/publications/2013/JAMC-D-12-0195.pdf>

Summary of Vulnerability

The entire planning area is equally vulnerable to extreme heat events. For now, extreme heat is considered a low risk to the City of Garland. Because extreme heat is a common occurrence, residents are prepared and practiced in mitigating damage. The City of Garland also has many faith based communities that offer cooling centers during these times of extreme heat. Although heat events are very common to the area, they cause little damage to structures. The main concern with an extreme heat event is that it leads to other hazards, such as drought. The City of Garland is accustomed to long periods of hot weather, as local summer temperatures often reach one hundred degrees or more. Structure damage from extreme heat is not likely. Garland has a hot and humid climate. Summers are hot, with temperatures approaching those of desert and semi-desert locations of similar latitude. The most vulnerable populations to extreme heat include the elderly, transients, and those in homes without adequate cooling capabilities.



Power Outage

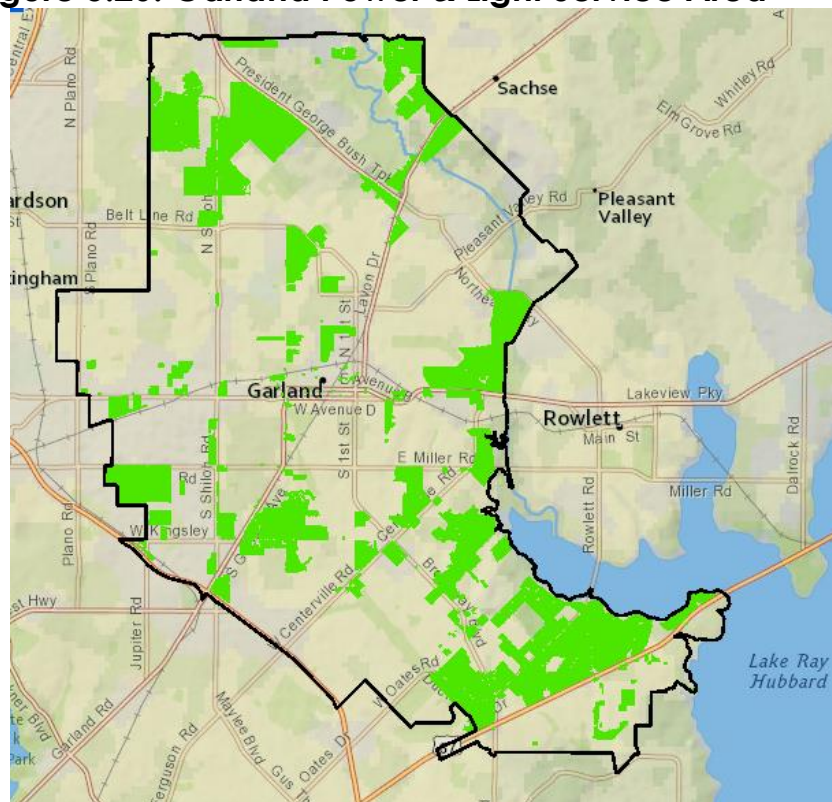
Hazard Description

Power outage is defined as any interruption or loss of electrical service caused by disruption of power transmission which may be the result of an accident, sabotage, natural hazards or equipment failure. A significant power failure is defined as any incident of a long duration, which would require the City of Garland to provide food, water, heating, cooling and/or shelter.

Location

Power outages in the City of Garand are usually localized and are normally the result of a natural hazard involving high winds. The entire planning area, the City of Garland, is equally subject to power outages. However, the City of Garland has their own power provider, Garland Power & Light (GP&L), which serves approximately 85% of Garland. The other 15% of residents are served by Oncor. Figure 5.26 below shows the areas in Garland that are not in the GP&L service area. When outages do occur, areas that are GP&L customers typically have power restored faster than those with other providers. Table 5.27 illustrates the American Public Power Association average interruption duration as 62.53 minutes compared to the GP&L average interruption of 15.1 minutes during 2016.

Figure 5.26. Garland Power & Light Service Area



Garland Power & Light

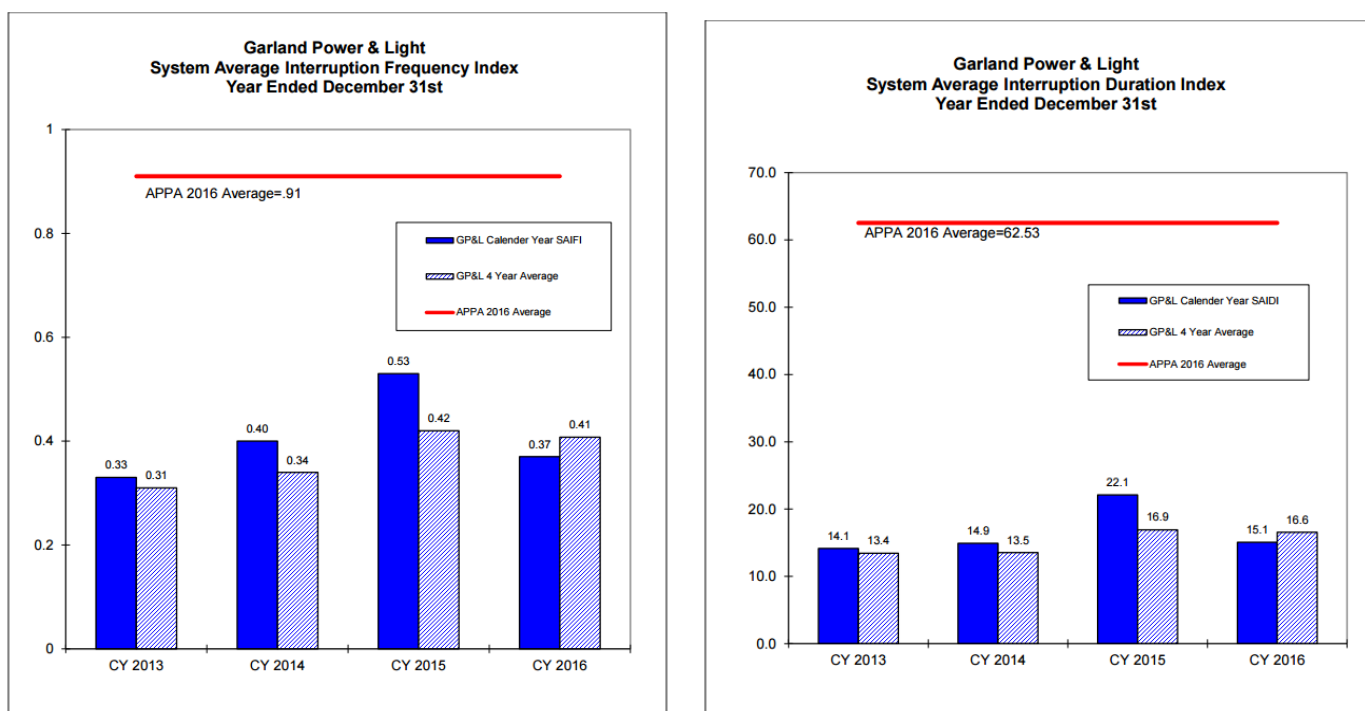
Non-GP&L Service Area



Severity

Power outages can range in duration and also in the severity of impacts, from minor loss of communication systems at a facility, to loss of water and electricity. Power outages and interruptions usually occur because of severe thunderstorms, high winds, tornado, ice accumulation on lines, flooding or heavy demand on the electrical grid. Outages can also be caused by faulty equipment, human error and animals. Individuals who rely on power for health and/or life safety, such as those on life support systems, could be placed in jeopardy in the event of a power outage.

Figure 5.27



Previous Occurrences

On December 26, 2016, an EF 4 tornado impacted the City of Garland. This tornado destroyed families, homes, vehicles and left about 3,000 residents without power. The tornado knocked down an estimated 40 power poles along the I-30 service road. In October 2014 severe storms left thousands without power causing several school districts to cancel classes. Oncor reported more than 113,000 North Texas electricity customers without service. 65,977 residents were impacted in Dallas County.¹⁴

Probability of Future Events

According to Garland Power & Light, an average of 0.37 interruptions occur annually per customer for a duration of 15 minutes.¹⁵ There are number of hazards that occur often in Garland that result in power outages. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely for a power outage occur within the next year.

¹⁴ NBCDFW - <http://www.nbcdfw.com/weather/stories/Severe-Storms-Cause-Power-Outages-Thursday-277944491.html>

¹⁵ GP&L Website <http://www.gpltexas.org/outage-center/service-reliability>
<http://www.gpltexas.org/home/showdocument?id=90>

Impact on Community

The United States Annual Blackout Tracker Report of 2014 ranked Texas as having the third most outages in the U.S. Between 2008 and 2014, 335 outages occurred that affected 818,506 people. Because power outages average a short duration and Garland has its own power provider, the overall impact to the community is limited. The greatest impact to the City of Garland occurs during summer outages when residents are unable to use air conditioning. This cascading event may then cause impacts from extreme heat as previously described

Summary of Vulnerability

The entire planning area is equally vulnerable to power outages. The probability of a power outage less than half an hour occurring in Garland within the next year is highly likely and would cause limited impacts to the community. This high frequency low impact hazard is a low risk for the City of Garland. As the days get warmer, temperatures rise as discussed in the extreme heat section. Demand for energy on the grid will increase, therefore increasing the vulnerability of the power providers in Garland.



Expansive Soils

Hazard Description

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 soils 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.¹⁶ Soils with this shrink-swell capacity fall under the soil order of Vertisols which is how this hazard is referred to by the United States Department of Agriculture. Further naming of the soil in Garland is Blackland Prairie with characteristics of very high amounts of clay.

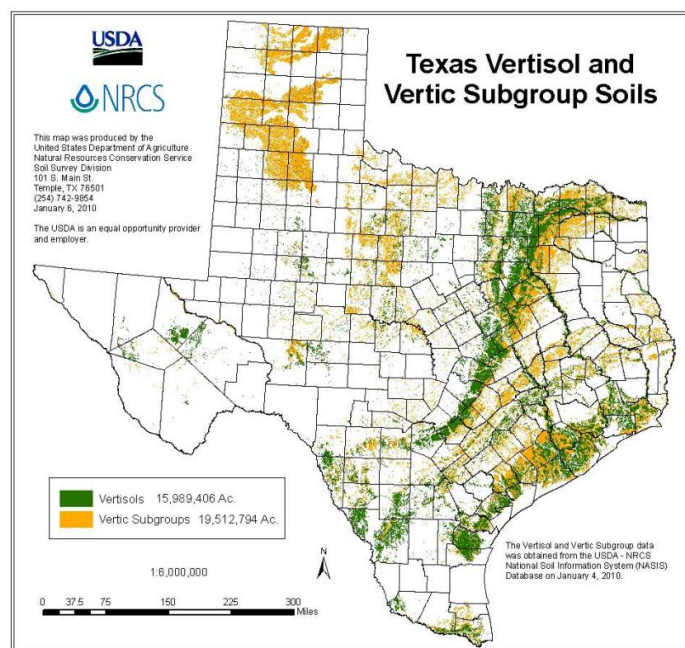
Location

The entire planning area, the City of Garland, is subject to expansive soils.

Severity

Utility poles and roadways are often the victims of expansive soils, which causes over 2.3 billion dollars in damage each year nationwide. Figure 5.32, below depicts the areas where expansive soil is prevalent. Vertisol soil is the makeup in Garland. According to the U. S. Department of Agriculture Vertisol soil consists of at least 30% clay.¹⁷ Historically, expansive soil has damaged infrastructure and structure foundations in Garland. Due to increasing temperatures it is anticipated that damage from expansive soils continue to rise in the future.

Figure 5.32
USDA 2010



¹⁶ Geology.com: <http://geology.com/articles/expansive-soil.shtml>

¹⁷ USDA, Keys to Soil Taxonomy: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051241.pdf

Previous Occurrences

Expansive soils is a slow onset hazard that has caused gradual damage to City of Garland infrastructure and foundations. It is difficult to document the direct effects of expansive soil as most damage is cumulative. Within the past five years cumulative damage has caused the Streets Department to fund the seven street rehab and reconstruction projects below.

Garland Streets Department Projects

Broadway Blvd. - Street Rehabilitation
Commonwealth Dr. - Street Reconstruction
Firewheel Pkwy. - Street Rehabilitation
Nash St. - Street Reconstruction
Sunnybrook Ln. - Street Reconstruction
Vera Cruz Dr. - Asphalt Rehab/Overlay
E. Vista Dr. - Street Reconstruction

Probability of Future Events

Expansive soils are a continuous hazard for the city. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely that expansive soils will occur in the next year. Predictions are not reliable because the location and time when water is available to the soil cannot be easily foreseen. Most associated structural distress can occur a few years after construction, but the effects may also not be observed for many years until some change occurs in the foundation conditions.

Impact on Community

As development and city build-out occurs, the unforeseen consequences of dense construction activities on shrinking and swelling soil are constantly occurring. Soil expansion poses risks for existing and future infrastructure and homes. Transportation, utility public works, including electrical, communications and water infrastructure are all impacted, as well as residential housing. Many structural foundations are susceptible to damage by slow, continuous soil movements. This greatly impacts residents. Poor foundations lessen a family's greatest asset and can become a financial burden. Poor structural integrity of a home also poses a life threatening risk, especially when combined with other hazards like tornadoes, floods and earthquakes. The City of Garland and its residents have endured expansive soils for quite some time. Residents, however can take mitigating actions by simply watering the foundation of their homes during droughts. The severity of impact to the community from expansive soil is limited.

Summary of Vulnerability

The entire planning area is equally vulnerable to expansive soils. All built environment is vulnerable to expansive soils, especially buildings and overpasses. There is 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GSD schools at risk of impact from expansive soils. Although the hazard is constantly occurring, the impact is limited therefore the planning team considers expansive soil to be a low risk hazard.



Hail

Hazard Description

Severe thunderstorms produce precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter, falling from a cumulonimbus cloud. These balls of irregularly shaped ice fall with rain. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until they have developed sufficient weight and fall as precipitation.

The size of hailstones is a direct correlation of the severity of impact and size of the storm. For example, penny size hail may cause damage to crops and vegetation. Ping pong ball size hail will cause damage to windows in homes and vehicles. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the Earth's surface. Higher temperature gradients relative to elevations above the surface result in increased suspension time and hailstone size.

Location

Due to the unpredictable nature of hailstorms, it is impossible to determine the exact area of their future occurrences. The City of Garland, is equally subject to hailstorms.

Severity

Table 5.13 shows the Combined National Ocean and Atmospheric Administration's and the Tornado and Storm Research Organization's Hailstorm Intensity Scales. The Hailstorm Intensity Scale is representative of the damage from hail storms this community has experienced in the past. The Hailstorm Intensity Scale allows planners to gauge past damage and mitigate for future expected damage. In the last five years the worst hail that occurred was in 2016 when a storm produced hail 4.25 inches in diameter. That hail caused major damage. It is expected that that size or larger hail impact Garland in the future.

Table 5.13
Combined NOAA/TORRO Hailstorm Intensity Scales

Size Code	Intensity Category	Hail Diameter (inches)	Approximate Size	Typical Damage Impacts
H0	Hard Hail	.25	Pea	No damage
H1	Potentially Damaging	.50	Moth-ball	Slight damage to plants, crops
H2	Potentially Damaging	.75	Penny	Significant damage to fruit, crops, vegetation
H3	Severe	1.00	Quarter	Severe damage to fruit and crops, damage to glass and plastic structures, paint and
H4	Severe	1.5	Ping Pong Ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	2.0	Golf Ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.25	Lime	Aircraft bodywork dented, brick walls pitted
H7	Very destructive	2.5	Tennis ball	Severe roof damage, risk of serious injuries
H8	Very destructive	2.75	Baseball	Severe damage to aircraft bodywork
H9	Super Hailstorms	3.8	Softball	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	4.5	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the

North Central Texas Council of Governments (modified)

Previous Occurrences

On April 11, 2015 quarter-sized to softball-sized hail was reported in Collin and Rockwall counties. Wylie was among the hardest-hit areas with reports of softball sized hail (4.25-inch), reported by the National Weather Service. Classes were canceled for all Wylie ISD schools. The number of storm damage calls to Wylie 911 overwhelmed the system, tennis ball-sized hail flew through windows and the area had wind gusts up to 60 mph.

This major event is significant to the City of Garland as the impacted area is only a few miles away from Garland. This hail event alone caused \$300 million dollars in property damage. According to the Insurance Council of Texas, insured losses from Texas hail claims for 2016 are about \$4 billion dollars.¹⁸ Garland has recorded 20 hail events since 1994 and reported 3.75 inch hail on February 25, 2000.

¹⁸ Star-Telegram: <http://www.star-telegram.com/news/local/community/fort-worth/article138903113.html>

Dallas News: <http://www.dallasnews.com/news/news/2016/04/11/baseball-size-hail-expected-as-severe-thunderstorm-moves-through-collin-denton-counties>

Probability of Future Events

The possibility of a hail occurrence is highly likely to happen every year based on historical data, although the severity of impacts will vary. Hail events are common in Garland, as the North Central Texas region is frequented by severe thunderstorms in the spring through summer months. Previous historical data Table 5.14 shows 20 hail events have occurred within Garland since 1994. Calculations from this data suggests that a hail event will impact Garland 0.9 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely for a hail event to occur within the next year.

Impact on Community

The severity of impact from hail in the City of Garland would be limited relative to their frequent occurrence. Property damage would be the biggest impact to the community. Broken windows, damaged vehicles, and roofing are all subject to damage from a severe hailstorm. According to the National Climatic Data Center, 20 hail events have been reported in Garland, Texas between 1/1/1994 and 12/31/2015. Hail has caused an estimated \$10,005,000 dollars in property damage. The City is located in a very urbanized region making the loss of crops a minimal concern.

Table 5.14. Hail Historical Data

TOWN	DATE	EVENT TYPE	SIZE	DEATHS	PROPERTY DAMAGE
GARLAND	5/2/1994	Hail	0.75 IN.	0	0
GARLAND	8/7/1994	Hail	0.75 in.	0	0
GARLAND	10/21/1994	Hail	2.00 in.	0	0
GARLAND	11/3/1994	Hail	0.75 in.	0	0
GARLAND	3/25/1995	Hail	1.75 in.	0	10,000,000
GARLAND	4/12/1996	Hail	1.00 in.	0	0
GARLAND	5/28/1996	Hail	1.50 in.	0	0
GARLAND	6/15/1996	Hail	0.75 in.	0	0
GARLAND	1/21/1998	Hail	1.00 in.	0	0
GARLAND	4/8/1998	Hail	0.75 in.	0	0
GARLAND	5/2/1998	Hail	2.00 in.	0	0
GARLAND	2/25/2000	Hail	3.75 in.	0	0
GARLAND	6/29/2001	Hail	2.00 in.	0	0
GARLAND	7/12/2002	Hail	0.75 in.	0	0
GARLAND	5/24/2003	Hail	0.75 in.	0	0
GARLAND	6/5/2004	Hail	1.00 in.	0	0
GARLAND	4/5/2005	Hail	1.50 in.	0	0
GARLAND	2/5/2008	Hail	1.00 in.	0	0
GARLAND	7/19/2009	Hail	1.75 in.	0	5,000
GARLAND	7/19/2009	Hail	1.00 in.	0	0

National Climatic Data Center

Summary of Vulnerability

The entire planning area is equally vulnerable to hail events. If tennis ball size hail (2.5 inches) were to occur it would cause major impacts to the community, causing severe roof damage and serious risk of injuries. However, that type of impact is rare compared to how often hail occurs in the area. The Planning Team has determined that a hail incident for the City of Garland is low risk and has a limited impact due to the small hail size that usually occurs in Garland. Large hail that caused major damage has only occurred once since 1991. All roofing structures, vehicles and exposed equipment are the most vulnerable to hail. This includes Garland's 1 police station, 11 fire stations, 1 hospital, 4 DART Transit Centers, and 72 GISD schools at risk of impact from hail.



Erosion

Hazard Description

Erosion involves the wearing away of rock and soil found along the river bed and banks. Erosion also involves the breaking down of the rock particles being carried downstream by the river. Vertical erosion is the downward erosion which deepens the channel, and lateral erosion is sideward erosion which widens the channel.

There are four ways a river can erode a bed and bank:

- Hydraulic action – the force of water flow that breaks rock and drags it away from the bed and the banks of the river.
- Corrosion/abrasion – the grinding of the rock fragments carried by the river against the banks and bed of the channel. This grinding action widens and deepens the channel.
- Attrition – the knocking of rock fragments in the water against each other. The fragments are broken into smaller, smoother pebbles.
- Solution/corrosion – the process of the water reacts chemically with soluble minerals in the rocks and dissolve them.

Water erosion is not the only type of erosion impacting soil in the area; wind erosion will also be considered in this section.

Location

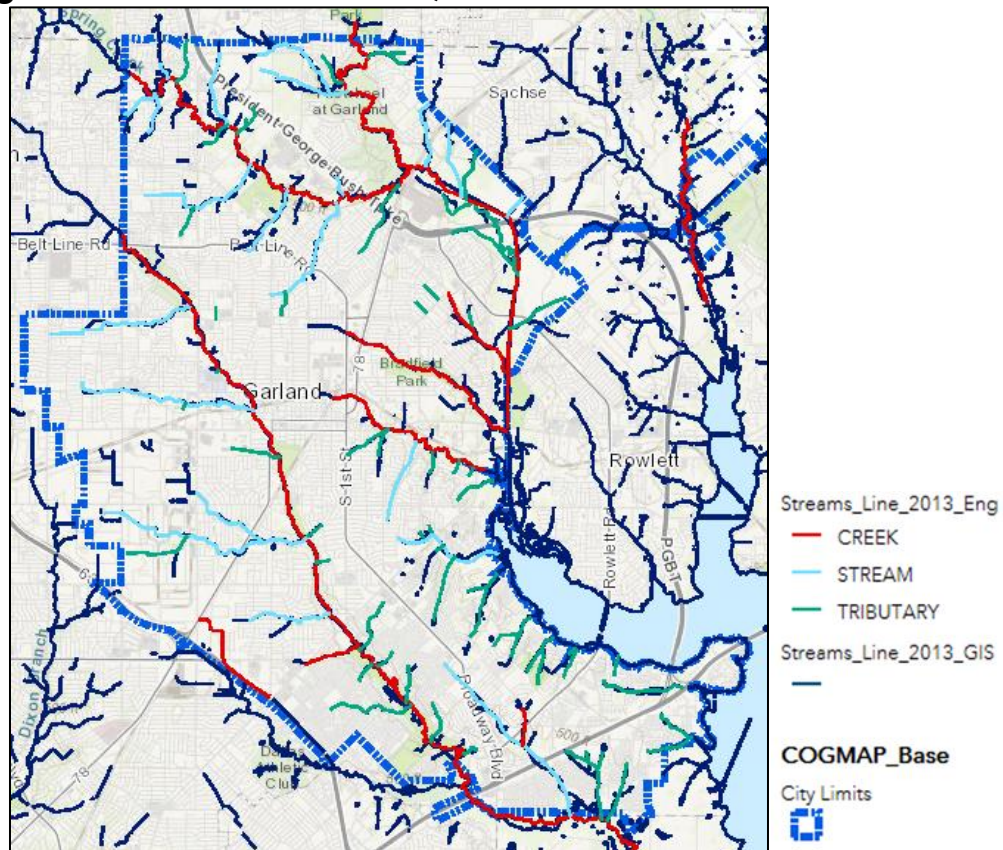
All of the creeks, streams and tributaries in the City of Garland are equally subject to erosion. The planning area also includes about eight miles of lakeshore that is subject to erosion. Duck Creek has had the greatest water erosion problems in the City of Garland. Figure 5.33 shows the location of the areas that may experience erosion. The droughts in Garland increase the effects of wind erosion on the entire planning area as well. When droughts occur there is less vegetation to hold land in place.

Severity

Of the 32 million acres of cropland in Texas, more than 12.8 million acres or 40 percent are classified as highly erodible. According to the Texas Environmental Almanac, Texas soil erosion rates is one of the eight highest in the country.¹⁹ Garland floods have scoured the silt banks near the concrete pedestrian and bike path at Duck Creek Greenbelt Park. In this area and throughout Garland the river banks erode approximately 2 inches a year. Creek bank erosion, creates a loss of park land and facilities leading to loss of park infrastructure. The potential for additional erosion is great because of increasing temperatures that will in turn cause longer periods of drought in Garland. This hazard threatens the Lake Ray Hubbard shoreline and creeks throughout the City. We expect to see the same amount of future erosion annually and increased erosion during flood events.

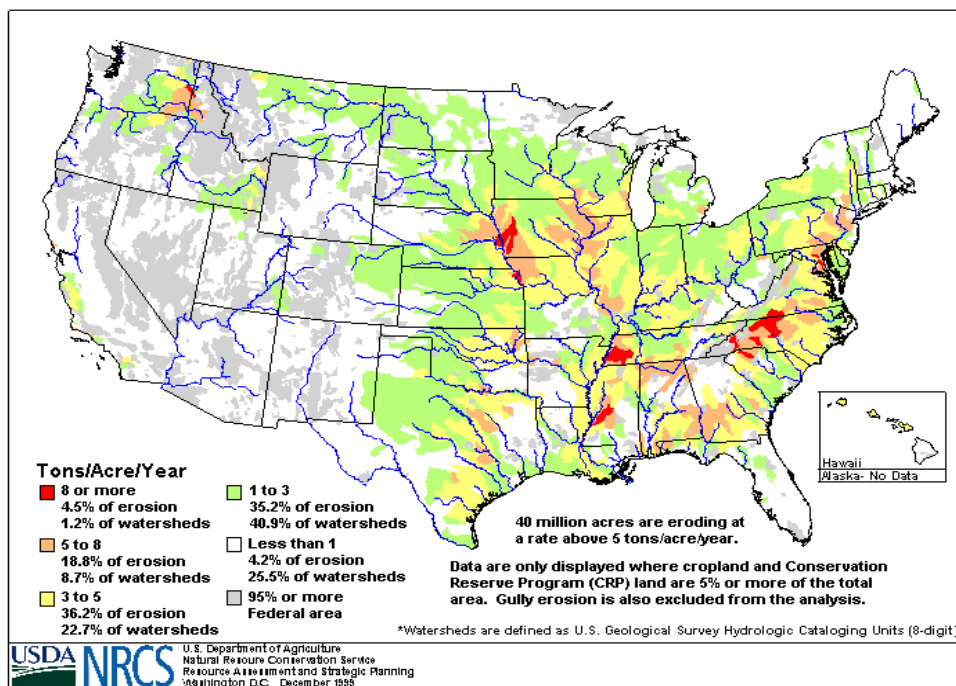
¹⁹ Texas Environmental Almanac: <http://www.texascenter.org/almanac/Land/SOILCH5P1.HTML>

Figure 5.33. Garland Creeks, Streams and Tributaries



Garland GIS

Figure 5.34. Average Annual Soil Erosion by Wind and Water



Previous Occurrences

Erosion is a slow process and is not sudden onset like many other hazards. Documentation of historical data is difficult to obtain because of this slow process. Each year the following areas have eroded by a minimum of 2 inches:

- Windsurf Bay Park
- Duck Creek
- Meadowcreek Branch Greenbelt

Probability of Future Events

Erosion is a continuous hazard for the city. Therefore, according to Table 4.3 Hazard Frequency Ranking it is highly likely that erosion will occur in the next year. Predictions are not reliable because the different variables that exacerbate erosion cannot be easily foreseen.

Impact on Community

Erosion can impact many different areas of a community. Erosion can cause city parks, residents and business to lose property, and even structures. Another problem that can arise from erosion is sedimentation. The Texas Environmental Almanac states sedimentation is usually the end result of the erosion process. When a soil particle is detached and transported by water to a new site of deposit, it is referred to as sediment. The soil particle might be temporarily deposited several times before it reaches its end destination. Sediment can fill reservoirs, clog waterways, reduce recreational use of waters, and increase operating costs of water-treatment facilities. Erosion also loosens soils and forms dust, leading to allergies, crop loss, desertification, and the spread of noxious weeds. There are a wide range of impacts that erosion may have, however the severity of impact to the community is limited. Locally, land is eroding, shrinking outdoor recreation space and damaging paved sidewalks and facilities within the City of Garland at Windsurf Bay Park, Duck Creek and the Greenbelt. In addition drainage systems throughout Garland are being damaged either from land eroding and bypassing drainage routes or by depositing soil rendering drainage useless.

Summary of Vulnerability

All of the creeks, streams and tributaries in the City of Garland are equally subject to erosion. Although the hazard is constantly occurring, the impact is limited therefore the planning team considers erosion to be a low risk hazard. The land and built environment most vulnerable to erosion within Garland are in Windsurf Bay Park, Duck Creek and Meadowcreek Branch Greenbelt.



6. Hazard Mitigation Strategy

Local Hazard Mitigation Goals and Objectives

The City of Garland has identified mitigation goals to help direct mitigation planning efforts within the community. These mitigation goals have changed based on the updated Hazard Assessment, Community Impact and Risk Assessment and Capabilities Assessment. The Hazard Mitigation Action Plan now includes additional hazards than the previously FEMA approved plan contained. These goals identify areas to which specific mitigation actions should be directed. They were developed to reduce or avoid vulnerabilities to identified hazards. Implementation of the following goals and objectives will help the community to reduce or eliminate the loss of life and property from the identified hazards.

Goal 1: *Protect residents from the impacts of natural, technological and man-made disasters.*

Objective 1.1 - Reduce or eliminate hazards that may cause injuries, loss of life or severe risk.

Goal 2: *Protect property, new and existing structures, from the impacts of natural, technological, and man-made disasters.*

Objective 2.1 - Reduce or eliminate hazards that cause property damage/repetitive loss.

Objective 2.2 - Ensure compliance with the National Flood Insurance Program.

Objective 2.3 - Implement training activities and regulations that provide the community with a more hazard resistant infrastructure.

Goal 3: *Enhance public education, awareness and support for hazard mitigation.*

Objective 3.1 – Provide guidance to local businesses to lessen the economic impact when hazards occur.

Objective 3.2 - Provide strategies for the public to apply mitigation within their own household.

Objective 3.3 - Encourage public involvement in the emergency management process.

Objective 3.4 - Identify agencies, personnel and resources available or needed to implement pre-disaster mitigation activities and initiatives.

Objective 3.5 - Continue to assess and understand hazards to the community.

Mitigation Action Report

Table 6.1 is a summary of project progress for hazard mitigation actions discussed in Garland's previous FEMA approved HazMAP plan. The HazMAP's previous identified hazards assisted departments to isolate projects and funding to focus on for the past five years. As a result of the 2012 HazMAP and hazards identified within that plan the Building Inspection department integrated hazard mitigation through the adoption of additional International Building Codes. Another result of the 2012 HazMAP was the creation of the Drought Contingency Plan.

Both the Drought Contingency Plan, and adoption of additional International Building Codes went through the City Council approval process. Larger mitigation actions requiring substantial resources, large changes in City services or department activities such as these were first approved through Department Directors, then approved by the Managing Director of that department, sent for approval by the City Manager where it was determined to add the Drought contingency Plan and International Building Code adoption as an agenda item for consideration. On these two separate occasions information was sent to council members before the meeting which outlined the plans, implementation methods and results of the actions. One the day of the City Council Meeting, Department Directors presented plans, a motion was made to adopt the Drought contingency Plan and new building codes, seconded, and the motion carried. After final approval the Department Directors and Managers began the mitigation action implementation process. During this process the Office of Emergency Management played a support role to Department Directors and City Management.

Table 6.1. Mitigation Action Report

Mitigation Action	Description	Status
Building Code Monitoring and Assessment	Mitigate wind related hazards by adopting and implementing new building codes to enhance tornado and wind resistance of structures within the community	Complete - The 2015 series of the International Codes was adopted. This code increased the design wind speed from 90 to 115 mph for structures. This design change will produce more resilient buildings.
Increased Flood Hazard Warning Capabilities	• Installation of approximately eight flood sirens and sensors at strategic locations along Duck Creek. • Use of Volunteers emergency response teams.	Canceled – In lieu of this mitigation action the City installed 8 flood gates in the flood prone area. The Streets Department, Fire Department and Police Department can close these gates. Map in Appendix G. • The City of Garland also purchased an emergency notification system, CodeRed, which is utilized for public warning.
Stream 2C3 and 2C4 Channel Improvements	Improvements/widening of the channels of streams 2C3 and 2C4 in Garland to reduce flooding risks to residents and businesses along said streams.	Project Delayed – Funding and property acquisition obstacles. This project also has a BC ratio <1.
Country Club Estates Storm Sewer Improvements	Storm sewer and channel improvements to increase their drainage capacity	Project Delayed – Funding obstacles. Possible future Capital Improvement Program project. This project also has a BC ratio <1.
Keen Branch Channel Improvements	Channelization improvements to Keen Branch	Project Delayed - This project also has a BC ratio <1.
Fleet Services Continuity of Operations	•Acquisition of generators at the two main City of Garland fuel sources, 2343 Forest Lane and Gasoline Alley, and a new mobile fuel truck for emergency operations •Generators and a new fuel truck would ensure continuity of operations in a winter storm event as fuel would remain available to City vehicles	Project Progress - Two surplus generators have been earmarked for reinstallation at the two major (City) fuel sites. Project Delayed – Funding obstacles
Recreation Center Generators	•Attainment of generators at all City recreation centers in order to provide more resilient warming centers in winter weather conditions •Power loss is often one of the results of winter storms; generators would maintain energy for these facilities, which the City uses as local warming centers and community shelters	Project Delayed – Funding obstacles and communication between departments.

Misting Stations at Local Recreation Centers	Purchase and installation of six outdoor misting stations, one for each community recreation center.	Project Canceled – Cooling stations predominately opened through non-profit organizations.
Rapid First Response Communications	Outsource mission-critical paging to a company that utilizes more advanced technology that focuses on rapid and accurate delivery of text messages during emergency operations	Project Canceled - Due to the ease of switching page messages to personnel cell phones.
West Pressure Plane Improvements	• A phased approach to add additional capacity to the West Pressure Plane of the water distribution system. • Phase one - the expansion and rehabilitation of Wallace Pump Station and construction of a new 24-inch transmission line. •Phase two – construction of a 2.5-million-gallon elevated storage in the southwest portion of Garland.	Project on Schedule - The 3.5 MG ground storage tank has been removed from this project.
East Zone Water Tower	Design and construction of a new elevated water storage tank and associated piping in the East Pressure Plane. This will provide peak-hour pressures to the southern portion of Garland and enhance off-peak service and fire protection.	Project Delayed - A new water distribution system study is being conducted to determine size, location and phasing with additional projects.
"Texas Individual Saferoom Rebate Program"	The "Texas Individual Saferoom Rebate Program" will reimburse a homeowner or developer for ½ of the cost to install an individual saferoom in an existing or planned home, up to a cap of \$3,000. Individuals may not apply directly to the State; their city or county must apply for funds on their behalf.	Project Delayed – Grant funding and staffing have delayed this project. This program is also offered through the North Central Texas Council of Governments.
All Hazards National Weather Radio	Distribute All Hazards Nation Weather Service Radios to all city facilities	Project Complete – All City facilities including recreation centers and libraries were given a weather radio. This was also part of the National Weather Service "Storm Ready" certification.
Storm Spotter Training	Increase the number of storm spotters in the community and the training they receive by hosting an annual SKYWARN Spotter Training Conference.	Project Complete and Ongoing – SKYWARN has been held annually and will continue. Over 300 participants each year are trained by the National Weather Service to be storm spotters.
Extreme Heat Preparedness Campaign	Implement an aggressive public awareness campaign concerning extreme heat and how to mitigate heat within the household.	Project Canceled – All hazards preparedness campaigns are preferred. When staffing becomes available, specific preparedness campaigns will be examined again.
Advanced Hazardous Materials Training	Emergency Management staff attend training through the Pipeline Safety Office of Training and Qualifications, in order to develop more thorough plans for hazardous materials	Project Complete
Hazardous Materials Flood Protection	Identify hazardous materials facilities that exist in the floodplain and encourage mitigation/protection measures Help facilities to prepare plans for flood events	Project Complete



7. Hazard Mitigation Actions

The City of Garland Hazard Mitigation Planning Team identified the following mitigation actions in order to reduce the impact of local hazards. Each mitigation action was developed in conjunction with local mitigation goals and objectives. The mitigation actions identified below are organized by hazard. The actions are described along with the benefits of each action, the estimated cost, the organization responsible for completing the action, the effect on new and existing structures, timeline, and the potential funding sources.

Tornado, Severe Winter Weather, Severe Thunderstorm and Hail Combined Mitigation Actions

#1
Title: Implement the "Texas Individual Saferoom Rebate Program" Description: The "Texas Individual Saferoom Rebate Program" will reimburse a homeowner or developer for ½ of the cost to install an individual saferoom in an existing or planned home, up to a cap of \$3,000. Individuals may not apply directly to the State; their city or county must apply for funds on their behalf. Hazard(s) Addressed: Tornado and Severe Thunderstorms Goals and objectives addressed: 1.1, 3.2 Lead Office: Emergency Management Funding Source(s): Hazard Mitigation Grant Program, Pre-Disaster Mitigation, North Central Council of Government Effect on New Structures: Improved safety for new structures participating in the program Effect on Existing Structures: Improved safety for existing structures Timeline for Completion: 3 years Costs (Estimated): ½ of the cost to install an individual saferoom in an existing or planned home, up to a cap of \$3,000 Cost Effectiveness and Risk Reduction: Implementation of this program would save lives in the event of a tornado. The amount of lives saved would increase with the amount of participating residents

#2

Title: Adopt Wind Related Building Codes

Description: Mitigate wind related hazards by adopting and implementing new building codes in order to enhance tornado and wind resistance of structures.

Hazard(s) Addressed: Severe Thunderstorms, Tornado and Flood

Goals and objectives addressed: 1.1, 2.1

Lead Office: Building Inspection

Funding Source(s): General Fund

Effect on New Structures: New structures will be more resilient to high wind and flood.

Effect on Existing Structures: Existing structures may be more resilient if remodeled.

Timeline for Completion: 3 years

Costs (Estimated): Staff time

Cost Effectiveness and Risk Reduction: More resilient buildings withstand higher wind speeds, reducing loss during high wind events and saving on reconstruction costs along with more durable finishes, which should last longer.

Terrorism and Cyber Attack Mitigation Actions

#5

Title: Administer Desktop Security Training

Description: Conduct Wombat Training to City employees on safe web browsing, mobile device security, identifying phishing and smishing attacks, password security, and safe URLs. Phishing emails are sent to employees to test response.

Hazard(s) Addressed: Cyber Attacks

Goals and objectives addressed: 1.1, 2.3, 3.4, 3.5

Lead Office: Information Technology

Funding Source(s): General Fund

Effect on New Structures: N/A

Effect on Existing Structures: N/A

Timeline for Completion: 5 year

Costs (Estimated): \$50,000

Cost Effectiveness and Risk Reduction: All City departments depend on IT systems to make informed, critical decisions and successfully carry out their missions. Those IT systems and information resources are subject to almost constant threats that can have significant and wide-ranging impacts on operations, compromising the confidentiality, integrity or availability of information for an agency. Educating employees, who are the weak point in the system, will mitigate the loss that can be occurred during and attack.

#6

Title: Attain SWAT and EOD Team Equipment Enhancement

Description: Enhancing the SWAT and EOD team response capabilities through the procurement of equipment needed to sustain NIMS Type 1 status.

Hazard(s) Addressed: Terrorism

Goals and objectives addressed: 1.1

Lead Office: Police Department

Funding Source(s): Grant and general funding

Effect on New Structures: N/A

Effect on Existing Structures: N/A

Timeline for Completion: 3 years

Costs (Estimated): \$100,000

Cost Effectiveness and Risk Reduction: Maintaining Type 1 status is a crucial part of this in house regional asset. Not maintaining these capabilities would not only have major impacts to the City of Garland, but the entire region. This team saves lives and protects infrastructure.

Biological Event Mitigation Actions

#7

Title: Acquire Mosquito Trucks

Description: This plan will help to minimize breeding sources in the City by the use of truck-mounted larviciding equipment and liquid larvicide. The one-time purchase of equipment plus the ongoing purchase of liquid biological larvicide is an alternative to using chemical adulticide, which can kill other beneficial insects.

Hazard(s) Addressed: Biological Event

Goals and objectives addressed: Minimize mosquito breeding sources

Lead Office: Health Department

Funding Source(s): Unfunded budget supplement

Effect on New Structures: N/A

Effect on Existing Structures: N/A

Timeline for Completion: 1 year

Costs (Estimated): \$50,000

Cost Effectiveness and Risk Reduction: The use of a truck mounted larviciding disperser will reach more areas that are not accessible by humans. The dispersing of the larvicide using a buffalo turbine and liquid larvicide is a substantially cheaper alternative to using aerial applications of larvicide. One night of aerial larvicide application is approximately \$45.00/acre. The City of Garland is approximately 36,500 acres. This process will protect the population from mosquito transmitted disease.

Flood Mitigation Actions

#9

Title: Stream 2C3 and 2C4 Channel Improvements

Description: Improvements/widening of the channels of streams 2C3 and 2C4 in Garland to reduce flooding risks to residents and businesses along said streams.

Hazard(s) Addressed: Flooding

Goals and objectives addressed: 2.1, 3.1, 3.4

Lead Office: Engineering

Funding Source(s): To be proposed in a future budget; Mitigation grant funding

New Structures: Flood losses would be reduced in any new structures along the stream.

Effect on Existing Structures: Flood losses would be reduced in any existing structures along the stream.

Timeline for Completion: 5 years

Costs (Estimated): \$9,207,500

Cost Effectiveness and Risk Reduction: Homeowners along affected stream would save money on flood insurance premiums and possibly see an improvement in property values. Fewer insurance payments would be required under NFIP, and loss of life and property would be reduced.

#10

Title: Country Club Estates Storm Sewer Improvements

Description: Storm sewer and channel improvements to increase their drainage capacity

Hazard(s) Addressed: Flooding, Erosion

Goals and objectives addressed: 1.1, 2.1, 2.2, 3.1, 3.4

Lead Office: Engineering

Funding Source(s): To be proposed in a future budget; Mitigation grant funding

New Structures: Elimination of some known cases of homes that are subject to Code "A" internal flooding; also, reduction of Code "C" bank erosion in new structures built in the Country Club Estates neighborhood.

Effect on Existing Structures: Elimination of some known cases of homes that are subject to Code "A" internal flooding; also, reduction of Code "C" bank erosion in existing structures in the Country Club Estates neighborhood.

Timeline for Completion: 5 years

Costs (Estimated): \$1,122,500

Cost Effectiveness and Risk Reduction: Homeowners in the Country Club Estates neighborhood would see a reduction or elimination of flood loss. Garland would reduce money spent on bank erosion repairs.

#11

Title: Keen Branch Channel Improvements

Description: Channelization improvements to Keen Branch

Hazard(s) Addressed: Flooding

Goals and objectives addressed: 1.1, 2.1, 2.2, 3.1, 3.4

Lead Office: Engineering

Funding Source(s): To be proposed in a future budget; Mitigation grant funding

New Structures: New structures built along Keen Branch would be less vulnerable to flood hazards

Effect on Existing Structures: Existing structures along Keen Branch would be less vulnerable to flood hazards

Timeline for Completion: 5 years

Costs (Estimated): \$7,073,750

Cost Effectiveness and Risk Reduction: Project would reduce flood claims for residential flood losses in structures along Keen Branch.

Communications Failure and Hail Mitigation Actions

#12

Title: Retrofit Backup Police and Fire Communications Center / Dispatch

Description: The radio network will be connected with microwave and fiber. All 8 work stations and equipment in the 911 center will be on UPS and generator backup power. Structural retrofitting of the building to reduce or eliminate the risk of future hail damage.

Hazard(s) Addressed: Communications Failure and Hail

Goals and objectives addressed: 1.1, 2.3, 3.4

Lead Office: IT

Funding Source(s): General Fund

New Structures: A new structure will be equipped to manage Police and Fire Dispatch for the City of Garland.

Effect on Existing Structures: N/A

Timeline for Completion: 1 year

Costs (Estimated): \$230,000

Cost Effectiveness and Risk Reduction: The impact to the community would be detrimental in the event of dispatch communications failure. This backup facility provides redundancy and will be a part of the Police Department's continuity of operations.

Drought Mitigation Actions

#13
Title: West Pressure Plane Improvements Description: This project incorporates a phased approach to add additional capacity to the West Pressure Plane of the water distribution system. Phase one includes the expansion and rehabilitation of Wallace Pump Station to increase available water. Hazard(s) Addressed: Drought Goals and objectives addressed: 1.1, 2.3, 3.4 Lead Office: Water Funding Source(s): Capital Improvement Plan - \$4,050,000; Potential mitigation grant funding - \$17,574,000 Effect on New Structures: New structures would have more access to water in a drought event Effect on Existing Structures: Existing structures would have more access to water in a drought event Timeline for Completion: 1 year Costs (Estimated): \$21,624,000
Cost Effectiveness and Risk Reduction: Minimal impact due to offsetting pumping costs by reducing pumping from Apollo and Northside Pump Stations. Residents of the southern portion of Garland will be less vulnerable to water shortages in a drought.

#14
Title: East Zone Water Tower Improvements Description: Design and construction of a new elevated water storage tank and associated piping in the East Pressure Plane in order to provide peak-hour pressures to the southern portion of Garland and enhance off-peak service and fire protection Hazard(s) Addressed: Drought Goals and objectives addressed: 1.1, 2.3, 3.4, 3.5 Lead Office: Water Funding Source(s): To be proposed in a future budget; Mitigation grant funding Effect on New Structures: New structures would have more access to water in a drought event Effect on Existing Structures: Existing structures would have more access to water in a drought event Timeline for Completion: 3 years Costs (Estimated): \$7,000,000
Cost Effectiveness and Risk Reduction: Minor impact on the City's operating budget due to additional facility maintenance costs. Residents of the southern portion of Garland will be less vulnerable to water shortages in a drought.

Erosion and Expansive Soil Hazard Mitigation Actions

#15

Title: Bank Stabilization - Duck Creek Greenbelt Park Improvements

Description: Installation of bank stabilization along sections of Duck Creek Greenbelt where flood events have scoured the silt banks near the concrete pedestrian and bike path. The bank has failed, sluffing-off to a point where this 8-ft wide concrete trail will need to be relocated because it is now too close to the edge of the bank. Project design will need to include topographic survey, hydraulic study of that segment, and an analysis of possible materials and methods for the most appropriate stabilization.

Hazard(s) Addressed: Erosion and Flooding

Goals and objectives addressed: 2.1, 2.3, 3.4

Lead Office: Parks and Recreation and Engineering

Funding Source(s): General Fund or mitigation funding

Effect on New Structures: N/A

Effect on Existing Structures: Will protect creek bank and adjacent park pedestrian and bike facilities from further damage.

Timeline for Completion: 3 years

Costs (Estimated): \$3.5 Million

Cost Effectiveness and Risk Reduction: This section of Duck Creek Greenbelt Park is part of a multimodal pedestrian and bike system which connects with transit facilities and provides off-street connection between Centerville Road and the City of Mesquite's bike/ pedestrian trail, south of IH-30. Current funding will be extending the concrete trail from IH-30 into Mesquite, and extending the off-street bike path from its current north terminus, into Lon Wynne Park and will cross Duck Creek via a pedestrian-bike bridge, and connect to on-street bike facilities.

#16

Title: Calcium Soil Stabilizer

Description: Apply calcium soil stabilizer to areas around critical infrastructure.

Hazard(s) Addressed: Expansive Soil

Goals and objectives addressed: 2.1, 2.3, 3.4

Lead Office: Engineering

Funding Source(s): General Fund or mitigation funding

Effect on New Structures: Will protect infrastructure from expansive soils.

Effect on Existing Structures: Will protect infrastructure from further damage.

Timeline for Completion: 4 years

Costs (Estimated): \$300,000

Cost Effectiveness and Risk Reduction: Reducing damages to critical infrastructure will reduce costs associated with repairing them.

Tornado, Severe Winter Weather, Terrorism, Biological Event, Flood, Earthquake, Severe Thunderstorm, Infrastructure and Communications Failure, Drought, Extreme Heat, Power Outage, Expansive Soils, Hail and Erosion Mitigation Actions

#17

Title: Provide Education on Mitigation Techniques

Description: Provide education and mitigation techniques to residents and local businesses.

Hazard(s) Addressed: Tornado, Severe Winter Weather, Terrorism, Biological Event, Flood, Earthquake, Severe Thunderstorm, Infrastructure and Communications Failure, Drought, Extreme Heat, Power Outage, Expansive Soils, Hail, Erosion

Goals and objectives addressed: 2.1, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5

Lead Office: Chamber of Commerce

Funding Source(s): General Fund

Effect on New Structures: Development of business continuity plan.

Effect on Existing Structures: Development of business continuity plan.

Timeline for Completion: 3 years

Costs (Estimated): \$5,000

Cost Effectiveness and Risk Reduction: Losses in the community translate into the loss of resources for local residents as they try to recover, and the loss of taxes and services to local governments as they try to manage the recovery.

#18

Title: Acquire Recreation Center Generators

Description: Power loss is often one of the results of many hazards; generators would maintain energy for these facilities, which the City uses as community shelters.

Hazard(s) Addressed: Tornado, Severe Winter Weather, Terrorism, Biological Event, Flood, Earthquake, Severe Thunderstorm, Infrastructure and Communications Failure, Extreme Heat, Power Outage, Hail

Goals and objectives addressed: 1.1, 3.1, 3.4

Lead Office: Parks and Recreation

Funding Source(s): Mitigation grant funding or general fund

Effect on New Structures: None

Effect on Existing Structures: Existing recreation centers will have power backup to serve as more sustainable warming centers and shelters to local residents

Timeline for Completion: 5 years

Costs (Estimated): \$10,000

Cost Effectiveness and Risk Reduction: Generators at the community recreation centers would provide more sustainable warming centers and shelters for residents as people will have a safe place to stay during hazard events. The City will save money by sending fewer first responders on calls related to hazards.

#19

Title: Purchase and install generators

Description: Acquisition of generators at critical facilities

Hazard(s) Addressed: Tornado, Severe Winter Weather, Terrorism, Biological Event, Flood, Earthquake, Severe Thunderstorm, Infrastructure and Communications Failure, Extreme Heat, Power Outage, Hail

Goals and objectives addressed: 1.1, 2.3, 3.4

Lead Office: Fleet Services

Funding Source(s): Mitigation grant funding or Capital Improvements Project

Effect on New Structures: New structures would have improved capabilities and continuity of operations due to fuel accessibility

Effect on Existing Structures: Existing structures would have improved capabilities and continuity of operations due to fuel accessibility

Timeline for Completion: 5 years

Costs (Estimated): \$300,000

Cost Effectiveness and Risk Reduction: The City of Garland would be able to continue services and maintain operations throughout all City departments. First responders would more effectively respond to the hazard, which would also minimize loss of life.

#20

Title: Acquire Mitigation and Preparedness Coordinator

Description: This new position within the Office of Emergency Management will focus on implementing City mitigation actions, educate the public on what they can do to mitigate hazards in their homes and how prepare for emergencies.

Hazard(s) Addressed: Tornado, Severe Winter Weather, Terrorism, Biological Event, Flood, Earthquake, Severe Thunderstorm, Infrastructure and Communications Failure, Drought, Extreme Heat, Power Outage, Expansive Soils, Hail, Erosion

Goals and objectives addressed: 1.1, 2.1, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5

Lead Office: Office of Emergency Management

Funding Source(s): Grant funding or General fund

Effect on New Structures: This position would focus on educating the public on protecting their homes.

Effect on Existing Structures: This position could focus on attaining grant funding and educate the public on protecting their homes.

Timeline for Completion: 1 year

Costs (Estimated): \$60,000 a year

Cost Effectiveness and Risk Reduction: Educating residents and businesses to prepare for disasters, mitigate hazards and build emergency plans will put less of a strain on local government resources.

Benefit-Cost Review and Prioritizing Mitigation Actions

The City of Garland Planning Team prioritized mitigation activities using the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) Method, per Federal Emergency Management Agency (FEMA) recommendations. STAPLEE is a benefit-cost review tool and includes considerations for Social, Technical, Administrative, Political, Legal, Environmental and Economic issues. Each of these items is assigned a positive or negative value. Projects that score the highest are considered to be the most effective, and their funding most justified. A lower score indicates that several obstacles exist that would prevent the proposed project from being completed. Most mitigation strategies have at least one obstacle and, very frequently, this obstacle is economic. Part of putting the mitigation strategies in a prioritized list is being able to justify the need for a project should funding become available.

City of Garland STAPLEE Action Evaluation and Prioritization Table

Mitigation Actions	Community Acceptance	Effect on Segment of	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Consistent with Federal Laws	Effect on HAZMAT Waste Sites	Matches Environmental Goals	Total Prioritization Score
#1 Saferooms	+	+	+	+	+	N	-	N	+	N	+	N	+	+	+	N	N	-	N	+	N	N	9
#2 Code	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	N	N	+	N	N	14
#3 Line Pgm	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	N	19
#4 Crew	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	N	N	18
#5 Mutual Aid	+	+	+	+	+	N	N	+	+	+	+	+	+	+	+	+	N	+	N	+	N	N	16
#6 Trimming	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	N	+	N	+	N	N	16
#7 Fuel Truck	+	+	+	+	+	+	-	+	+	N	+	+	+	+	+	N	N	-	N	+	N	N	12
#8 Skywarn	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	N	N	18
#9 Tire Chains	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	N	-	N	+	N	N	18
#10 IT Training	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	N	N	18
#11 SWAT Eqpt	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+	N	-	N	-	N	N	14
#12 Mosq Truck	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	N	+	19
#13 Ben Davis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	20
#14 Channel	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	N	-	+	+	N	+	16
#15 Sewer	+	+	+	+	+	+	-	+	+	+	+	+	+	+	-	-	N	-	+	+	N	+	13
#16 Keen Br	+	+	+	+	+	+	-	+	+	+	+	+	+	+	-	-	N	-	+	+	N	+	12
#17 Dispatch	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	N	+	19
#18 West Pressure	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	21
#19 East Tower	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	+	+	N	+	17
#20 Duck Creek	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	21
#21 Eco Edu	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	+	+	+	N	+	N	N	18
#22 Generators	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	N	-	N	+	N	N	14
#23 Position	+	+	+	+	+	N	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	19



8. Plan Maintenance

Planning Team members will be responsible for coordinating a periodic review of the Plan to ensure integration of hazard mitigation strategies

Monitoring, Evaluating and Updating the Plan

The City of Garland Hazard Mitigation Action Plan goals, integration and planning processes will be monitored and evaluated each January within its five year life cycle by reconvening the Planning Team. At this time the Planning Team will determine if changes are necessary to the plan and will evaluate and monitor each mitigation action using the Department Update form located in Appendix C to track actions. The Planning Team will evaluate mitigations using the Department Update form which includes project status, project achievement, cost effectiveness, problems, and relevance. The team will also determine if the identified hazards have changed or if risk and impact of the hazards have increased or decreased. Updates may also be the result of the City of Garland Budget Review, Capital Improvement Plan or major disaster within the community. The Advisory Committee, comprised of department heads, including the Emergency Management Coordinator, will monitor and evaluate mitigation actions from a department perspective and determine how improvements could be made after the Planning Team has summarized their findings. Following each update to the Hazard Mitigation Action Plan, the City of Garland Office of Emergency Management will document the update in the record of changes table in the Plan. This table will track any meetings, activities, completed initiatives, resulting risk reduction, limitations or processes used for the purpose of the plan update. One year before the 5 year plan update, the planning team will reconvene along with any additional individuals or organizations that have subject matter expertise. Once again, the Planning Team will review the threats and hazards to determine if these have changed or decide if there is the need for another Community Risk and Impact Assessment. Evaluate each mitigation action using the Department Update form located in Appendix C, update all statistics and data included or referenced in the plan, and develop future mitigation actions.

Incorporation into Existing Planning Mechanisms

The HazMAP identifies current capabilities and mechanisms available for implementing hazard mitigation strategies. Integration of the Hazard Mitigation Action Plan into other existing planning mechanisms will take place through coordinating HazMAP with Annex P: Hazard Mitigation, working with City Department Directors and the Advisory Committee to coordinate Capital Improvement planning and mitigation goals, and through City Council approval and adoption. Mitigation actions smaller in nature that are not separate budget items, and do not have great impacts on residents or departments are not required to be presented to City Council. Department Directors and managers simply implement the mitigation action into current department plans and procedures informally. An example of this type of

mitigation action would be distributing weather radios to all City departments. Larger mitigation actions requiring substantial resources, large changes in City services or department activities must first be approved through Department Directors, then approved by the Managing Director of that department, then approved by the City Manager and finally presented to City Council for approved by vote. After final approval the Department Directors and Managers will begin the mitigation action implementation process. If other departments are needed to coordinate activities the Advisory Committee can assist. During any mitigation action implementation the Office of Emergency Management plays a support role to departments implementing mitigation actions.

Continued Public Involvement

In order to maintain public involvement the City of Garland Planning Team will continue to seek the input of the public and stakeholders. A copy of the Local Hazard Mitigation Action Plan will continue to be available through the Office of Emergency Management for review and comment. The public will also be continuously engaged through a number of various tasks completed by the City of Garland Office of Emergency Management and other City Departments. Methods for public involvement during implementation include but are not limited to: adding an Economic Resistance and Recovery Education Coordinator to the Department of Emergency Management, Economic Resistance and Recovery Education through the Chamber of Commerce, presentations, community preparedness campaigns, and seasonal preparedness updates on the department website.

Discussion with citizens about hazards and risks, builds support for implementation of mitigation activities. During annual events OEM will gauge the public's preparedness through discussion and survey tools to assist in monitoring plan impacts and report findings at the annual Planning Team meeting. A formal survey may be distributed with similar questions to the initial survey in Appendix E to easily compare and evaluate components of the HazMAP plan during the 5 year plan update.

Plan Maintenance Summary

Maintenance Activity	Local Planning Documents	Responsible Personnel	Schedule	Plan
Implementation	City Budget	City Manager	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
Implementation	Emergency Operations Plan updates	Senior Emergency Management Specialist	Reviewed Annually, updated as needed	EOP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
Implementation	Floodplain ordinances	Drainage and Development Engineer	As needed	Enhance mitigation of flood hazards using LMAP flood data for floodplain management and community development.
Implementation	Community Rating System	Drainage and Development Engineer	Annually	
Implementation	Capital Improvement plans	Budget and Research	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
Monitoring Evaluation Update	HazMAP	HazMAP Planning Team	Annually in January	- Evaluate each mitigation action using the Department Update form - Determine changes in hazards, risk and impact
Monitoring Evaluation	HazMAP	Advisory Committee	Annually after Planning Team Summarizes	Assess progress in mitigation activities that were implemented by the plan and decide how improvements could be made to the overall mitigation strategy.



9. Appendix

A. City Council Resolution

B. Documentation of Planning Meetings

HazMAP Kickoff

Goals and Objectives

- Organize Resources and Convene Planning Team
- Review Previous Mitigation Goal Progress and Implementation
 - Other activities current/or completed not in the plan
- Set 2nd Planning Team Meeting – Monday October 10th at 10am?
 - Update Community Capabilities and Risk Assessment
- Set Individual Meetings with each Planning Team Member
 - In depth mitigation goal progress, documentation, etc.
 - Update statistics, data and figures
 - Send document with information that needs an update.
- Create Outreach Strategy
- Previous Strategy
 - Stakeholders, Public and Officials
 - Materials on website (tornado safety, HazMAP info, extreme heat safety)
 - Plan placed at library for public review and comments.
- Identify Mitigation Goals and Actions
 - Add manmade hazards to plan (terrorism)
 - Add aircraft incident, biological event, expansive soil, dam and levee failure, earthquake, lightning, wildfire
- Develop Action Plan for Implementation
- Set annual meeting to coincide with FEMAS grant cycle
- Identify Plan Maintenance Procedures
- Review Final Draft
- Submit Plan to State and FEMA
- Adopt Plan

Planning Team

Building Inspection
Chamber of Commerce
Emergency Management
Engineering
Facilities
Fire Department
GIS
Garland Power & Light
Health
Parks and Recreation
Planning/Neighborhood Vitality
Police
Water

Summary of Past Mitigation Goals

Y	*The "Texas Individual <u>Saferoom</u> Rebate Program" will reimburse a homeowner or developer for ½ of the cost to install an individual <u>saferoom</u> in an existing or planned home, up to a cap of \$3,000.
Y	Adopting and implementing new building codes which in order to enhance tornado and wind resistance of structures within the community.
	*Installation of approximately eight flood sirens and sensors at strategic locations along Duck Creek to warn citizens in the event of a serious flood incident, allowing evacuation from homes and businesses. Volunteer emergency response teams would be able to block roads that are flooded; preventing citizens from driving through hazardous areas. Outdoor warning sirens/<u>CodeRed</u>/flood gate locations
	Improvements/widening of the channels of streams 2C3 and 2C4 in Garland to reduce flooding risks to residents and businesses along said streams.
	*Country Club Estates Storm Sewer Improvements. Storm sewer and channel improvements to increase their drainage capacity.
	Channelization improvements to Keen Branch.
	*Recreation Center Generators
	Acquisition of generators at the two main City of Garland fuel sources, 2343 Forest LN and Gasoline Alley, and a new mobile fuel truck for emergency operations
Y	*Distribute All Hazards Nation Weather Service Radios to all city facilities.
Y	Increase the number of storm spotters in the community and the training they receive by hosting an annual SKYWARN Spotter Training Conference.
	*Purchase and installation of six outdoor misting stations, one for each community recreation center.
	Implement an aggressive public awareness campaign concerning extreme heat and how to mitigate heat within the household
	*West Pressure Plane improvements of the water distribution system. Phase one includes the expansion and rehabilitation of Wallace Pump Station and the construction of a new 24-inch transmission line. In Phase two, a 2.5-million-gallon elevated storage tank will be constructed in the southwest portion of Garland. The final phase will provide an additional 3.5 million gallons of ground storage.

New East Zone Water Tower and associated piping in the East Pressure Plane in order to provide peak-hour pressures to the southern portion of Garland and enhance off-peak service and fire protection.

*Advanced Hazardous Materials Training for Emergency Management staff through the Pipeline Safety Office of Training and Qualifications, in order to develop more thorough plans for hazardous materials Training

N

Identify hazardous materials facilities that exist in the floodplain. Help facilities to prepare plans for flood events.

Rapid First Response Communications. Outsource mission-critical paging to a company that utilizes more advanced technology that focuses on rapid and accurate delivery of text messages during emergency operations

*Identifies the highest level of prioritization using the STAPLEE evaluation

Questions

- Is growth and development an issue?

HazMAP Planning Meeting 2 10/10/2016

Survey Results

Item	Count
Survey Results	100%
Are these correct?	100%
Priority?	100%
Do changes need to be made?	100%
Survey Results - Justification, Resources, Next and Next Funding	100%
Alignment of Risk and Mitigation	100%

Community Impact / Risk

Factors to Consider:

- Geographic Scope
- Duration
- Health Effects
- Displacement
- Economy
- Environment
- Built Environment
- Transportation
- Critical Services
- Confidence in Gov't
- Frequency (F)
- Cascading Effects (CE)
- Future Impacts

Agenda

- Today
- Hazard Survey Results
- Top 10 Hazards in Garland
- Calculate Community Impact and Risk of Hazards
- Determine Public Outreach Approach

What is the best way to get Public Input?

Grants need Public Approval

Top 10 Hazards = Top Risk

Hazard	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High
6. Tornado	High	High	High	High	High	High	High	High	High	High	High	High
7. Ice Storm	High	High	High	High	High	High	High	High	High	High	High	High
8. Power Outage	High	High	High	High	High	High	High	High	High	High	High	High
9. Air Pollution	High	High	High	High	High	High	High	High	High	High	High	High
10. Noise	High	High	High	High	High	High	High	High	High	High	High	High

What are the top 5 hazards in Garland?

Hazard	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Public Outreach

- Take decisions to Public in survey form
- Materials on website – all dept. sites
- City Press
- Library
- Chamber of Commerce

Geographic Scope

Geographic Scope	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Duration

Duration	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Economy

Economy	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Transportation

Transportation	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Health Effects

Health Effects	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Environment

Environment	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Critical Services

Critical Services	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Displacement

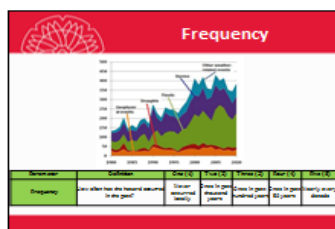
Displacement	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Built Environment

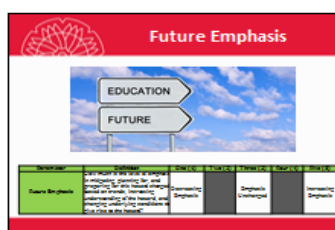
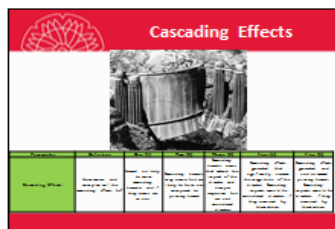
Built Environment	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High

Confidence in Government

Confidence in Government	Frequency	Severity	Duration	Health	Displacement	Economy	Environment	Built	Transportation	Critical	Confidence	Future
1. Flood	High	High	High	High	High	High	High	High	High	High	High	High
2. Drought	High	High	High	High	High	High	High	High	High	High	High	High
3. Wildfire	High	High	High	High	High	High	High	High	High	High	High	High
4. Earthquake	High	High	High	High	High	High	High	High	High	High	High	High
5. Hurricane	High	High	High	High	High	High	High	High	High	High	High	High



- Community Impact Completed?
- Next Meeting – November 14th 10am
- Mitigation Actions

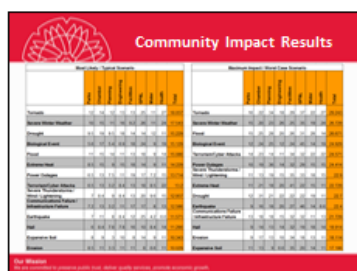


HazMAP Planning Meeting 3
11/9/2016

Agenda

- Today
 - Top 10 Hazards in Garland
 - Community Impact Results
 - Capabilities Assessment
 - Public Outreach Update

Community Impact



**Community Impact
Results = Priority**



Public Outreach Update

- A web page will be designed to improve public awareness on hazard mitigation and all hazards that impact Garland.
- The web page will have a survey link to solicit input on identified hazards from the public.
- The information and survey link will be posted at customer service sites and hard copies can be requested from the Office of Emergency management.

Capabilities Assessment

- Additional Information?
- How can these capabilities be expanded and improved to reduce risk?

Hazard Mitigation Activities

Handouts –	What activities are we already doing? What activities may be a good idea or you never heard of?
Wind – Adopt and Enforce Building Codes	Requiring tie-downs with anchors and ground anchors appropriate for the soil type from a professional home.
Drought–Retrofit Water-Supply Systems	- Requiring water saving systems to accommodate drought events - Developing new or upgrading existing water delivery systems to eliminate breaks and leaks.
Extreme Heat –	Require max temperatures in housing/landlord codes.
Flood –	- Install flood sensor at Duct/Entry - Participate in Community Rating System (CRS)

Next

- Do you need to add mitigation actions from the Capital Improvement Plan or Budget?
- Next Meeting
Thursday, December 8th 10am
- Public Outreach Survey Rollout
- Plan Information Implementation

HazMAP Planning Meeting 4

1/12/2017

Agenda

- Public Outreach
- Mitigation Actions

Public Outreach

- FEMA Requirement – Public Participation
 - Web Page
 - Survey Links in Vietnamese and Spanish
 - Definition
 - Purpose
 - Process
 - Identified Hazards
 - Role of Public Involvement
 - POC
- Post Flyer at Customer Service Sites
 - All Libraries (4)
 - Permit Office – 800 Main Street
 - Customer Service – 217 N. 5th Street
 - Recreation Centers
 - Health Department
 - City Care Clinic
 - Pet Adoption Center

Public Outreach Cont.

- Survey link pushed through:
 - Neighbor, COG Twitter, COG Facebook
 - Chamber of Commerce Business Group
 - Community Leaders Group
 - Orleans Fire and Police Academy
 - GASP
- Residents can use libraries computers
- Hard copies Requested through OEM
- Memo Sent to Council
- Live January 16th – February 20th
- Results included in HazMAP

Mitigation Actions

- Building Inspection
 - Ordinance No. 6820 adopted the 2015 International Building Code (IBC)
 - Section 402 of the IBC requires that a Storm Shelter capable of withstanding 150 MPH winds be constructed with new police, fire and ambulance facilities as well as with public schools
 - Building Code enforcement and maintenance - adopting and implementing new building codes which in order to enhance tornado and wind resistance of structures within the community
 - Update Construction Codes - Review the 2018 series of the International Codes for possible adoption by the City Council
 - Incentive for new homes?

Mitigation Actions

- Chamber of Commerce
 - Economic Recovery?
- Emergency Management
 - Work with NWS flood sensor at Duck Creek?
 - Strategic Plan
 - EMAP Accreditation
 - Texas Individual Safehome Rebate Program
 - Skywarn Training

Mitigation Actions

- Engineering
 - Flood Gate Map
 - Improvements/altering of the channels of streams 2C and 2D in Garland to reduce flooding risks
 - Country Club Estates Storm Sewer Improvements
 - Kean Branch Channel Improvements
 - Community Rating System (CRS) ?
 - Any from OP and Budget?
- Health
 - Biological Event Mitigation?
 - Accreditation?
- Facilities
 - Security Cameras – Terrorism? Is this complete?
 - Window film on 2nd floor 911 communication center?

Mitigation Actions

- Fire Department
 - New fire station
 - Pre fire planning program for target hazard locations?
- Fleet
 - Fleet Services Continuity of Operations
 - Emergency Management Capabilities Assessment?
- Neighborhood Vitality
- Parks and Recreation
 - Duck Creek Greenbelt Drainage
 - Recreation Center Generation? Delayed is correct?
- Police Department
 - Terrorism/Other Attacks? New equipment?
 - Communications Failure? New radio system?

Mitigation Actions

- GP&L
 - Tree Trimming Program
 - Overhead Line Maintenance Program
 - Ben Davis Substation Flood Study and Equipment Upgrade
 - Mutual Aid Agreements to provide power restoration assistance
 - 24/7 Standby Electric Crews
 - Fans & window units?
- Water
 - West Pressure Plan Improvements - more access to water in drought
 - East Zone Water Tower
 - Water Resource Plan / Conservation Ordinance? Capabilities?
 - Increased backflow inspection?
 - Cross connection control?
 - Any from OP and Budget?

Mitigation Actions

- Risk Management
 - Updating facility evacuation and sheltering plans?
 - RIMS Safety Training?
 - Property reevaluation for property insurance purposes
- Others Mentioned
 - Housing – Income based repairs? Emergency a/c?
 - Automatic Chimes for FD/EMS/Dispatch?
 - Lightening – using warning signs?

Next

- Confirm mitigation actions with all departments
- Survey available through February 20th
- Implement survey results and mitigation actions into plan
- Put draft HazMAP on City website for comment – 2 weeks
- Next meeting

C. Department Updates

Hazard Mitigation Action Department Updates

The hazard mitigation action(s) below have been extracted from the HazMAP plan. The plan requires each mitigation action to be monitored and evaluated which includes the following information:

- Project status: ☐ Project Completed
☐ Project Canceled
☐ Project on Schedule
Anticipated completion date: _____
☐ Project delayed
Explain _____

Did the project achieve the planned result that was anticipated?

How was the project cost-effective?

Who and how many benefited from this project? Other benefits?

What obstacles, problems or delays did the project encounter?

If uncompleted, is the project still relevant? Should the project be changed or revised?

Other comments or areas of concern needing mitigation action?

D.Public Outreach Methods

City of Garland Website information



Hazard Mitigation Action Plan

What Is Hazard Mitigation?

Hazard Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters.



Why Do We Need A Hazard Mitigation Plan?

Through projects, programs, and policies the City of Garland is constantly creating ways to protect the City from hazards and recover from disasters quickly. The Hazard Mitigation Action Plan (HazMAP) creates safer communities by reducing loss of life and property damage. When the HazMAP is complete, it will include a list of specific actions and goals for city departments within the next five years. These actions will lessen the impact of hazards on individuals and our community. HazMAP also includes information that the public can use to prepare themselves for hazards. Readiness is a partnership, and you play an important role in making sure hazards don't become disasters. Another partner is the Federal Emergency Management Agency (FEMA), who requires local jurisdictions to revise their HazMAP and obtain federal approval every five years in order to remain eligible for mitigation grant funding. Garland's plan is up for renewal in 2017. FEMA also requires the public to participate in the planning process.

Examples of Mitigation Actions

- Prohibiting development in high-hazard areas
- Educating citizens regarding the dangers of extreme heat and cold
- Elevation of structures in flood prone areas
- Safe rooms
- Erosion and drainage control to reduce flooding
- Mutual aid agreements to reduce response and recovery times
- Update construction codes for improved structural stability
- Trimming Program to reduce potential for trees and branches to damage power lines
- Line Maintenance Program to reduce electric service interruptions
- Water distribution system improvements to access more water in a drought

The Planning Process

Local hazard mitigation planning forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage in the next disaster. The planning process consists of:

- 1. Organizing Resources** –This includes identifying and organizing Planning Team Members and Stakeholders, as well as securing needed technical expertise and authority to implement mitigation goals. Review of existing plans for inclusion and necessary updates were also accomplished during this step.
- 2. Assessing Risks** – The Planning Team identified hazards that effect Garland and potential risks they pose through Hazard and Public Surveys as well as Community Impact and Capabilities Assessments.
- 3. Developing a Mitigation Plan** – Based on an understanding of risk and impact, the Planning Team set priorities and developed mitigation actions and strategies for avoiding or minimizing the effects of disasters in Garland.
- 4. Implementing Plan and Monitor Progress** – Garland can bring the mitigation plan to life in a variety of ways, from implementing specific mitigation projects to changing aspects of day-to-day organizational operations.

Hazards Identified by the City's Hazard Mitigation Action Planning Team:

Tornado
Severe Winter Weather
Flood
Drought
Biological Event
Terrorism/Cyber Attacks
Extreme Heat
Power Outages
Earthquake
Communications Failure/Infrastructure
Failure
Severe Thunderstorms/Wind/Lightning
Hail
Erosion
Expansive Soil

Point of Contact:

Office of Emergency Management
972-781-7272 | OEM@GarlandTx.gov



Help keep Garland *safe*.

The Office of Emergency Management is updating the City's Hazard Mitigation Action Plan and needs your help. A short survey can be found at Garland-OEM.com under Hazard Mitigation. Your opinion will help make a better plan to keep Garland safe.

Hazard Mitigation Survey

<https://www.surveymonkey.com/r/7GPTYT7>

Encuesta sobre la Mitigación de Peligros

<https://es.surveymonkey.com/r/73YCT65>

Tham VẤN cho việc Giảm Thiểu Nguy Hiểm

<https://www.surveymonkey.com/r/7GXHQZN>

All Garland library locations will allow residents to complete the survey on library computers. Call 972-205-2500 for locations and hours.

Paper copies can be requested by contacting Barbara Neville at 972-781-7273 or BNeville@GarlandTX.gov.

Hazard mitigation is the effort to reduce loss of life and property by lessening the impact of disasters.



E. Neighboring Communities, Local and Regional Agency Participation

All,

The City of Garland Planning Team has been working on the Hazard Mitigation Action Plan (HazMAP) update. While making revisions the Team considered the Dallas County and the City of Dallas identified hazards. At this time we would like to provide you the opportunity to review the City of Garland's HazMAP and provide feedback to enhance the Plan. We appreciate your time and ask that all feedback be provided by May 31st. Thank you in advance and please let me know if you have any questions.

Respectfully,

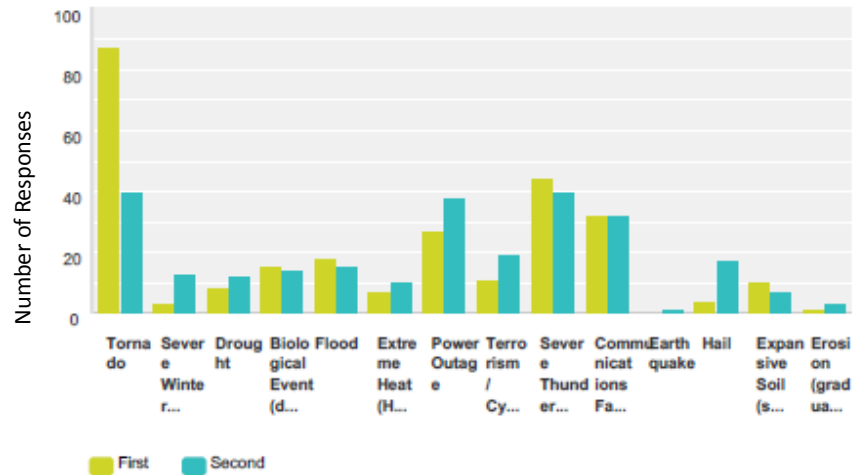
Barbara B. Neville

Senior Emergency Management Specialist
Garland Office of Emergency Management

E. Public Survey and Results

Q1 In your opinion, what are the top two hazards that can impact The City of Garland?

Answered: 269 Skipped: 0

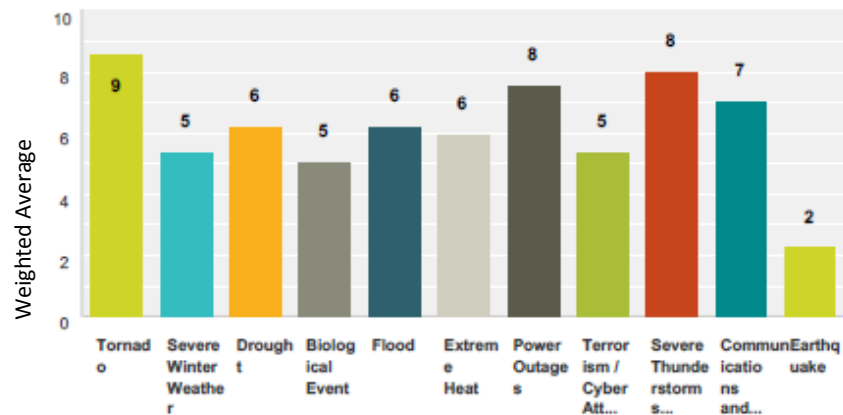


	First	Second	Total
Tornado	68.50% 87	31.50% 40	127
Severe Winter Weather (snow, freezing rain, or sleet)	18.75% 3	81.25% 13	16
Drought	40.00% 8	60.00% 12	20
Biological Event (disease outbreak ex. H1N1, Smallpox)	51.72% 15	48.28% 14	29
Flood	54.55% 18	45.45% 15	33
Extreme Heat (Heat Index of 105 degrees or higher)	41.18% 7	58.82% 10	17
Power Outage	41.54% 27	58.46% 38	65
Terrorism / Cyber Attacks	36.67% 11	63.33% 19	30
Severe Thunderstorms (including wind and lightening)	52.38% 44	47.62% 40	84
Communications Failure (transmission lines, broadcast, satellites and/or utility capabilities)	50.00% 32	50.00% 32	64
Earthquake	0.00% 0	100.00% 1	1
Hail	19.05% 4	80.95% 17	21
Expansive Soil (soils that expand when water is added, and shrink when they dry out)	58.82% 10	41.18% 7	17
Erosion (gradual wearing away of land masses)	25.00% 1	75.00% 3	4

#	Other (please specify)	Date
1	Crime and homelessness	2/3/2017 11:29 PM
2	Not being prepared for natural disasters	2/2/2017 10:41 PM
3	I took you "top two" to be the ones which will create the most devastation	2/2/2017 6:43 PM
4	Immigration (loss of population)	1/31/2017 12:01 PM
5	housing the homeless in winter weather	1/29/2017 6:20 PM
6	loss of computer cable	1/23/2017 9:24 AM
7	Sight restricted by bushes and trees at many intersections	1/22/2017 6:30 PM
8	Fracking...hopefully this is not happening.	1/20/2017 2:42 PM

Q2 The City of Garland's Hazard Mitigation Planning Team has identified the following hazards as having the largest impact on Garland. Please rank each hazard in order of importance. (1 being the most important)

Answered: 268 Skipped: 1

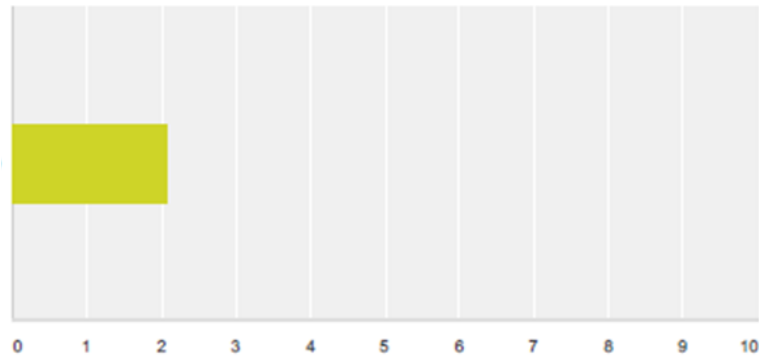


	1	2	3	4	5	6	7	8	9	10	11	Total	Weighted Average
Tornado	31.50% 80	17.72% 45	11.42% 29	12.60% 32	6.30% 16	6.30% 16	5.51% 14	2.76% 7	3.15% 8	1.97% 5	0.79% 2	254	8.62
Severe Winter Weather	1.24% 3	5.37% 13	11.16% 27	7.85% 19	13.22% 32	7.44% 18	11.16% 27	11.16% 27	9.50% 23	15.29% 37	6.61% 16	242	5.34
Drought	6.53% 16	5.31% 13	8.16% 20	12.24% 30	10.61% 26	16.73% 41	10.61% 26	14.29% 35	8.98% 22	4.90% 12	1.63% 4	245	6.20
Biological Event	9.88% 24	5.76% 14	6.58% 16	6.17% 15	5.76% 14	4.53% 11	6.17% 15	8.23% 20	15.64% 38	20.58% 50	10.70% 26	243	5.05
Flood	6.33% 15	6.33% 15	8.44% 20	12.66% 30	13.50% 32	13.92% 33	10.55% 25	9.28% 22	9.70% 23	5.91% 14	3.38% 8	237	6.22
Extreme Heat	2.10% 5	6.30% 15	7.98% 19	10.92% 26	16.39% 39	14.71% 35	10.92% 26	11.34% 27	10.92% 26	6.30% 15	2.10% 5	238	5.96
Power Outages	10.55% 27	15.63% 40	13.28% 34	14.84% 38	12.89% 33	10.55% 27	10.55% 27	5.86% 15	3.13% 8	1.95% 5	0.78% 2	256	7.54
Terrorism / Cyber Attacks	7.76% 19	6.53% 16	7.35% 18	5.71% 14	6.53% 16	7.35% 18	11.43% 28	12.65% 31	13.88% 34	13.47% 33	7.35% 18	245	5.36
Severe Thunderstorms (including wind and lightning)	17.13% 43	18.73% 47	18.73% 47	9.16% 23	10.76% 27	7.57% 19	5.98% 15	3.98% 10	3.19% 8	2.79% 7	1.99% 5	251	8.01
Communications and/or Infrastructure Failure	12.40% 31	15.60% 39	11.20% 28	9.60% 24	8.00% 20	9.60% 24	10.40% 26	8.80% 22	8.00% 20	5.60% 14	0.80% 2	250	7.07
Earthquake	1.24% 3	0.83% 2	0.00% 0	2.48% 6	0.83% 2	3.72% 9	3.31% 8	7.02% 17	8.26% 20	15.29% 37	57.02% 138	242	2.27

Q3 Please rank how prepared you and your household are for a disaster or hazard listed above.

Answered: 269 Skipped: 0

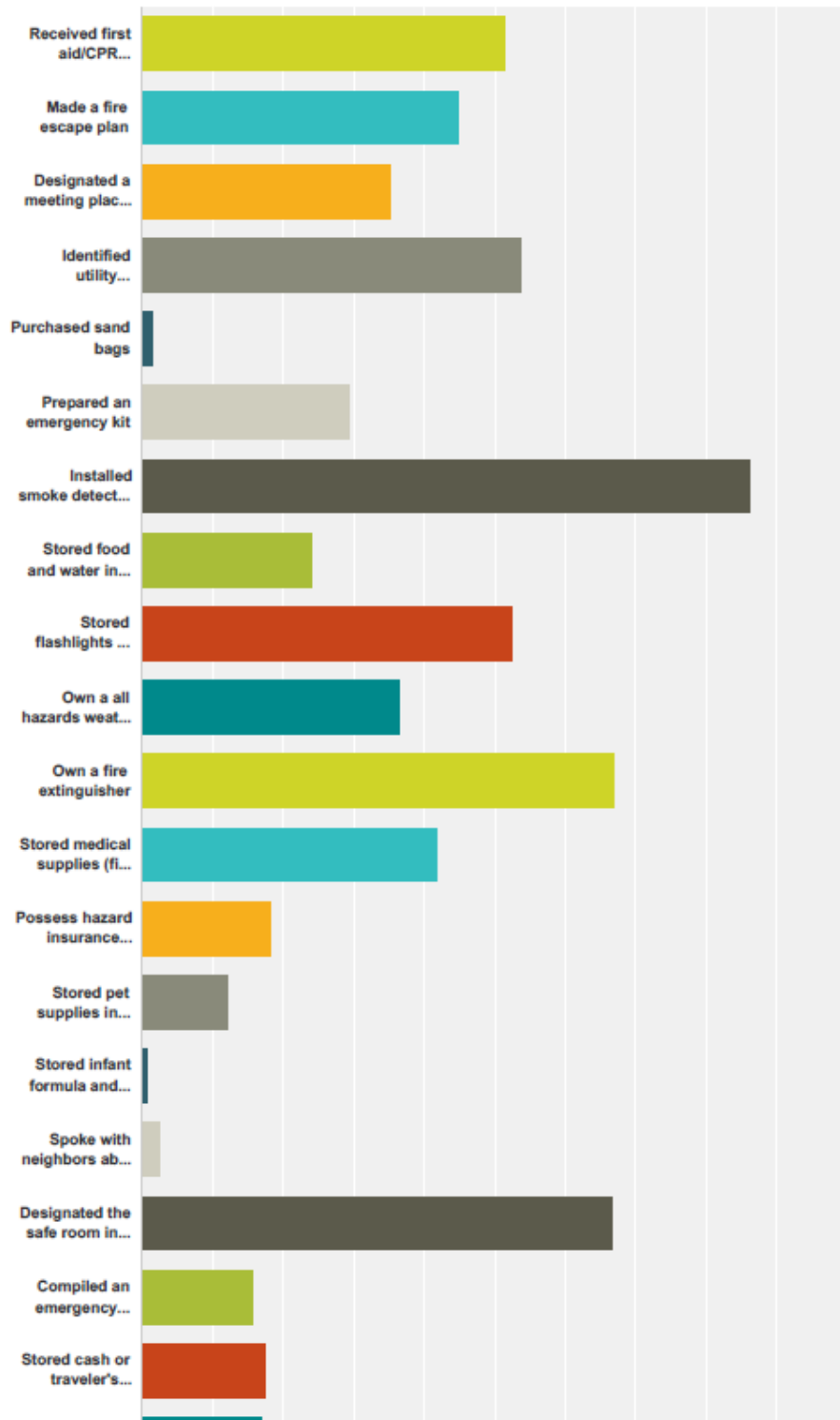
- 5 Extremely Prepared
- 4 Very Prepared
- 3 Prepared
- 2 Somewhat Prepared
- 1 Not Prepared

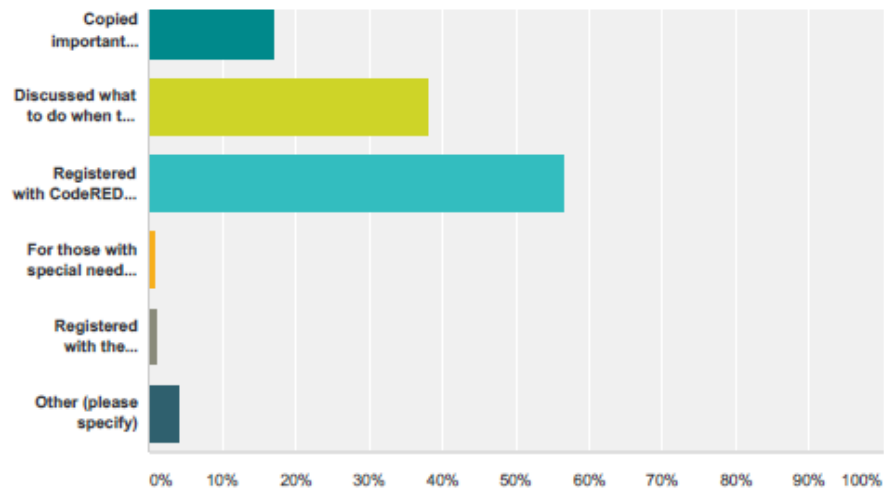


	Not Prepared	Somewhat Prepared	Prepared	Very Prepared	Extremely Prepared	Total	Weighted Average
(no label)	15.99%	63.94%	16.73%	2.97%	0.37%		
	43	172	45	8	1	269	2.08

Q4 Which of the following steps has your household taken to prepare for a disaster/hazard? (Check all that apply)

Answered: 269 Skipped: 0





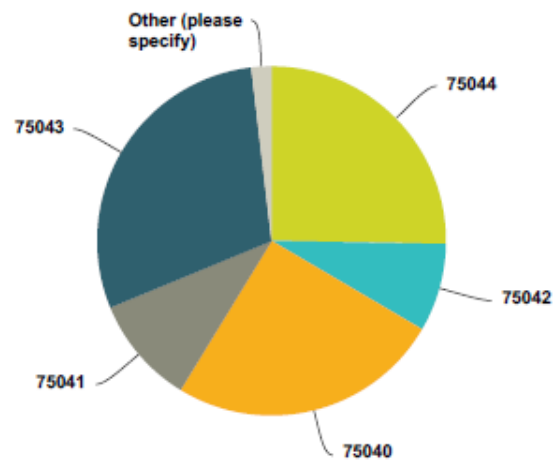
Answer Choices	Responses
Received first aid/CPR training	51.30% 138
Made a fire escape plan	44.98% 121
Designated a meeting place outside the home	35.32% 95
Identified utility shutoffs	53.90% 145
Purchased sand bags	1.49% 4
Prepared an emergency kit	29.37% 79
Installed smoke detectors on each level of the house	86.25% 232
Stored food and water in emergency kit (for 72 hours)	24.16% 65
Stored flashlights and batteries in emergency kit	52.42% 141
Own a all hazards weather radio	36.43% 98
Own a fire extinguisher	66.91% 180
Stored medical supplies (first aid kit, medications, eyeglasses)	42.01% 113
Possess hazard insurance (Flood, Earthquake, Wildfire)	18.22% 49
Stored pet supplies in emergency kit	12.27% 33
Stored infant formula and diapers in emergency kit	0.74% 2
Spoke with neighbors about disaster plans	2.60% 7
Designated the safe room in home	66.54% 179
Compiled an emergency contact list (not on a digital device)	15.61% 42
Stored cash or traveler's checks in emergency kit	17.47% 47
Copied important documents (insurance policies, identification and bank account records in a waterproof, portable container)	17.10% 46
Discussed what to do when the outdoor warning system is activated	37.92% 102
Registered with CodeRED (the local emergency notification system)	56.51% 152
For those with special needs during evacuation, registered with 211 if assistance is needed	0.74% 2
Registered with the electric company if there are electric life dependent medical equipment in home	1.12% 3

Other (please specify)	4.09%	11
Total Respondents: 269		

#	Other (please specify)	Date
1	Ammunition stockpile	2/3/2017 11:53 AM
2	Can we get more info.	2/3/2017 10:59 AM
3	none	2/3/2017 9:11 AM
4	Professionally trained and skilled at hazard abatement	2/2/2017 10:41 PM
5	Skywam training, portable water purifier	2/2/2017 4:57 PM
6	N	1/29/2017 8:31 PM
7	Portable electric generator	1/29/2017 6:13 PM
8	None	1/26/2017 9:59 PM
9	gas powered generator	1/26/2017 9:40 AM
10	Enrolled in USAA's Wildfire Response Program	1/23/2017 12:56 PM
11	maintain documtation both electroic, and on paper and distributed to others medical history with medines, emergency contact for family and neighbors, funeral plans	1/20/2017 2:04 PM

Q5 What is your zip code?

Answered: 269 Skipped: 0

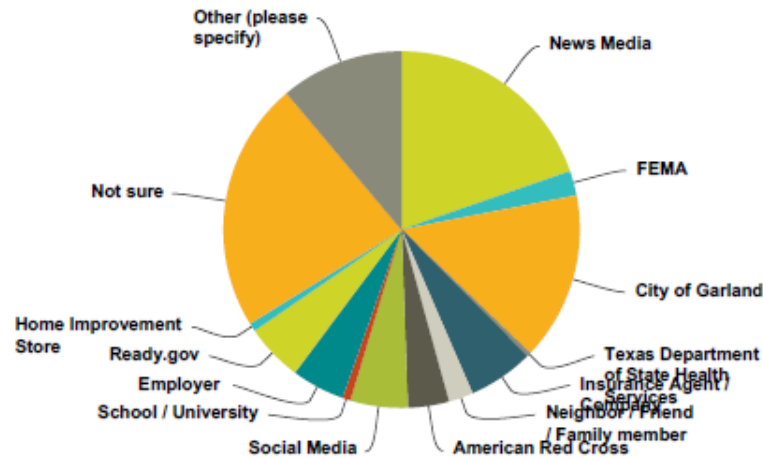


Answer Choices	Responses	
75044	25.28%	68
75042	8.18%	22
75040	25.28%	68
75041	10.04%	27
75043	29.37%	79
Other (please specify)	1.86%	5
Total		269

#	Other (please specify)	Date
1	75115	1/30/2017 8:52 AM
2	No	1/29/2017 8:31 PM
3	75089	1/26/2017 1:34 PM
4	75013	1/26/2017 9:42 AM
5	75082	1/25/2017 3:39 PM

Q6 Where did you last receive information on how to protect your household during a disaster/hazard?

Answered: 269 Skipped: 0



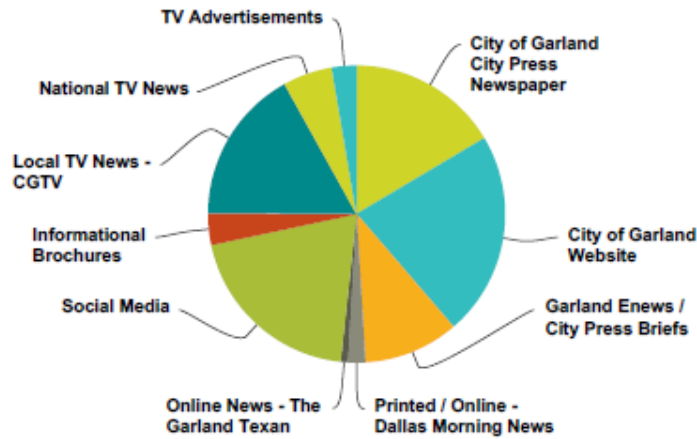
Answer Choices	Responses
News Media	19.70% 53
FEMA	2.23% 6
City of Garland	15.24% 41
Texas Department of State Health Services	0.37% 1
Insurance Agent / Company	5.95% 16
Neighbor / Friend / Family member	2.23% 6
American Red Cross	3.72% 10
Social Media	5.20% 14
School / University	0.74% 2
Employer	4.83% 13
Ready.gov	5.20% 14
Home Improvement Store	0.74% 2
Not sure	22.68% 61
Other (please specify)	11.15% 30
Total	269

#	Other (please specify)	Date
1	Various internet blogs	2/19/2017 9:48 PM
2	CERT	2/19/2017 8:40 PM
3	Haven't received any information	2/17/2017 1:37 AM
4	Garland Fire Club	2/15/2017 8:27 PM

5	Church	2/14/2017 2:50 PM
6	Haven't received any	2/13/2017 9:05 AM
7	Internet searches	2/13/2017 5:46 AM
8	internet	2/12/2017 8:03 PM
9	Books	2/11/2017 11:04 PM
10	My own reading	2/7/2017 4:27 PM
11	My research	2/6/2017 5:17 PM
12	Past experience of living in earthquake zone in California. Preparedness exercises at work.	2/3/2017 2:42 PM
13	Retired 9-1-1/Communications Manager	2/3/2017 2:33 PM
14	Dallas CERT	2/3/2017 2:05 PM
15	Did I?	2/3/2017 8:30 AM
16	No one, I just did some on my own.	2/2/2017 7:41 PM
17	Weather radio	2/2/2017 7:04 PM
18	Garland Amateur Radio Club	2/2/2017 6:16 PM
19	Air Force	2/2/2017 5:04 PM
20	OJT	2/2/2017 4:57 PM
21	Texas Baptist Men Disaster Relief	2/2/2017 4:35 PM
22	Question #7 needs a place for additional comments - if no power electronic resources are useless	1/31/2017 2:13 PM
23	internet research	1/30/2017 3:27 PM
24	Boy Scouts	1/29/2017 6:44 PM
25	City of Dallas	1/29/2017 6:16 PM
26	Common Sence	1/26/2017 11:00 AM
27	SELF- Family First/ Safety discussions at home	1/26/2017 10:48 AM
28	Preparedness Website	1/26/2017 10:35 AM
29	Garland Police Fire Cert trained	1/23/2017 9:56 AM
30	Tv show	1/23/2017 8:10 AM

Q7 What is the most effective way to receive additional information regarding hazard mitigation, emergency plans or information after disasters?

Answered: 261 Skipped: 8



Answer Choices	Responses	
City of Garland City Press Newspaper	16.48%	43
City of Garland Website	22.22%	58
Garland Enews / City Press Briefs	10.34%	27
Printed / Online - Dallas Morning News	1.92%	5
Printed / Online - The Dallas Examiner	0.00%	0
Printed / Online News - A Chau Thoi Bao	0.00%	0
Online News - The Garland Texan	0.77%	2
Social Media	19.92%	52
Informational Brochures	3.45%	9
Local TV News - CGTV	16.86%	44
National TV News	5.36%	14
TV Advertisements	2.68%	7
Total		261

F. Hazard Assessment

HAZARD AND VULNERABILITY ASSESSMENT TOOL								
EVENT	LOCATION	PROBABILITY	SEVERITY = (MAGNITUDE - MITIGATION)					RISK
			HUMAN IMPACT	BUSINESS IMPACT	PREPAREDNESS	INTERNAL RESPONSE (The City of Garland)	EXTERNAL RESPONSE (Community Partners, Mutual Aid Staff/Supplies)	
	Geographic Area Affected	Probability of Future Events in the next year	Possibility of death or injury	Interruption of services	Preplanning for event	Response time, effectiveness, resources available	Response time, effectiveness, resources available	Relative threat*
SCORE	0 = Negligible: Less than 10% 1 = Limited: 10 to 25% 2 = Significant: 25 to 75% 3 = Extensive 75 to 100% * 10% of Garland = 5.71 sq mi	0 = Unlikely: Less than 1% 1 = Occasional: 1-10% 2 = Likely 10-90% 3 = Highly Likely 90%	0 = Unlikely: Less than 1% 1 = Occasional: 1-10% 2 = Likely 10-90% 3 = Highly Likely 90% * 1% of Garlands population = 2355 * 1% of businesses in Garland = 118			0 = N/A 1 = High 2 = Moderate 3 = Low or none		0 - 100%
Active Shooter								0%
Aircraft Incident								0%
Biological Event								0%
Bomb Threat								0%
Civil Disturbance								0%
Communications Failure								0%
Dam Failure								0%
Drought								0%
Earthquake								0%
Erosion								0%
Expansive Soil								0%
Extreme Cold								0%
Extreme Heat								0%
Flood								0%
Fuel Shortage								0%
	Geographic Area Affected	Probability of Future Events in the next year	Possibility of death or injury	Interruption of services	Preplanning for event	Response time, effectiveness, resources available	Response time, effectiveness, resources available	
	0 = Negligible: Less than 10% 1 = Limited: 10 to 25% 2 = Significant: 25 to 75% 3 = Extensive 75 to 100% * 10% of Garland = 5.71 sq mi	0 = Unlikely: Less than 1% 1 = Occasional: 1-10% 2 = Likely 10-90% 3 = Highly Likely 90%	0 = Unlikely: Less than 1% 1 = Occasional: 1-10% 2 = Likely 10-90% 3 = Highly Likely 90% * 1% of Garlands population = 2355 * 1% of businesses in Garland = 118			0 = N/A 1 = High 2 = Moderate 3 = Low or none		
Hail								0%
Hazardous Materials (Fixed and Transport)								0%
Information Systems Failure								0%
Lightning								0%
Plant Explosion								0%
Power Outages								0%
Railroad Incidents								0%
Severe Winter Weather								0%
Sewer Failure								0%
Subsidence								0%
Terrorism								0%
Tornado								0%
VIP Situation								0%
Water Failure								0%
Wildfire								0%
Wind								0%
AVERAGE SCORE	0	0.00	0.00	0.00	0.00	0.00	0.00	

	Planning Team Hazard Assessment Results													
Hazard	OEM Results	OEM Results	BI Results	GIS Results	Fleet Results	Eng Results	CC Results	Health Results	Plan Results	Water Results	Fire Results	PD Results	Fac Results	Risk
Extreme Heat	16.63%	22.58%	3.23%	29.035	5.38%	19.35%	25.81%	23.66%	0%	22.58%	11.835	0	32.26%	17.655
Severe Winter Weather	22.58%	17.20%	12.90%	25.81%	7.53%	11.83%	19.35%	27.96%	5.38%	17.20%	11.83%	10.00%	21.51%	16.24%
Hail	19.35%	19.35%	15.05%	32.26%	15.05%	19.35%	4.30%	12.90%	8.60%	7.53%	23.66%	8.00%	21.51%	15.92%
Extreme Cold	16.13%	22.58%	0.00%	25.81%	7.53%	19.35%	15.05%	25.81%	0.00%	17.20%	11.83%	5.00%	23.66%	14.61%
Power Outages	12.90%	29.03%	12.90%	25.81%	8.60%	7.53%	23.66%	10.75%	0.00%	0.00%	32.26%	8.00%	19.35%	14.68%
Expansive Soil	15.05%	29.03%	6.45%	9.68%	0.00%	9.68%	2.15%	19.35%	5.38%	25.81%	0.00%	0.00%	25.81%	11.41%
Drought	6.45%	22.58%	0.00%	9.68%	8.60%	19.35%	17.20%	9.68%	5.38%	19.35%	0.00%	0.00%	25.81%	11.08%
Flood	16.13%	12.90%	6.45%	22.58%	4.30%	7.53%	15.05%	15.05%	5.38%	6.45%	7.53%	6.00%	15.05%	10.80%
Lightning	3.23%	22.58%	16.13%	35.48%	3.23%	6.45%	2.15%	12.90%	0.00%	0.00%	22.58%	0.00%	6.45%	10.09%
Hazardous Materials (Fixed and Transport)	12.90%	7.53%	4.30%	17.20%	19.35%	5.38%	17.20%	15.05%	0.00%	6.45%	7.53%	0.00%	15.05%	9.84%
Tornado	6.45%	9.68%	4.30%	32.26%	7.53%	7.53%	7.53%	9.68%	4.30%	7.53%	21.51%	8.00%	4.30%	10.04%
Wind	8.60%	15.05%	8.60%	21.51%	0.00%	4.30%	6.45%	8.60%	3.23%	3.23%	25.81%	0.00%	12.90%	9.10%
Communications Failure	0.00%	8.60%	NA	12.90%	0.00%	7.53%	9.68%	23.66%	0.00%	0.00%	11.83%	0.00%	23.66%	8.15%
Civil Disturbance	6.45%	10.75%	3.23%	11.83%	21.51%	0.00%	12.90%	23.66%	3.23%	0.00%	0.00%	0.00%	7.53%	7.78%
Bomb Threat	6.45%	17.20%	NA	25.81%	0.00%	0.00%	6.45%	21.51%	3.23%	0.00%	3.23%	9.00%	6.45%	8.28%
Information Systems Failure	0.00%	0.00%	NA	6.45%	18.28%	0.00%	9.68%	23.66%	0.00%	0.00%	12.90%	8.00%	11.83%	7.57%
Active Shooter	3.23%	12.90%	NA	23.66%	8.60%	0.00%	5.38%	0.00%	4.30%	9.68%	0.00%	9.00%	6.45%	6.93%
Erosion	0.00%	0.00%	0.00%	25.81%	0.00%	22.58%	2.15%	19.35%	0.00%	0.00%	0.00%	0.00%	7.53%	5.96%
Biological Event	7.53%	11.83%	0.00%	13.98%	11.83%	0.00%	10.75%	11.83%	0.00%	0.00%	0.00%	0.00%	0.00%	5.21%
Terrorism	5.38%	6.45%	5.38%	9.68%	17.20%	0.00%	0.00%	10.75%	0.00%	6.45%	0.00%	0.00%	0.00%	4.71%
Fuel Shortage	0.00%	0.00%	NA	0.00%	27.96%	0.00%	3.23%	9.68%	0.00%	0.00%	0.00%	0.00%	13.98%	4.57%
Earthquake	7.53%	6.45%	0.00%	9.68%	12.90%	0.00%	10.75%	0.00%	0.00%	0.00%	0.00%	0.00%	10.75%	4.47%
Water Failure	0.00%	0.00%	0.00%	27.96%	0.00%	5.38%	0.00%	7.53%	0.00%	3.23%	0.00%	0.00%	6.45%	3.89%
Railroad Incidents	4.30%	7.53%	5.38%	10.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.68%	0.00%	12.90%	3.89%
Sewer Failure	0.00%	0.00%	0.00%	21.51%	0.00%	5.38%	0.00%	10.75%	0.00%	3.23%	0.00%	0.00%	6.45%	3.64%
Plant Explosion	5.38%	7.53%	7.53%	0.00%	0.00%	0.00%	0.00%	8.60%	0.00%	0.00%	10.75%	0.00%	5.38%	3.47%
Subsidence	0.00%	0.00%	0.00%	17.20%	0.00%	9.68%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.45%	2.56%
Aircraft Incident	5.38%	0.00%	0.00%	13.98%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.49%
VIP Situation	0.00%	0.00%	NA	8.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.00%	6.45%	2.17%
Dam Failure	0.00%	0.00%	0.00%	10.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.83%
Wildfire	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.66%

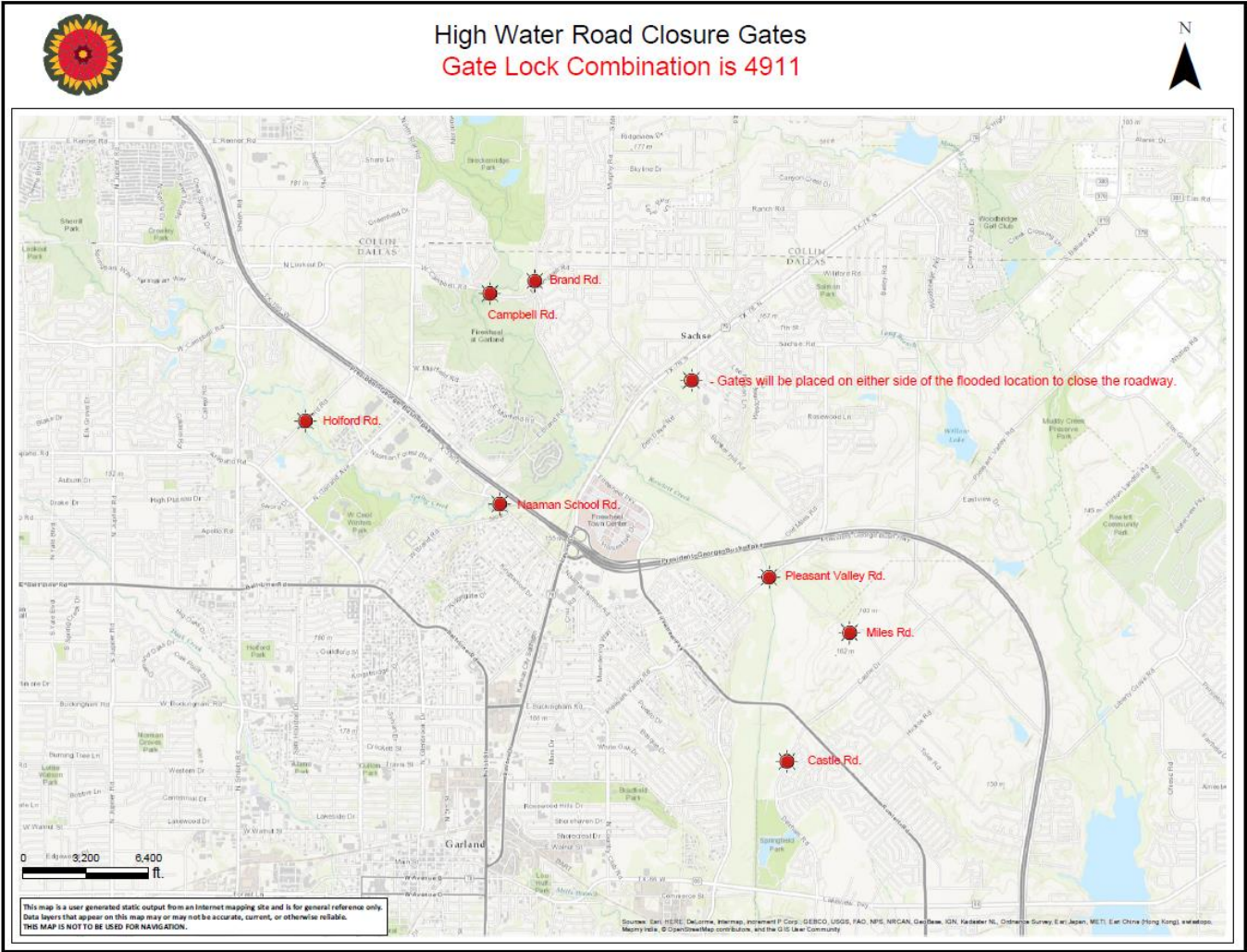
G. Community Risk and Impact Assessment

	Most Likely / Typical Scenario														Maximum Impact / Worst Case Scenario																	
	Geographic Scope	Duration	Health Effects	Displacement	Economic Impact	Environmental Impact	Built Environment	Transportation	Critical Services	Confidence in Gov't	Base Score	Frequency (F)	Cascading Effects (CE)	Multiplier (F + CE)	Subtotal	Geographic Scope	Duration	Health Effects	Displacement	Economic Impact	Environmental Impact	Built Environment	Transportation	Critical Services	Confidence in Gov't	Base Score	Frequency (F)	Cascading Effects (CE)	Multiplier (F + CE)	Subtotal	Future Emphasis	Combined Ranking
Drought											0			0	0											0			0	0		0
Earthquake											0			0	0											0			0	0		0
Erosion											0			0	0											0			0	0		0
Expansive Soil											0			0	0											0			0	0		0
Extreme Heat											0			0	0											0			0	0		0
Flood											0			0	0											0			0	0		0
Hail											0			0	0											0			0	0		0
Severe Thunderstorms / Wind / Lightning											0			0	0											0			0	0		0
Severe Winter Weather											0			0	0											0			0	0		0
Tornado											0			0	0											0			0	0		0
Biological Event											0			0	0											0			0	0		0
Communications Failure / Infrastructure Failure											0			0	0											0			0	0		0
Power Outages											0			0	0											0			0	0		0
Terrorism/Cyber Attacks											0			0	0											0			0	0		0

Community Impact Results

Most Likely / Typical Scenario										Maximum Impact / Worst Case Scenario									
	Parks	Chamber	Planning	Engineering	Facilities	GP&L	Water	Health	Total		Parks	Chamber	Planning	Engineering	Facilities	GP&L	Water	Health	Total
Tornado	12	14	12	13	13	25	11	27	18.057	Tornado	16	22	34	18	29	37	22	27	29.243
Severe Winter Weather	10	15	11	16	9.2	26	11	24	17.543	Severe Winter Weather	15	20	23	26	25	35	19	24	26.729
Drought	9.5	19	9.5	18	14	14	12	11	15.229	Flood	15	25	28	20	26	31	28	14	26.671
Biological Event	5.6	17	5.4	6.9	18	24	9	19	15.129	Biological Event	12	24	25	12	24	45	14	19	24.929
Flood	11	15	14	11	13	18	9	14	15.086	Terrorism/Cyber Attacks	14	23	14	11	34	32	22	22	24.571
Extreme Heat	8.5	15	9	15	18	14	9	11	14.229	Power Outages	10	19	36	14	32	29	15	15	24.414
Power Outages	6.5	13	7.5	11	19	17	7.2	15	13.714	Severe Thunderstorms / Wind / Lightening	11	13	19	15	35	33	18	15	22.9
Terrorism/Cyber Attacks	6.5	13	3.2	8.4	13	18	8.5	22	13.2	Extreme Heat	11	21	18	20	41	22	15	11	22.729
Severe Thunderstorms / Wind / Lightening	7	8.4	9	8.4	13	20	9.6	15	12.957	Drought	12	31	21	22	22	22	19	11	22.7
Communications Failure / Infrastructure Failure	7.2	13	3.2	11	17	17	8	13	12.586	Earthquake	9	16	18	20	27	46	14	6.6	22.4
Earthquake	7	11	8	8.4	12	25	4.2	6.6	11.571	Communications Failure / Infrastructure Failure	13	18	18	15	32	32	11	13	21.729
Hail	6	8.4	7.8	7.8	16	10	8.4	14	11.286	Hail	9	14	13	14	32	19	18	14	18.914
Expansive Soil	8	9	3	10	8	14	9	11	10.343	Erosion	9	17	13	10	34	18	13	11	18.114
Erosion	8.5	11	3.3	11	11	8	6.6	11	10.029	Expansive Soil	11	13	9	6.6	35	20	14	11	17.186
Combined Ranking										Future Emphasis									
Planning Team	Parks	Chamber	Planning	Engineering	Facilities	GP&L	Water	Health	Total		Parks	Chamber	Planning	Engineering	Facilities	GP&L	Water	Health	Total
Tornado	28	35	46	31	41	62	34	54	47.3	Biological Event	3	5	5	3	5	5	5	5	5.1429
Severe Winter Weather	25	35	34	42	34	61	30	49	44.271	Tornado	5	5	5	4	3	5	3	5	5
Flood	26	40	42	32	39	49	37	28	41.757	Earthquake	3	5	5	3	3	5	3	5	4.5714
Drought	21	50	30	39	51	36	31	23	40.086	Communications Failure / Infrastructure Failure	3	3	5	5	3	5	3	5	4.5714
Biological Event	17	41	30	19	38	69	23	38	39.429	Flood	5	5	5	4	3	3	3	3	4.4286
Terrorism/Cyber Attacks	20	36	17	20	53	50	30	45	38.6	Power Outages	1	3	5	5	3	5	3	5	4.2857
Extreme Heat	19	36	27	34	54	36	24	22	36.229	Terrorism/Cyber Attacks	1	5	5		3	5	5	5	4.1429
Power Outages	17	32	44	25	34	46	23	30	35.657	Severe Winter Weather	3	5	3	3	5	3	3	3	4
Earthquake	16	27	26	28	49	71	18	13	35.471	Drought	3	5	3	5	3	3	3	1	3.7143
Communications Failure / Infrastructure Failure	20	31	21	26	53	49	19	26	34.786	Extreme Heat	5	5	3	3	3	3	3	1	3.7143
Severe Thunderstorms / Wind / Lightening	18	22	28	24	41	53	28	30	34.729	Severe Thunderstorms / V	3	3	3	3	3	5	3	3	3.7143
Hail	15	22	21	22	40	29	26	29	29.057	Erosion	3	5	3	3	5	3	3	1	3.7143
Erosion	18	28	17	21	50	26	20	23	28.886	Hail	3	3	3	3	5	3	3	3	3.7143
Expansive Soil	19	22	12	17	46	33	23	23	27.929	Expansive Soil	3	5	3	3	3	3	3	1	3.4286

H.Flood Gates





GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

6.

Meeting Date: September 19, 2017

Item Title: Amendment to the Project Specific Agreement with Dallas County for Garland Bridges over Type B Public Roadways, R&B Project #011

Submitted By: Michael Polocek, Engineering Director

Summary of Request/Problem

In 2014 the City executed a Master Agreement with Dallas County that provides general terms regarding funding availability, agency responsibilities, etc., for “partnering” on eligible transportation related maintenance work on certain designated roadways in the city limits of Garland. The Master Agreement is the contractual commitment for eventual specific projects. A Project Specific Agreement (PSA) is then required to finalize specific costs and project management. Generally, Dallas County provides a 50% share of all eligible paving and drainage costs.

In July 2016, the City and Dallas County entered into a PSA for the participation in remediation repairs of bridges over Type B thoroughfares within Dallas County Commissioner Daniel's District 1. The PSA established a total cost of the bridge remediation repairs of \$922,240.00. The PSA also established fiduciary responsibility of both the City and Dallas County being 50% or \$461,120.00.

The City bid the project resulting in a total cost of \$2,808,627.00. This increase in costs was due to additional damages sustained to the bridges during storm events while the repair project was being designed. In an effort to preserve bid prices, the City Council approved a Budget Amendment on July 18, 2017 to cover the difference in costs, which was \$958,614 more than anticipated prior to bidding.

Since then, the City solicited Dallas County requesting additional funding participation and an Amendment to the PSA re-establishing the new cost share amounts. Dallas County agreed and will contribute an additional \$968,193.50 to the project. The proposed Amendment No. 1 to the PSA identifies total bid costs of the bridge repairs plus \$50,000 County in-house delivery costs in Commissioner Daniel's District to be \$2,858,627.00. The Amendment No. 1 to the PSA also establishes the participation between the City and Dallas County to be 50/50 or \$1,429,313.50 each.

This item was considered by Council at the September 18, 2017 Work Session.

Recommendation/Action Requested and Justification

Approve a Resolution authorizing the City Manager to execute Amendment No. 1 to the Project Specific Agreement with Dallas County.

Attachments

1st Amend to PSA County Bridge Repairs Resolution

Location Map

Amendment No. 1 to PSA

RESOLUTION NO.

A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AMENDMENT TO A PROJECT SPECIFIC AGREEMENT WITH DALLAS COUNTY FOR REPAIRS OF BRIDGES OVER TYPE B THOROUGHFARES WITHIN THE CITY OF GARLAND, DALLAS COUNTY DISTRICT 1; AND PROVIDING AN EFFECTIVE DATE.

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

Section 1

That the City Manager is hereby authorized to execute the First Amendment to a Project Specific Agreement with Dallas County, attached hereto as Exhibit "A", for the repair of bridges over type B thoroughfares within the City of Garland, Dallas County District 1, for estimated costs to the City of Garland in the amount of \$1,429,313.50.

Section 2

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

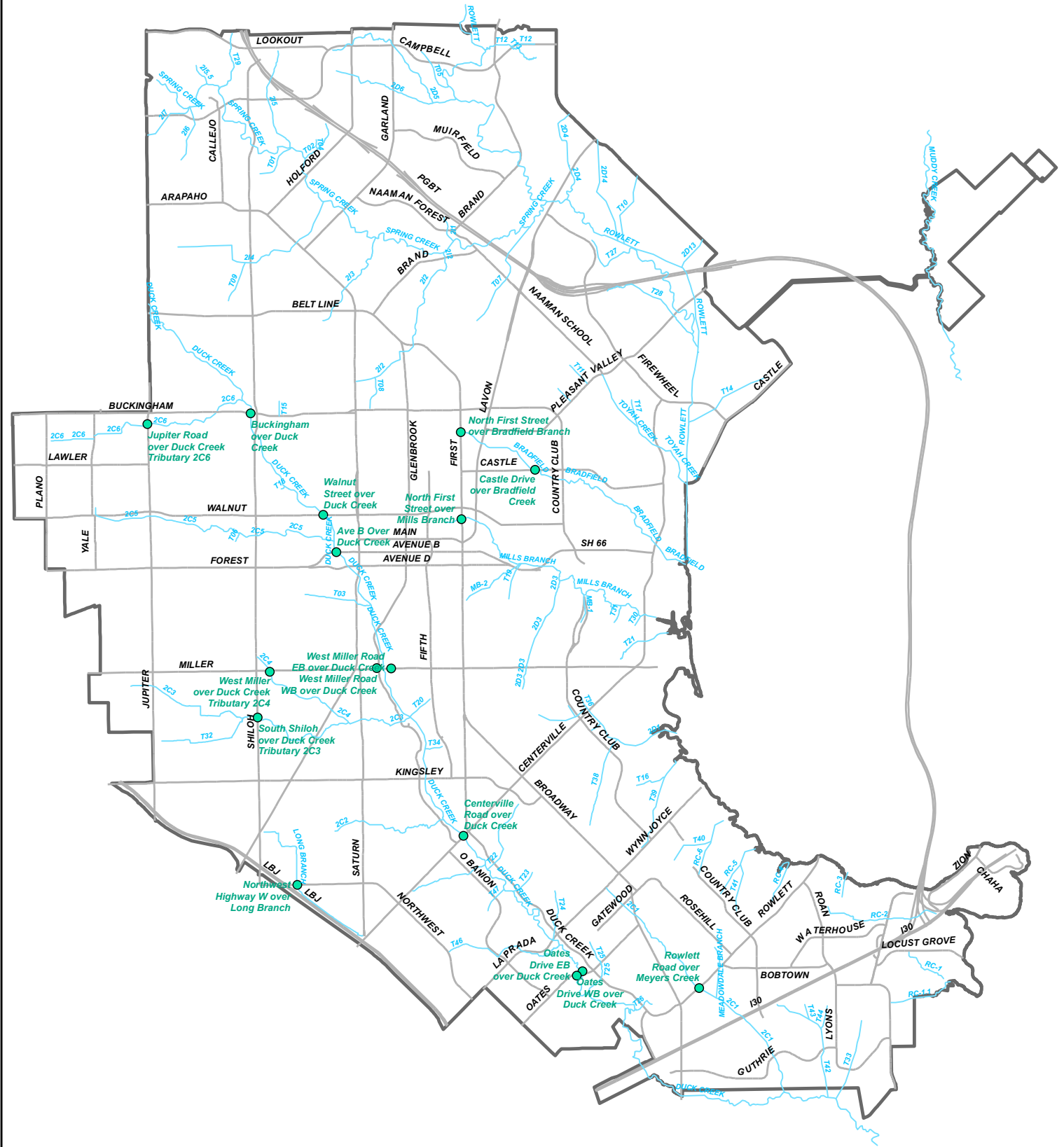
PASSED AND APPROVED this the _____ of _____, 2017.

CITY OF GARLAND, TEXAS

Mayor

ATTEST:

City Secretary



GROUP 1A DALLAS COUNTY DISTRICT 1 BRIDGE REMEDIATION

Scale: NTS
File: CIP2017Agenda.mxd
Date: 5/22/2017
Drawn: JW

SHEET
1
OF
1

First Amendment to the Project Specific Agreement
Re: Garland Bridges over "Type B" Public Roadway, R&B Project #011
Made Pursuant to Master Road & Bridge Interlocal Maintenance Agreement
Between Dallas County, Texas and City of Garland, Texas

This First Amendment to the Project Specific Agreement ("First Amendment") is entered into this _____ day of _____, 2017, to amend the Project Specific Agreement ("PSA") between the City of Garland, Texas ("City"), and County of Dallas ("County") acting by and through their duly authorized representatives and officials, for the purpose of transportation-related maintenance, repairs and improvements to be undertaken on bridges over public roadway as more fully set forth and described in Attachments "A-1", "A-2", "A-3", "B-1" and "B-2", which are incorporated herein by reference regarding Road and Bridge Project #011 ("Project").

WHEREAS, Chapter 791 of The Texas Government Code and Chapters 241 and 472 of the Texas Transportation provide authorization for local governments to contract with each other for the performance of governmental functions and services, as well as joint funding of road or street projects; and

WHEREAS, pursuant to Dallas County Commissioners Court Order 2014-1675 dated December 9, 2014, the County acting by and through the Dallas County Commissioners Court, and the City entered into a Master Interlocal Agreement whereby County agreed to provide partial funding for duly qualified road and bridge maintenance projects, said projects situated within the territorial limits and jurisdiction of City; and

WHEREAS, pursuant to Dallas County Commissioners Court Order No. 2016-1227 dated October 4, 2016, the County and City entered into a Project Specific Agreement for the implementation of Road and Bridge Project #011 regarding Garland Bridges over "Type B" public roadway; and

NOW THEREFORE, this First Amendment is made by and entered into by the City and the County for the mutual consideration stated herein.

I. PURPOSE

City and County both mutually agree to amend said PSA in accordance with the terms of the existing Agreements, except as modified below.

II. AMENDED PROVISIONS

A. "Article II. "Incorporated Documents" of the PSA shall be amended by deleting and replacing/adding the following:

2. The Construction Estimates (Attachments "A-1", "A-2", and "A-3"),
3. Maps (Attachments "B-1" and "B-2").

- B. Article VI. "Agreements," Section IV. "Funding" to the Project Specific Agreement shall be and is hereby revised to read as follows:

County and City mutually agree that the anticipated Project cost is approximately \$2,858,627.00, including \$50,000.00 for County in-house project delivery costs (IHPD). The parties hereto further agree that City shall be totally responsible for the construction and maintenance of said Project and shall be responsible for an amount not to exceed \$1,429,313.50, and that County shall only be responsible to City for a contribution, in the form of reimbursements, of an amount not to exceed \$1,429,313.50. City and County further agree as follows:

1. Should the final cost 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 County, which invoices shall provide complete information and documentation to substantiate City's charges. County's acceptances of City's invoices are contingent upon City's compliance with County's invoicing procedures. County may withhold any disputed amounts until such time as the underlying dispute is resolved to County's satisfaction, but shall pay all undisputed amounts timely.

III. EFFECT OF AMENDMENT

This First Amendment shall not change or waive any contractual provisions, clauses or conditions of the original PSA, unless otherwise provided for herein. In the event of any conflict between the original PSA and this First Amendment to the PSA, this First Amendment shall control. The original PSA, including any and all incorporated or referenced documents and any and all exhibits, attachments and amendments that by their terms have been incorporated into any of the foregoing documents, are collectively referred to herein as the PSA. All provisions of the PSA shall remain in full force and effect throughout the term of the PSA as well as any duly authorized amendments or extensions, including this First Amendment.

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The County of Dallas, State of Texas, has executed this First Amendment pursuant to Commissioners Court Order Number _____ and passed on the _____ day of _____, 2017.

The City of Garland, State of Texas, has executed this First Amendment pursuant to duly authorized City Council Resolution No. _____, and passed on the _____ day of _____ 2017.

City of Garland

County of Dallas

DOUGLAS ATHAS
MAYOR

Clay Lewis Jenkins
Dallas County Judge

Brad Neighbor
City Attorney

Date

Approved as to Form*:
Faith Johnson
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-1"

Bridge Repair Projects Dallas County District 1

Priority 1				
Bridge Name	Bridge Number	Priority	Preliminary Construction Cost	Construction Cost
Castle Drive over Bradfield Creek	B02584-001	1	\$174,785	\$ 233,321
West Miller Road WB over Duck Creek	B07542-019	1	\$69,615	\$ 240,197
West Miller Road over Drain (Trib 2C4)	B07542-022	1	\$21,008	\$ 68,828
West Miller Road EB over Duck Creek	B07542-023	1	\$44,174	\$ 101,408
Oates Drive WB over Duck Creek	B08292-007	1	\$33,859	\$ 115,790
Walnut Street over Duck Creek	B11767-001	1	\$261,378	\$ 625,723
South Shiloh Road over Drain (Tributary 2C3)	B13359-003	1	\$47,938	\$ 189,078
North First Street over Mills Branch	B13474-044	1	\$48,588	\$ 299,202
Buckingham Road over Duck Creek	B13516-003	1	\$94,322	\$ 318,704
Oates Drive EB over Duck Creek	B13797-002	1	\$15,424	\$ 158,196

Priority 1 Subtotal \$811,089 \$ 2,350,447

ATTACHMENT "A-2"

Bridge Repair Projects Dallas County District 1

Priority 2				
Bridge Name	Bridge Number	Priority	Preliminary Construction Cost	Construction Cost
Centerville Road over Duck Creek	B02691-003	2	\$40,820	\$ 94,418
Northwest Highway W over Long Branch	B08128-004	2	\$35,263	\$ 30,571
Rowlett Road over Meyers Creek (2C1)	B09670-001	2	\$16,868	\$ 107,661
Jupiter Road over Drain (2C5)	B13318-005	2	\$13,390	\$ 74,198
North First Street over Bradford Branch	B13474-040	2	\$4,810	\$ 23,140
Avenue B over Duck Creek	B13576-018	2	\$0	\$ 128,192

Priority 2 Subtotal

\$111,151

\$

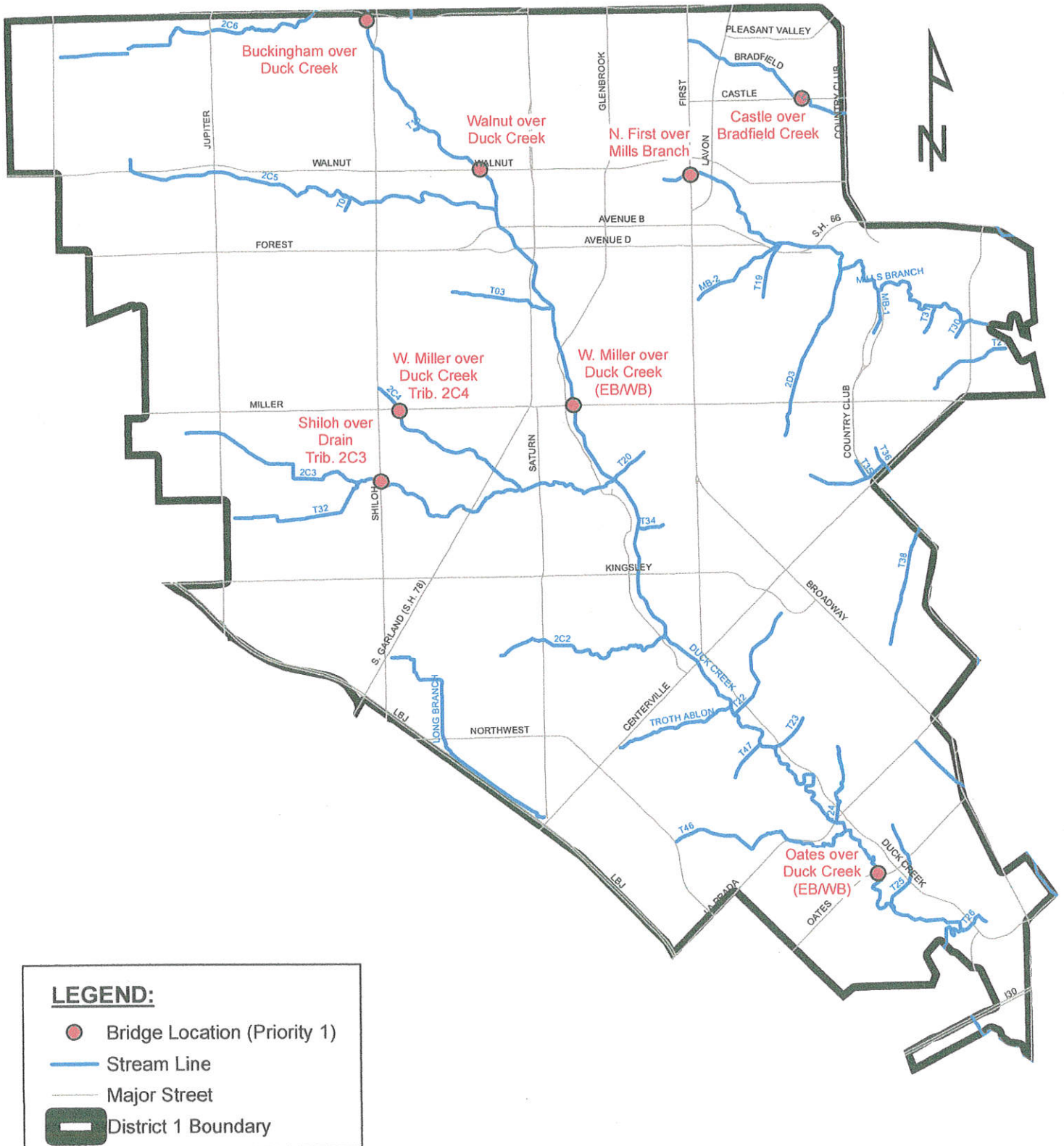
458,180

ATTACHMENT "A-3"

PROJECT COST

	Project Cost	County Share	City Share
Type 1	\$2,350,728.00	\$1,175,364.00	\$1,175,364.00
Type 2	\$457,899.00	\$228,949.50	\$228,949.50
IHPD	\$50,000.00	\$25,000.00	\$25,000.00
Total Project Cost	\$2,858,627.00	\$1,429,313.50	\$1,429,313.50

ATTACHMENT "B-1"
CITY OF GARLAND
2015 BRINSAP REPAIR PROJECT
DALLAS COUNTY DISTRICT 1
PRIORITY 1



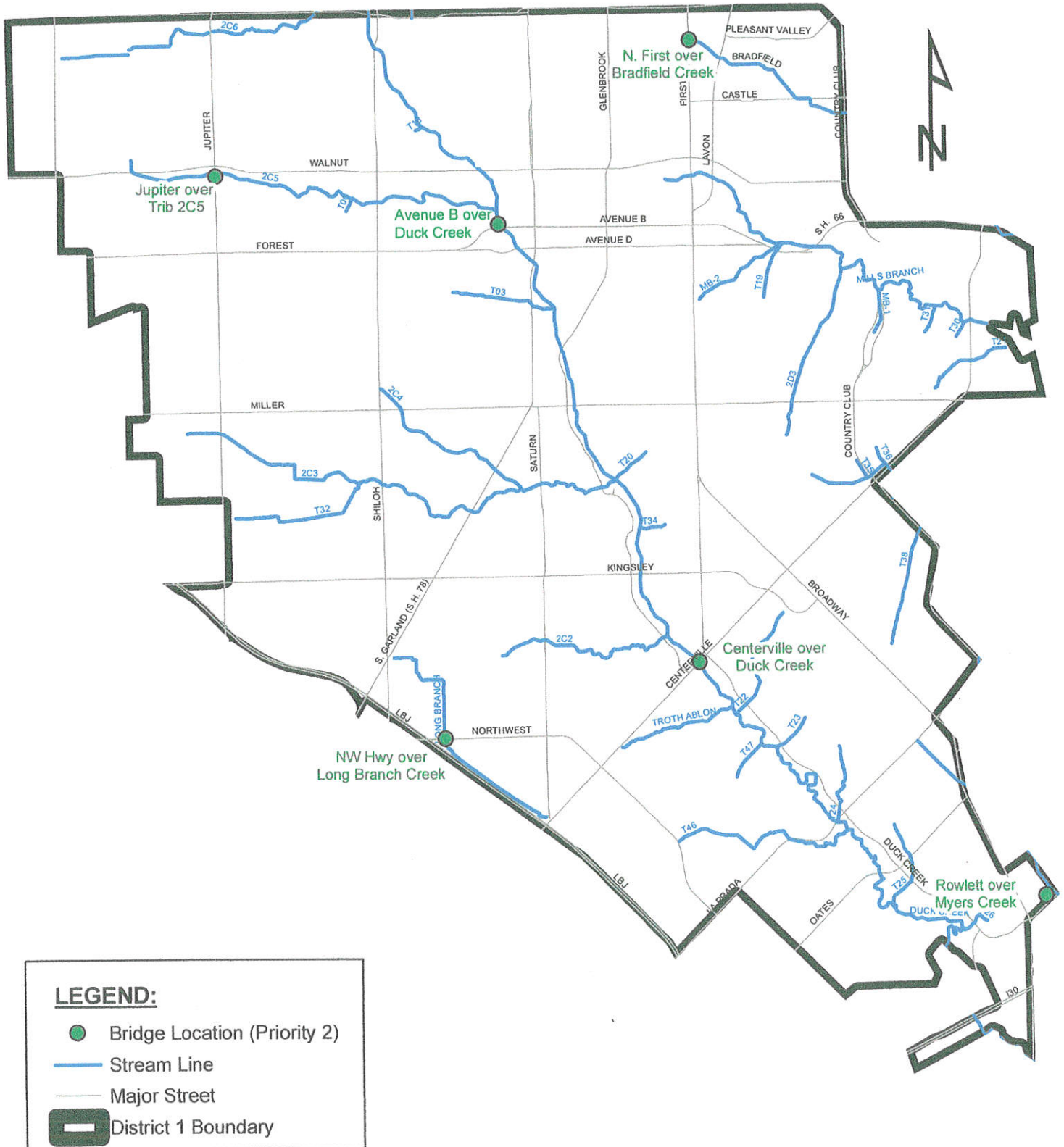
ATTACHMENT "B-2"

CITY OF GARLAND

2015 BRINSAP REPAIR PROJECT

DALLAS COUNTY DISTRICT 1

PRIORITY 2





GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

7.

Meeting Date: September 19, 2017

Item Title: Household Hazardous Waste Interlocal Agreement

Submitted By: Jason Chessher, Health Director

Summary of Request/Problem

Garland's storm water permit issued by the Texas Commission on Environmental Quality (TCEQ) requires Garland to provide a Household Hazardous Waste (HHW) management program. For the previous 20 years Garland has participated in the Dallas Area HHW Network which consists of 16 jurisdictions within Dallas County working together to provide collection and disposal of HHW. The interlocal agreement with the Dallas Area HHW Network expires on September 30, 2017.

This item was considered by Council at the September 5, 2017 Work Session.

Recommendation/Action Requested and Justification

Staff recommends that the Council approve a resolution authorizing the City Manager to execute an interlocal agreement with the Dallas Area HHW Network to continue participation in the program.

Attachments

2017 HHW Interlocal Agreement

Resolution Authorizing HHW Interlocal Agreement

**COURT ORDER
2017-0979**



Continuation of Household Hazardous Waste Program / Adoption of FY2018 Program Budget

On a motion made by Commissioner Dr. Theresa M. Daniel, District 1, and seconded by Commissioner Dr. Elba Garcia, District 4, the following order was passed and adopted by the Commissioners Court of Dallas County, State of Texas:

BRIEFING DATE: 8/1/2017
FUNDING SOURCE: Escrow Fund 532

Be it resolved and ordered that the Dallas County Commissioners Court does hereby approve the continuation of the Household Hazardous Waste program, its FY2018 interlocal agreement with participating cities, and its proposed FY2018 budget of \$1,772,353 (of which \$140,000 consists of prior-year carryover for contract labor, capital expenses, and other operational expenses).

It is further resolved and ordered that the County Judge is authorized to sign the aforementioned FY2018 interlocal agreements on behalf of the County.

Done in open court August 1, 2017, by the following vote:

IN FAVOR: Honorable Clay Lewis Jenkins, County Judge
Commissioner Dr. Theresa M. Daniel, District 1
Commissioner Mike Cantrell, District 2
Commissioner John Wiley Price, District 3
Commissioner Dr. Elba Garcia, District 4

OPPOSED: None

ABSTAINED: None

ABSENT: None

Recommended by: Rick Loessberg
Originating Department: Planning and Development

STATE OF TEXAS)
COUNTY OF DALLAS)

AGREEMENT BETWEEN CITY OF GARLAND AND DALLAS COUNTY

WITNESSETH:

WHEREAS, the City of Garland, Texas, (the "City") wishes to enter into this agreement (the "Agreement") to join the Dallas Area Household Hazardous Waste Network (the "HHW Network") to coordinate the planning and implementation of a hazardous waste collection program from October 1, 2017, through September 30, 2018, with options to renew for four additional one-year terms; and

WHEREAS, Dallas County, Texas acting by and through the Dallas County Commissioners Court ("County") approves the City's participation in the HHW Network; and

WHEREAS, the Interlocal Cooperation Act, Chapter 791 of the Texas Government Code, as amended, provides authorization for local governments to enter into contracts with other local governments and state agencies; and

WHEREAS, the Dallas County Commissioners Court adopted Court Order Number 94-751 establishing the HHW Network to coordinate the planning and implementation of a HHW collection program; and

WHEREAS, the HHW Network has successfully served the residents of the participating local governments since its inception in 1994 and is prepared to continue its services;

NOW, THEREFORE, THIS AGREEMENT is hereby made and entered into by the City and the County upon mutual consideration stated herein:

PURPOSE:

It is the desire of the City to voluntarily join with the County and other interested jurisdictions, to participate in a Household Hazardous Waste ("HHW") collection program as a continuation of the 1994-2017 program. The terms and conditions set forth within this Agreement provide the cooperative framework for the City and the County to undertake a variety of activities necessary to coordinate the planning and

implementation of a HHW collection program and to provide public education aimed at decreasing the generation of HHW.

GENERAL CONDITIONS:

The specific Scope of Services (see attached **Exhibit A2018**) has been reviewed and approved by the HHW Network. The parties agree **Exhibit A2018** is incorporated herein for all purposes. Any and all changes having a financial impact must be approved in advance by a mutually executed letter of agreement between the City and the County. Each letter of agreement, upon full execution, will become an addendum to this Agreement which is automatically incorporated upon mutual execution of the parties.

I. TERM

The Term of this Agreement will begin on October 1, 2017 and continue until September 30, 2018 ("Term").

II. NOTICE

Any notice, demand, or request related to this Agreement must be in writing and sent by U.S. Certified or Registered Mail to the designated contact at the address below. A notice, demand, or request will be considered received by the addressee three (3) business days after the date the notice, demand, or request was sent by U.S. Certified or Registered Mail to the contact at the address below.

Dallas County Contact
Fax)

Earle Blakney
HHW Program Manager
Dallas County
11234 Plano Road
Dallas, TX 75243
PHONE: (214) 553-1765
FAX: (214) 553-6507

With Copy to:

Russell Roden
Chief, Civil Division
Dallas County

City Contact (Name, Title, Address, Phone,

Cindy Corley
Environmental Health Manager
City of Garland
1720 Commerce St.
Garland, TX 75040
P (972) 205-3460
F (972) 205-3505

District Attorney's Office
411 Elm Street
5th Floor
Dallas, Texas 75202

III. COUNTY RESPONSIBILITIES

During the Term of this Agreement, the County agrees to the following provisions:

1. To provide HHW Network project management, HHW Network disposal contract negotiations and signatory, a HHW Mobile Unit, HHW public education, assistance with advertisement of HHW collections, all as per funding scheduled and provided by the participating cities, grants, and contributions.
2. To enter into an agreement with disposal vendor(s) to provide household hazardous waste services including a series of disposal events and disposal services at the County's fixed-site HHW collection locations. The County recognizes and agrees that compensation for vendors under such agreements will be payable only to the extent that City funds are made available.
3. To provide two representatives on the HHW Network.
4. To provide, manage, operate, and maintain a site at 11234 Plano Road in Dallas for exclusive use as a Home Chemical Collection Center ("Collection Center").
5. To provide regular reports to the City regarding collection statistics taken from event surveys.

IV. CITY RESPONSIBILITIES

During the Term of this Agreement, the City will provide:

1. A sum not to exceed \$ 195,000 for disposal, setup, operational, capital and transportation costs for HHW collection for residents of the City, during the period from October 1, 2017 through September 30, 2018. This figure is based on the program's annual budget contained in **Exhibit B2018** which is incorporated herein for all purposes.
 - a) The City agrees collection, setup, and disposal costs will be paid after-the-fact, based on actual usage by the City at events and at the Collection Center.

- b) The City agrees operational and capital costs must be paid quarterly in advance.
 - c) In the event of early withdrawal, the operational and capital costs will not be pro-rated for partial quarter participation but will become immediately due and payable in full.
2. Evidence that funding has been committed and encumbered which will be available for the obligations set forth herein in an appropriate form (City Council resolution, approved line item budget, letter from department head or other official authorized to encumber funds, etc.).
 3. A request to the County in writing when the City wishes a collection event to be held within the City's jurisdiction and assistance in obtaining HHW collection site location(s), community support, volunteers, and volunteer amenities for the requested event.
 4. Onsite representation at HHW collection(s) within its jurisdiction.
 5. Notification to the County in writing at least sixty (60) days prior to withdrawal from this Agreement by the City.
 6. One representative and one alternate on the HHW Network to attend Network meetings and participate in the decision-making process.

The City acknowledges that the financial responsibility for vendor's disposal, set up, and transportation costs, based on actual usage by residents of the City, rests with the City. The City further acknowledges and agrees its financial responsibility is determined by a proportional share of the program Operational and Capital Budgets, based on the City's percentage of total single-family households served and using single-family household projections from the North Central Texas Council of Governments. The Operational and Capital Budgets will be determined by the County and the HHW Network. No participating City will be obligated to incur expenses without their prior knowledge and approval.

V. HHW NETWORK RESPONSIBILITIES

Under the Bylaws of the HHW Network as included in **Exhibit C2018** which is incorporated herein for all purposes, the HHW Network will:

1. Provide guidance and direction to the Program Manager in the selection of a HHW disposal contractor, in identifying and selecting waste disposal options, in advertising HHW collections, and in developing and implementing a HHW public awareness program.

2. Create a Finance Committee, composed of those HHW Network members that contribute funds, to make recommendations to the HHW Network regarding expenditures of funds for the HHW Program.
3. Provide guidance and direction to the Program Manager in scheduling community HHW collection events. The HHW Network will attempt to honor all requests from member cities wishing to host a community HHW collection event. Should insufficient dates be available to accommodate all such requests, the number of events hosted by a single member City annually may be scheduled at a rate that is proportional to that City's share of single family households served.
4. Pay for all routine maintenance at the Collection Center and be responsible for capital additions necessitated by program operations.

VI. LIABILITY

To the extent allowed by law, and without creating a sinking fund, the County agrees to be responsible for any liability or damages the County may suffer as a result of claims, demands, costs or judgments against the County, including workers' compensation claims, arising out of the performance of the work and services under this Agreement, or arising from any accident, injury or damage, whatsoever, to any person or persons, or to the property of any person(s) occurring during the performance of this Agreement which are caused by the sole negligence of the County, its agents, officers and/or employees. To the extent allowed by law, and without creating a sinking fund, the City agrees to be responsible for any liability or damages the City may suffer as a result of claims, demands, costs or judgments against the City, including workers' compensation claims, arising out of the performance of the work and services under this Agreement, or arising from any accident, injury or damage, whatsoever, to any person or persons, or to the property of any person(s) occurring during the performance of this Agreement which are caused by the sole negligence of the City, its agents, officers and/or employees.

County and City agree that any such liability or damages as stated above occurring during the performance of this Agreement caused by the joint or comparative negligence of their employees, agents and officers will be determined in accordance with the comparative responsibility laws of the State of Texas.

This Agreement is made solely for the benefit of the parties, and nothing herein will be construed as granting any rights or cause of action to any third party. This Agreement is made subject to the County's and City's sovereign immunity, Title 5 of the Texas Civil Practice and Remedies Code and the Texas Tort Claims Act.

VII. RENEWAL, CANCELLATION AND AMENDMENTS

This Agreement may be renewed on October 1 of each year for four additional one-year terms by mutual agreement of the parties (a "Renewal"). A Renewal will be effectuated by a formal amendment to this Agreement which also reflects the current fiscal obligations of the parties for the current Renewal term. Either party may withdraw from this Agreement at any time without cause, provided that it has notified the other party in writing at least sixty (60) days prior to its intended withdrawal date.

Notwithstanding anything to the contrary herein, County's obligations contained in this Agreement and any extension hereto are expressly contingent upon the availability of funding for each item and obligation. Neither the State of Texas nor any City or any other person or entity will have any cause of action against the County of Dallas regarding this Agreement in the event that the County is unable to fulfill its obligations under this Agreement as a result of the lack of sufficient funding from any source utilized to fund this Agreement or failure of any funding party, including the County, to budget or authorize funding for this Agreement during the current or future fiscal years. In the event of insufficient funding by County or any other funding entity, or if funding for this Agreement is terminated, limited, suspended or withdrawn, or if funds become unavailable in whole or part, the County, at its sole discretion, will have the right, but not the obligation, to terminate County's obligations herein and withdraw from this Agreement with at least sixty (60) days prior written notice to the other HHW Network entities. Nothing herein will prevent the County, in its sole discretion, from providing funding from a separate source.

VIII. PAYMENT

The City, once receiving an invoice from the County for services rendered (operational, disposal, capital, set up, and/or transportation costs), must provide payment within thirty (30) days to the County per this Agreement and any addendum(s) to this Agreement. If the City fails to pay within thirty (30) days, the City will be charged a late fee of one percent (1%) of the invoice amount for each additional month or portion thereof. Disputes should be directed to the HHW Program Manager. Interest charges on disputed amounts will be suspended until an accurate figure has been documented and re-submitted to the City by HHW Network staff. Upon written request from the City, invoices from the County must be accompanied by copies of all participant surveys and other relevant backup documents to the invoice. Payments required under this Agreement must be in amounts that fairly compensate the performing party for the services or functions performed and shall be made from current revenues available to the paying party.

IX. AMENDMENTS AND CHANGES IN THE LAW:

No modification, amendment, novation, renewal or other alteration of this

Agreement will be effective unless mutually agreed upon in writing and executed by the parties hereto. Any alteration, addition, or deletion to the terms or conditions of this Agreement which are required by changes in federal or State law are automatically incorporated herein without written amendment to this Agreement and will be effective on the date designated by said law. Provided, however, that if the change in federal or State law renders the basic purposes of this Agreement illegal, invalid or unenforceable then either party may, upon written notice to the other, terminate this Agreement, and the parties agree to enter into good faith negotiations to replace this Agreement with an agreement as similar to the terms and conditions of this Agreement as legally permissible.

X. SEVERABILITY:

If any provision of this Agreement is construed to be illegal or invalid, this will not affect the legality or validity of any of the other provisions herein. The illegal or invalid provision will be deemed stricken and deleted, but all other provisions will continue and be given effect as if the illegal or invalid provisions had never been incorporated.

XI. SIGNATORY WARRANTY:

This Agreement has been authorized by the City through a duly enacted resolution passed by the City Council. The person or persons signing and executing this Agreement on behalf of City, or representing themselves as signing and executing this Agreement on behalf of City, do hereby warrant and guarantee that he, she or they have been duly authorized by City to execute this Agreement on behalf of City and to validly and legally bind City to all terms, performances and provisions herein set forth.

XII. ENTIRE AGREEMENT:

This Agreement, including all exhibits and attachments, constitutes the entire agreement between the parties hereto and supersedes any other agreement concerning the subject matter of this transaction, whether oral or written.

XIII. BINDING EFFECT:

This Agreement and the respective rights and obligations of the parties hereto will inure to the benefit and be binding upon the successors and assigns of the parties hereto, as well as the parties themselves.

XIV. FEDERAL OR STATE FUNDED PROJECT:

If Agreement is funded in part by either the State of Texas or federal government, the City agrees to timely comply without additional cost or expense to County, unless

otherwise specified herein, to any statute, rule, regulation, grant, contract provision or other State or federal law, rule, regulation, or other similar restriction that imposes additional or greater requirements than stated herein and that is directly applicable to the services rendered under the terms of this Agreement.

XV. DEFAULT/CUMULATIVE RIGHTS/MITIGATION:

It is not a waiver of default if the non-defaulting party fails to immediately declare a default or delays in taking any action. The rights and remedies provided by this Agreement are cumulative, and either party's use of any right or remedy will not preclude or waive its right to use any other remedy. These rights and remedies are in addition to any other rights the parties may have by law, statute, ordinance or otherwise. The City has a duty to mitigate damages.

XVI. COUNTERPARTS, NUMBER/GENDER AND HEADINGS:

This Agreement may be executed in multiple counterparts, each of which will be considered an original, but all of which will constitute one and the same instrument. Words of any gender used in this Agreement will be held and construed to include any other gender, and any words in the singular will include the plural and vice versa, unless the context clearly requires otherwise. Headings herein are for the convenience of reference only and will not be considered in any interpretation of this Agreement.

The County of Dallas, State of Texas, has executed this Agreement pursuant to Commissioners Court Order 2017-0979 passed on the 1st day of August, 2017.

COUNTY:

EXECUTED THIS 1st DAY OF August, 2017.

BY: Clay Lewis Jenkins
County Judge
Dallas County, Texas

RECOMMENDED BY:

BY: Rick Loessberg
Director
Planning and Development
Dallas County, Texas

APPROVED AS TO FORM*:

FAITH JOHNSON
District Attorney
Dallas County, Texas

BY: Randall Miller
Assistant District Attorney
Civil Division
Dallas County, Texas

*By law, the District Attorney's office may only 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).

HHW Interlocal Agreement 2018

CITY:

The City of Garland has executed this Agreement pursuant to Resolution Number _____, the _____ day of _____, 2017.

EXECUTED THIS _____ DAY OF _____, 2017.

BY: Mayor

APPROVED AS TO FORM:

BY: City Attorney

Exhibit A2018 Scope of Services

Overview

For the Term of this Agreement or a Renewal Term, Dallas County proposes to operate a Household Hazardous Waste (HHW) disposal program on behalf of the participating cities of the Dallas Area Household Hazardous Waste Network (HHW Network). To accomplish this, the County will continue to use the HHW Network as multi-jurisdictional guidance to the HHW Program Manager in order to maintain an efficient and jurisdictionally sensitive collection program.

As the nucleus of a management structure, the County, through Interlocal Agreements with participating cities, will continue to direct and manage the planning, coordination, and implementation of the HHW Network and HHW collection program. The HHW Network will function as an advisory board and will consist of representatives from participating cities and Dallas County. County staff will provide project governance and oversight.

Strategy

Each spring and fall, the HHW program will target a series of temporary collection sites throughout the participating area, as selected by participating cities in the HHW Network, for one-day community collection events. The participating cities will select the days of the events. The County will oversee the operation of a fixed-site Collection Center for year-round access in addition to the aforementioned collection events. The County may provide transportation of materials between the Collection Center and city-owned satellite collection stations that are available to all participating cities as an adjunct to the Collection Center.

Each city will be able to participate in each of the one-day community collection events. Each event will be held on a different day, at a different location, as determined by the HHW Network. Residents of each participating city also can use the Collection Center on a year-round basis.

For all one-day community collection events, the HHW Program Manager and staff will coordinate scheduling, vendor services, equipment, supplies, advertising, and labor for onsite activities. The host city will provide for traffic control and site security, and will have an onsite City representative for the duration of any collection held within its jurisdiction. The host city will also assist in providing volunteers and volunteer amenities. The County will negotiate the disposal or diversion of HHW on behalf of the HHW Network participants, according to the criteria established by the HHW Network.

Dallas County will provide office space, a Collection Center site, project management, and a mobile unit. The HHW Program Manager and staff must be County employees, whose salaries and benefits are funded by the participating cities and/or

through grants. All disposal, set up, and transportation costs will be funded by the participating cities, based on participation rates. All operating costs, including personnel, facility and equipment maintenance, advertising, supplies, services, and other operational costs will be funded by the participating cities proportionally, based on the most current single-family population figures from the North Central Texas Council of Governments. Program enhancements and capital additions necessitated by program operations will be the responsibility of the HHW Network and funded by the participating cities and/or by grants. All satellite collection centers must be owned and staffed by the host city and available to residents of all HHW Network cities. All satellite station costs for operations, personnel, and facility maintenance will be funded by the host city. Vehicles and supplies for handling and packing will be provided by the HHW Network through funding for the HHW Program.

All overhead for the Household Hazardous Waste Program and Collection Center will be funded through the HHW Network operating and capital budgets. Each participating city must provide the County with funds to cover its collection, disposal, transportation and setup costs within thirty (30) days of receiving an invoice from the County.

Operational and capital costs will be paid quarterly in advance. The City will pay a percent of the operational and capital costs equivalent to its percent of the total of single-family households in all participating cities. Single-family household totals will be acquired from statistics published by the North Central Texas Council of Governments. Collection Center disposal costs will be billed to the City at the end of each billing period, according to the number of residents participating during the billing period. Satellite station disposal costs will be billed to the City at the end of each billing period, applying the Collection Center billing rate to the number of residents using the Satellite station. Collection event costs, including setup, disposal, transportation, etc., will be billed after each event, according to the number of residents participating at the event. The County, as signatory on all contracts, will pay the HHW disposal contractor and all other vendors with the funds received from the participating cities.

If, at any time, it appears that a city lacks sufficient funding to complete the contract year, the city must choose one of the following options:

- The City may cap its costs, and no longer pay for its residents to drop off their waste at the collection center or future one-day events to be held within the Term of the Agreement or a Renewal term; or
- The City may decide to continue to allocate funds and allow its residents to participate in the collection center and future events to be held in the Agreement year. *

* If a city decides to continue to fund costs for its residents above the sum provided for in its Interlocal Agreement with the County, then the City must provide the County with a letter of agreement as an addendum to the Interlocal Agreement whereby the city is contractually obligated to pay the County any additional costs for HHW

collection during the period in which it wishes to extend its payment obligations and specifies a new not-to-exceed budget limit.

If a city does not make a provision to cover a cost overrun, and the city reaches its contractual limit (as provided for in the Interlocal Agreement or its addendum(s)), subsequent participants from that city must pay their own collection fees in order to dispose of their HHW at the Collection Center or community collection event sites until an addendum is added to the Agreement to cover additional costs. This fee will be calculated from the most recent average collection cost per household or from actual disposal costs, whichever is greater.

Program Objectives

The ultimate objective of the HHW program is to minimize or eliminate the disposal of HHW in area landfills and storm water sewers through reuse/recycling, education and collection/disposal. Toward this end, this program will:

1. Operate a year-round collection center and a series of one-day community collection events each spring and fall throughout Dallas County, serving at least 9,000 households annually.
2. Provide HHW Network cities an opportunity and forum to address storm water pollution and HHW issues.
3. Involve as many cities as possible in the HHW Network.
4. Establish a precedent in Dallas County for handling HHW through a regional approach that will serve as a model for other multi-jurisdictional areas.
5. Educate the public as to alternatives, wise purchasing, and safe disposal through the use of as many of the following as possible: internet sites, utility bill stuffers, newspaper, television & radio public service announcements, contact with local environmental groups, trade show exhibits, presentation at schools, neighborhood organization meetings, service organizations, etc.
6. Gather data regarding citizen interest as well as types and amounts of HHW diverted from the waste stream by surveying collection participants.
7. Divert a substantial amount of HHW from municipal landfills.
8. Involve local businesses, especially those connected with the manufacture or sales of HHW generating products.
9. Involve local environmental groups, Dallas County Public Health Advisory Committee, Dallas County Health Dept., Texas Cooperative Extension Services, and the Southwest Institute of Forensic Sciences.

Special Training Requirements

Dallas County, as Operator, will be responsible for providing personnel at all collection locations. Those personnel may be county, city, volunteer, or contract personnel. The County will ensure that all personnel involved in collection activities have received training appropriate to their duties as specified in Texas Administrative Code Title 30, Section 335.407.

All citizen volunteers must attend a brief onsite orientation session prior to assisting with collection activities. This orientation will be provided by Dallas County HHW Program staff. Citizen volunteers will be restricted from entering areas where hazardous materials are handled, and their activities will be limited to taking surveys, distributing educational literature, processing non-hazardous recyclables and assisting with traffic control.

Records and Reporting

The Program Manager and staff must prepare quarterly progress reports for the County, HHW Network, and relevant grant agencies. Financial reports and progress reports must be presented at least quarterly and in accordance with grant requirements. Financial records, contacts, and data from the collection surveys must be computerized. A final report must be presented within 90 days of the end of each collection event, fiscal quarter, and fiscal year. The final report must include the results of surveys taken from participating citizens and participating cities to gather data including frequency of use and materials collected.

Program Goals

- Participation by at least 9,000 of the area households annually
- Participation by at least 50% of the cities in the County
- Increase public outreach to households in participating cities
- Coverage by general circulation newspaper and/or broadcast media
- Involvement of the community at all levels; government, industry, and citizens

Exhibit B2018**FY2018 HHW PROGRAM BUDGET SUMMARY**

This exhibit summarizes the total program funding for fiscal year 2018 ("FY18") as approved by the Dallas Area Household Hazardous Waste Network at its regular meeting on April 27, 2017 and the Dallas County Commissioners Court on August 1, 2017.

The Operational Budget includes personnel and operating costs, which are shared by the Network cities based on single-family household projections published by North Central Texas Council of Governments. Personnel costs include all HHW staff salaries and fringe benefits. Operating costs include supplies, equipment, advertising, public education, volunteer support, staff development, printing, postage, facility maintenance, utilities, and all other direct programming costs.

Capital Expense Budget costs are provided by the cities based on single-family household projections published by the North Central Texas Council of Governments. These funds are set aside for capital maintenance and improvements including building repairs, equipment repair or replacement, mechanical upgrades, and expansion projects.

The Collection/Disposal Budget is comprised of vendor costs for collection services, contract labor, and materials disposal. These costs vary according to actual usage and are indicated in the budget summary for planning purposes only. ***Funding for collection, contract labor, and disposal costs will be collected from the cities after the fact, on an as-used basis.***

Budget adjustments made during the Term of the Agreement must not result in a City Funding amount that exceeds the approved budget total shown herein. The County may make line item transfers within the budget when these transfers do not exceed \$5,000. Budget adjustments in excess of \$5,000 must be approved by the HHW Network.

BUDGET SECTION	CITY FUNDING
OPERATIONAL BUDGET	
Personnel Costs	\$ 487,228
Operating Costs	\$ 212,125
CAPITAL EXPENSE BUDGET	\$ 93,000

COLLECTION / DISPOSAL BUDGET	\$ 980,000
TOTAL PROGRAM BUDGET	\$1,772,353

DALLAS COUNTY HOUSEHOLD HAZARDOUS WASTE PROGRAM

Proportional Shares of FY2018 Operational and Capital Budget *

Based on Estimated SINGLE FAMILY HOUSING UNITS **

City	Service Area Based on Single Family Households as per Current NCTCOG Estimates**	Percent of Service Area	FY18 Quarterly Share of Operational and Capital Budgets*	FY18 Annual Share of Operational and Capital Budgets*
Addison	1,794	0.33%	\$600.81	\$ 2,403
Dallas	284,183	52.70%	\$95,173.13	\$ 380,693
De Soto	15,536	2.88%	\$5,203.02	\$ 20,812
Duncanville	11,616	2.15%	\$3,890.21	\$ 15,561
Farmers Branch	8,821	1.64%	\$2,954.16	\$ 11,817
Garland	64,400	11.94%	\$21,567.61	\$ 86,270
Highland Park	3,492	0.65%	\$1,169.47	\$ 4,678
Irving	41,390	7.68%	\$13,861.55	\$ 55,446
Mesquite	38,840	7.20%	\$13,007.55	\$ 50,030
Richardson	30,356	5.63%	\$10,166.25	\$ 40,665
Rowlett	18,726	3.47%	\$6,271.35	\$ 25,085
Sachse	7,074	1.31%	\$2,369.09	\$ 9,476
Seagoville	3,710	0.69%	\$1,242.48	\$ 4,970
Sunnyvale	1,758	0.33%	\$588.76	\$ 2,355
University Park	7,533	1.40%	\$2,522.81	\$ 10,991
Wilmer	1,288	0.24%	\$431.35	\$ 1,725
TOTAL	540,517	100%	\$ 180,588.25	\$ 722,353

NOTES:

* FY18 Net Operational Budget = \$679,353
Capital Budget = \$722,353

Net Capital Costs = \$43,000

Combined Net Operational and

Operational and Capital budget shares are determined by multiplying each city's Percent of Service Area times the net total of those two budgets. City shares are billed quarterly in advance and may be proportionately adjusted in the event city participation changes. Disposal costs are paid in addition to Operational and Capital costs and are based on actual usage.

**** Single-family housing estimates were revised 4/15/15, using latest published figures from NCTCOG, which have not changed from previous year estimates.**

Exhibit C2018**BYLAWS OF THE DALLAS AREA HOUSEHOLD HAZARDOUS WASTE NETWORK****Article I: Name**

The name of this organization is the **Dallas Area Household Hazardous Waste Network** (hereafter referred to as the "HHW Network").

Article II: Mission

The purpose of the HHW Network is to efficiently organize and promote the collection of household hazardous wastes (HHW) among individuals residing in Dallas County, or in counties adjacent to Dallas County, as agreed to by the Network Members. In order to accomplish this mission, the HHW Network will actively promote cooperative arrangements among governmental agencies in the County and will provide a forum for discussion of techniques for collection and disposal of HHW.

Article III: Members

Voting Members - Voting membership in the HHW Network will be offered to one representative of each city volunteering to participate in the HHW Network and to one representative of Dallas County. Any city requesting membership must provide an official written notice of the name of the individual to be designated as the HHW Network member. Once designated, an individual member must arrange to have an alternate designated to participate in the absence of the member.

Advisory (Non-voting) Members - the County Judge will name additional Advisory (Non-voting) Members to the HHW Network representing the following categories or organizations:

- one member representing Dallas County, other than the County's voting member
- one member representing the North Central Texas Council of Governments
- three members representing advocacy, environmental, or other citizen groups such as: Texas Cooperative Extension Service, Audubon Society, and League of Women Voters
- two members representing the private sector

Term - each of the designated individuals will serve until his/her successor is designated.

Article IV: Meetings

The HHW Network will meet as required to conduct its business. All HHW

Network meetings must be public meetings open to all participants. The Project Manager of the HHW Network must establish a mailing list for notification of all meetings, and must include on this list any individual that requests notification.

Quorum - At any regular meeting of the HHW Network, a quorum will consist of half of the individuals who have then been duly designated or appointed pursuant to Article III.

Article V: Voting

Each Voting Member of the HHW Network will have one vote.

Article VI: Officers and Committees

The HHW Program Manager will preside at all meetings. The HHW Program Manager and staff will be responsible for all staff work and notifications related to the Network. The Program Manager must not be a voting member of the Network. The HHW Network, by majority vote, may establish such committees as the HHW Network considers necessary to carry out the work of the organization.

Finance Committee - The Finance Committee must consist of representatives of each city that has made a binding commitment to participate in a disposal program and the County's voting member. The Program Manager will serve as an ex officio member of this committee. No contract or other financial arrangement affecting the participants may be referred to or approved by the HHW Network without first receiving approval of the Finance Committee.

Article VII: Amendments

These bylaws will become effective when ratified by a majority of HHW Network voting members attending a regular meeting, and when approved by Dallas County Commissioners Court. Amendments may be proposed by any member at any time, in writing. Such amendments will be voted on at a duly called HHW Network meeting to which notice has been given that an amendment will be proposed. Amendments passed by 2/3 of the voting members present will become part of the bylaws.

RESOLUTION NO.

A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN INTERLOCAL AGREEMENT WITH DALLAS COUNTY RELATING TO THE CONTINUED OPERATION OF A HOUSEHOLD HAZARDOUS WASTE DISPOSAL PROGRAM; AND PROVIDING AN EFFECTIVE DATE.

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

Section 1

That the City Manager is hereby authorized to execute an Interlocal Agreement with Dallas County in the form and substance of that attached hereto.

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 _____, 2017.

CITY OF GARLAND, TEXAS

Mayor

ATTEST:

City Secretary

Published:



GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

8.

Meeting Date: September 19, 2017

Item Title: Bio-Tel Interlocal Agreement

Submitted By: Mark Lee, Fire Chief

Summary of Request/Problem

At the September 18, 2017 Work Session, Council considered executing the amendment delivered to the Garland Fire Department by the Dallas County Hospital District d/b/a/ Parkland Health & Hospital System. This amendment extends the Inter-local agreement signed in October of 2016 between Garland and Parkland, by an additional two years, for Bio-Tel System Services to act as medical control for Emergency Medical Services ("EMS"). Payment for the period of October 1, 2017 through September 30, 2018, will be made in one installment in the amount of \$94,135.72. Payment for the period of October 1, 2018 through September 30, 2019, will be made in one installment in the amount of \$94,933.00.

The City of Garland uses Bio-Tel services to provide medical direction to EMS.

Recommendation/Action Requested and Justification

Approve, by minute action, authorization of the City Manager to execute the amendment delivered to the Garland Fire Department by the Dallas County Hospital District d/b/a Parkland Health and Hospital System, that will extend the Inter-local agreement signed in October of 2016 between Garland and Parkland, by an additional two years, for Bio-Tel System Services to act as medical control for Emergency Medical Services ("EMS"). This two year contract for services is in the amount of \$180,068.72.

Attachments

Amendment to Renew Inter-local Agreement

Bio-Tel Interlocal Agreement 2016-2017 with Signatures

STATE OF TEXAS §
 §
COUNTY OF DALLAS §

AMENDMENT TO RENEW INTERLOCAL AGREEMENT

This Amendment to Renew is entered into by and between the CITY OF GARLAND ("CITY") and the Dallas County Hospital District d/b/a Parkland Health & Hospital System ("PARKLAND").

WHEREAS, PARKLAND and CITY are parties to that certain Interlocal Agreement, which was dated to be effective as of October 1, 2016, (the "Agreement"); and

WHEREAS, PARKLAND and CITY wish to amend such Agreement in the manner which is more fully set forth below; and

NOW, THEREFORE, for and in consideration of the mutual promises and covenants contained herein, and for other good and valuable consideration, PARKLAND and CITY hereby agree as follows:

1. The term of the Agreement shall be renewed for a twenty-four (24) month period, effective as of October 1, 2017, and terminate on September 30, 2019 ("Renewal Term").

2. Total payments by the CITY during the Renewal Term shall not exceed ONE HUNDRED EIGHTY NINE THOUSAND SIXTY EIGHT DOLLARS AND SEVENTY TWO CENTS (\$189,068.72), which amount (or a portion thereof where Renewal Term may exceed one year) is hereby set aside and segregated for the purpose of paying for the Services in accordance with the terms of the Agreement:

2.1 Payment for the period October 1, 2017, through September 30, 2018, shall be made in one installment in the amount of \$94,135.72 upon execution of this Amendment;

2.2 Payment for the period of October 1, 2018, through September 30, 2019, shall be made in one installment in the amount of \$94,933.00, upon receipt of invoice from PARKLAND.

3. This Amendment to Renew is effective as of the 1st day of October, 2017.

4. Except as modified by this Amendment to Renew, the Agreement remains in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to Renew to be executed by their respective duly authorized representatives.

**Dallas County Hospital District d/b/a
Parkland Health & Hospital System**

City of Garland

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

STATE OF TEXAS §
 §
COUNTY OF DALLAS §

INTERLOCAL AGREEMENT

This Agreement is made and entered into by and between the DALLAS COUNTY HOSPITAL DISTRICT d/b/a PARKLAND HEALTH & HOSPITAL SYSTEM, a political subdivision of the State of Texas, located in Dallas County, Texas, ("PARKLAND") and the CITY OF GARLAND, a Municipal Corporation, located in Dallas County, Texas ("CITY").

WITNESSETH

WHEREAS, the Interlocal Cooperation Act, Chapter 791, V.T.C.A., Texas Government Code provides authorization for any local government to contract with one or more local governments to perform governmental functions and services under the terms of the Act; and

WHEREAS, PARKLAND and the CITY are local governments as defined in Texas Government Code, Section 791.003(4), have the authority to enter into this Agreement, and have entered into this Agreement by action of its governing body in the appropriate manner prescribed by law; and

WHEREAS, PARKLAND provides biomedical on-line supervision pre-hospital emergency medical control services known as the BioTel/EMS System, which is staffed by physicians, paramedics, registered nurses, and clerical staff, and was created on July 1, 1980, to provide medical control for paramedics in the field via radio and telemetered patient data; and

WHEREAS, PARKLAND contracts with The University of Texas Southwestern Medical Center ("UT SOUTHWESTERN") for certain physician and other services that are a part of the BioTel/EMS System, including the provision of certain off-line services, including, but not limited to, training, protocol development, and policy development; and

WHEREAS, PARKLAND desires to contract with the CITY for the sale of BioTel/EMS System services and the CITY desires to purchase from PARKLAND the BioTel/EMS System services; and

WHEREAS, both PARKLAND and the CITY represent to one another that each respective party has the authority to enter into this Agreement and perform the obligations and duties stated herein; and

NOW THEREFORE, PARKLAND and the CITY hereby enter into this Interlocal Agreement in consideration of the aforementioned recitals, and for the mutual considerations stated herein:

I.
DESCRIPTION OF SERVICES

1. For the consideration hereinafter agreed to be paid to PARKLAND by the CITY, PARKLAND shall provide medical direction for the CITY's emergency medical services, and shall provide a prehospital emergency medical direction system known as BioTel/EMS System or "BIOTEL," hereinafter called the "Services."

2. The Services are to be performed according to acceptable standard medical practices and to conform to the Scope of Service for On-line and Off-line Medical Control for the BioTel/EMS System ("Scope of Services") attached hereto as Exhibit A.

II.
HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT OF 1996 (HIPAA)

1. Except as is permitted by applicable law and to satisfy the requirements of this Agreement, PARKLAND agrees that it will not use or disclose the CITY's protected health information (PHI) for any purpose. However, the parties agree that PARKLAND will receive PHI from the CITY for treatment purposes as described in this Agreement and that such PHI will no longer be considered the CITY's PHI once it has been received by PARKLAND for these treatment purposes. After receipt by PARKLAND, the PHI received by PARKLAND belongs to PARKLAND.

2. As this Agreement is subject to the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the administrative regulations and/or guidance which have issued or may in the future be issued pursuant to HIPAA, including but not limited to the Department of Health and Human Services regulations on privacy and security, and Texas state laws pertaining to medical privacy (collectively, "Privacy Laws"), the parties agree to comply with all Privacy Laws that are applicable to this Agreement and to execute the Business Associate Addendum attached to this Agreement.

III.
COORDINATION

1. All Services under this Agreement shall be coordinated under, and performed in accordance with the Agreement and the Scope of Services to the reasonable satisfaction of the Chief of the Fire Department of the CITY, or his/her designated representative, hereinafter called "Director." The Director shall have authority to approve payment for Services that have been properly provided in accordance with the terms of this Agreement. If at any time PARKLAND fails to properly furnish all or a portion of the Services called for by this Agreement, the CITY is authorized to withhold payment of funds associated with the Services not properly performed hereunder until any deficiency has been, if possible, cured. It is further agreed between PARKLAND and the CITY that should any dispute or questions arise

respecting the reasonableness of the withheld amount of payment attributable to PARKLAND's failure to fully perform, the parties agree to meet and make a good faith effort to resolve the dispute. Prior to the CITY exercising any payment withholding under this provision, the CITY must provide PARKLAND with notice of any deficiencies and provide PARKLAND ten (10) business days to remedy any deficiencies. The CITY will release any withheld funds associated with the Services not properly performed once the deficiencies are remedied.

IV. PAYMENT

1. The Agreement term is one (1) year. Total payments by the CITY during the Agreement term shall not exceed NINETY THOUSAND NINE HUNDRED TWENTY NINE DOLLARS AND FIFTY-TWO CENTS (\$90,929.52), which amount (or a portion thereof where Agreement term may exceed one year) is hereby set aside and segregated for the purpose of paying for the Services in accordance with the terms of this Agreement. Payment shall be made upon execution of this Agreement.

V. TERM

1. The term of this Agreement shall commence on October 1, 2016, and terminate on September 30, 2017, unless sooner terminated in accordance with the provisions of this Agreement. Upon expiration of this Agreement term, the Agreement will continue on a month to month basis until a new Agreement between the parties is executed, unless terminated by either party with thirty (30) days written notice.

VI. INDEPENDENT CONTRACTOR

1. PARKLAND's status and the status of all physicians, nurses, paramedics, and other medical personnel performing work related to the BioTel/EMS System shall be that of an Independent Contractor and not any of the following: an agent; servant; employee; member of CITY's workforce; or representative of the CITY in the performance of these Services. No term or provision of this Agreement or act of PARKLAND or the CITY under this Agreement shall be construed as changing that status.

VII. INDEMNIFICATION

1. PARKLAND, to the extent permitted by the laws of the State of Texas, shall indemnify, defend and hold harmless the CITY and all of its officers, agents and employees from any suits, actions or claims whatsoever that might arise on account of any injury or

damage received or sustained by any person or property as a result of PARKLAND's conduct of any activity or operation in connection with PARKLAND's use of the BioTel/EMS System. To the extent permitted by law, PARKLAND shall pay any judgment, together with costs, which may be obtained against the CITY, or any of its officers, agents or employees as a result of such injury or damage.

2. The CITY shall give PARKLAND prompt notice of any matter covered by Subsection VII.1 above, and shall forward to PARKLAND every demand, notice, summons or process received in any claim or legal proceeding covered by Subsection VII.1 above.

3. PARKLAND shall not be obligated to indemnify, defend or hold harmless the CITY or any of its officers, agents, or employees when the injury or damage to a person or property is caused by the negligence of the CITY, its officers, agents or employees. In the event of joint and concurrent negligence of PARKLAND and the CITY, responsibility and indemnity, if any, shall be apportioned in accordance with the laws of the State of Texas.

4. The CITY, to the extent permitted by the laws of the State of Texas, shall indemnify, defend and hold harmless PARKLAND and all of its officers, agents and employees from any suits, actions or claims whatsoever that might arise on account of any injury or damage received or sustained by any person or property as a result of the CITY's conduct of any activity or operation in connection with the CITY's use of the BioTel/EMS System. To the extent permitted by law, the CITY shall pay any judgment, together with costs, which may be obtained against PARKLAND, or any of its officers, agents or employees as a result of such injury or damage.

5. PARKLAND shall give the CITY prompt notice of any matter covered by Subsection VII.4 above, and shall forward to the CITY every demand, notice, summons or process received in any claim or legal proceeding covered by Subsection VIII.4 above.

6. The CITY shall not be obligated to indemnify, defend or hold harmless PARKLAND or any of its officers, agents, or employees when the injury or damage to a person or property is caused by the negligence of PARKLAND, its officers, agents or employees. In the event of joint and concurrent negligence of the CITY and PARKLAND, responsibility and indemnity, if any, shall be apportioned in accordance with the laws of the State of Texas.

7. No part of this Agreement shall be interpreted to constitute a waiver of any defense of the parties available to the CITY and PARKLAND under Texas law and the immunities or limits of liability granted to PARKLAND or the CITY under the Texas Torts Claim Act.

8. The provisions of this section are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

VIII.
TERMINATION

1. The CITY may, at its option and without prejudice to any other remedy it may be entitled at law or in equity, or elsewhere under this Agreement, terminate further work under this Agreement, in whole or in part by giving at least one hundred eighty (180) days prior written notice thereof to PARKLAND, with the understanding that all Services being terminated shall cease upon the date specified in such notice. The CITY shall compensate PARKLAND in accordance with the terms of this Agreement for the Services properly performed prior to the date specified in such notice, following inspection and acceptance of same by the CITY's Director. PARKLAND shall not, however, be entitled to lost or anticipated profits should the CITY choose to exercise its option to terminate.

2. PARKLAND may, at its option and without prejudice to any other remedy it may be entitled at law or in equity, or elsewhere under this Agreement, terminate further work under this Agreement, in whole or in part by giving at least one hundred eighty (180) days prior written notice thereof to the CITY, with the understanding that all Services being terminated shall cease upon the date specified in such notice

IX.
NOTICES

All notices, communications and reports under this Agreement shall be mailed or delivered to the respective parties as follows:

To: PARKLAND
Dallas County Hospital District
d/b/a Parkland Health & Hospital System
5200 Harry Hines Blvd., Dallas, Texas 75235
Attention: Executive Vice President & Chief Nursing Officer

With copy to: Dallas County Hospital District
d/b/a Parkland Health & Hospital System
5200 Harry Hines Blvd., Dallas, Texas 75235
Attention: General Counsel, Legal Affairs

To: CITY
The City of Garland
1500 Highway 66, Garland, Texas 75040
Attention: Chief, Fire Department

With copy to: CITY
The City of Garland
200 North Fifth Street, Garland, Texas 75040
Attention: City Secretary

X.
MISCELLANEOUS

1. This Agreement is entered into subject to the Charter and ordinances of the City of Garland, as amended, and applicable Texas State and Federal laws. The provisions of this Agreement shall be construed in accordance with the laws and court decisions of the State of Texas; and exclusive venue for any litigation that may be filed by either party hereto in connection with this Agreement shall be in Dallas County, Texas.

2. In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provisions thereof and this Agreement shall be considered as if such invalid, illegal or unenforceable provision has never been contained in this Agreement.

3. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and constitute one and the same instrument.

4. This Agreement can be revised at any time by mutual consent of the parties and shall be revised by written amendment(s) to this Agreement and signed by both parties. No oral modifications can be made to this Agreement.

5. The captions to the various clauses of this Agreement are for informational purposes only and shall not alter the substance of the terms and conditions of this Agreement.

6. This Agreement embodies the complete agreement of the parties hereto, superseding all oral or written previous and contemporary agreements between the parties relating to matters in this Agreement.

EXECUTED as of this the 7 day of October, 2016, by CITY and GARLAND, TEXAS.

GARLAND, TEXAS

By: 
City Attorney

By:  
City Manager

**Dallas County Hospital District d/b/a
Parkland Health & Hospital System**

By: 

Name: LIZ MCMULLEN

Title: VICE PRESIDENT FINANCE

Date: 9-22-16

EXHIBIT A

Scope of Services for On-line and Off-line Medical Control for the BioTel/EMS System

I. On-line Medical Direction

A. Staffing

1. Nurse staffing provided continuously 24/7/365

- a. In addition to continuous nurse staffing 24/7/465, double coverage will be provided during peak times; however, such additional coverage may be through a paramedic.
- b. Coordinates in-time on-line medical direction.

2. Physician staffing continuously 24/7/365

- a. The physician responsible for coordinating all system medical control and addressing clinical issues associated with the operation of the BioTel/EMS System shall be known as the BioTel/EMS Medical Director.
- b. The UT SOUTHWESTERN emergency medicine physicians working within the Parkland Emergency Department shall provide medical control (i.e. medical advice and direction) when requested by CITY's paramedics who are assisting patients. Adequate BioTel/EMS System physician staffing shall be maintained twenty-four (24) hours a day, seven (7) days a week, during the term of this Agreement. A physician will answer all requests for assistance either from the BioTel/EMS System room or from the Emergency Department areas twenty-four (24) hours a day, seven (7) days a week. The physician need not be present in the radio room while assigned to, and on duty with, the BIOTEL operation.
- c. BIOTEL physicians shall respond to a field paramedic's request for assistance immediately after receipt of a call. PARKLAND will be responsible for monitoring and enforcing a sixty (60) second response time standard ninety percent (90%) of the time.
- d. When requested, BIOTEL presently has the capability to obtain a specialized physician in the following areas: Pediatrics, internal medicine, surgical, trauma, obstetrical/gynecological, psychiatry, toxicology and cardiology. Additional sub-specialty consultation is available.

3. Miscellaneous

- a. Only registered nurses (RNs), physicians, paramedics and clerical staff shall be assigned by PARKLAND to the BioTel program
- b. The BIOTEL program shall be adequately staffed by at least one (1) registered nurse twenty-four (24) hours a day, seven (7) days a week throughout the duration of this Agreement. Additional personnel will be assigned as needed based upon workload. Efficiency of the system shall be maintained by PARKLAND administration. A nurse or paramedic shall monitor the radio communications at all times. Changes to the staffing model may be made, if necessary upon agreement between the CITY and PARKLAND.
- c. All RNs and paramedics assigned to the BIOTEL program shall undergo initial training and ongoing training including the role of BIOTEL and EMS in the community. They will review and be tested on the BioTel/EMS Treatment Guidelines and Policies and are instructed in proper communication procedures relating to the BIOTEL equipment
- d. When notified by field personnel, BIOTEL staff shall assist as needed in contacting a hospital to which a critical, priority patient is en-route, and provide that hospital with pertinent data concerning the patient.
- e. BIOTEL staff shall be responsible for assisting other medical personnel in emergency situations. BIOTEL RNs shall follow established BIOTEL RN Treatment Guideline Options according to the needs of the patient. The BIOTEL staff shall contact an Emergency Medicine physician when a request for assistance is made, and shall record all recommended treatments and maintain all appropriate records.
- f. BIOTEL staff shall ensure the proper functioning of all contracted BIOTEL equipment.
- g. Personnel assigned to BIOTEL shall utilize the current BioTel/EMS Treatment Guideline and Policy Manual enacted for the functioning of the BioTel/EMS System. PARKLAND may modify the BioTel/EMS Treatment Guideline and Policy Manual provided, however, that both the CITY and PARKLAND mutually agree upon any material changes to these procedures, unless otherwise required by law, rule, regulation, and all other applicable governmental agencies and accrediting organizations having jurisdiction over PARKLAND. PARKLAND shall make the BioTel/EMS Treatment Guideline and Policy Manual available to the CITY.

- h. BIOTEL staff shall monitor area hospital's capabilities and help coordinate EMS transports to appropriate facilities as provided in accordance with departmental procedures approved by the BioTel/EMS System Medical Director.
- i. BIOTEL staff shall maintain a current database for day-to-day medical control, as well as the monthly statistical report. The BIOTEL staff will also maintain revisions to the BioTel/EMS Treatment Guidelines and Policies and perform other tasks as needed under the direction of BIOTEL Management. A copy of the statistical report will be furnished to the CITY quarterly
- j. The BIOTEL Program Manager shall serve as the primary liaison with: Area receiving hospitals, other EMS agencies, Emergency air medical services operating in the DFW region, UT SOUTHWESTERN – Division of EMS Education, Pre-hospital providers that are not under BIOTEL medical control.

B. Additional Services

1. Social Work Program

- a. Assessment and enrolment of patients, serving as a liaison between social service agencies and CITY, and providing feedback and updates to EMS agencies.

2. Emergency Legal Assistance Program

- a. Will provide an on-call attorney licensed to practice law in the State of Texas.
- b. The Attorney will be:
 - (1) Familiar with delivery of Emergency Medical Services and applicable laws pertaining thereto, including, but not limited to the Medical Practice Act and the Health and Safety Code and any other applicable laws.
 - (2) On-call twenty-four (24) hours /day, seven (7) days a week.
 - (3) Expected to provide an alternate in case of his/her absence.

3. Field Amputation Team Activation at the request of CITY field paramedics, supervisors or Chief Officers or at the discretion of BIOTEL staff consistent with BIOTEL policy.

- a. The Team will provide supplies necessary for field amputation

- b. The Team will be ready for transport to scene within fifteen (15) minutes of activation. Estimated time of arrival may vary depending on scene location and other factors.

4. Bloodborne Pathogen Exposure Tracking

- a. Will provide a process for CITY personnel who have sustained a blood and/or body fluid exposure while on-duty to receive testing and subsequent follow-up with Dallas County Health Department.

5. Data collection including CITY call volume, types of BIOTEL calls, frequency and type of physician consultation, numbers of patients for whom BIOTEL is notified/contacted received by area hospitals, resource overload based on the report from North Texas Trauma Regional Advisory Committee (NCTTRAC), Emergency Legal Assistance Program, Specialty Team Activation, Trauma diversion, and any other data collection requested by CITY.

6. Maintenance of the BioTel room and facilities, and the records involving On-line Medical Control for the BioTel/EMS System, shall be provided by PARKLAND. The BioTel/EMS System room and facilities shall be available for reasonable use by the CITY's paramedics, provided that such use does not interfere with the medical operations and functions of the BioTel/EMS System office and facilities.

- C. Periodic meetings, at least quarterly, will be attempted to be scheduled between the CITY representatives and the PARKLAND and UT SOUTHWESTERN personnel who supervise the BioTel/EMS System. The purpose of the meetings shall be to assess the program and services provided and recommend improvements.

II. Off-line Medical Direction

A. Staffing

1. BIOTEL Medical Director

- a. Have the ultimate responsibility for all clinical aspects of the EMS System and shall meet all State of Texas requirements for serving as an EMS System Medical Director.
- b. Be immediately available 24/7/365 for consultation or problem resolution or shall arrange for an Associate EMS Medical Director to be available in his/her place.
- c. Assign to CITY an Associate Medical Director who shall serve as CITY's day-to-day Medical Director.

2. BIOTEL Associate Medical Director

- a. Work with CITY's Chief and EMS Command Staff to ensure that the CITY's EMS operations, administration, training and special operations activities result in the delivery of quality out-of-hospital emergency medical care for the residents of and visitors to the CITY.
- b. Assist the CITY with the review and response to any clinical or clinical/operational complaint, concerns, unusual occurrence ("UO") or commendations that are brought to the attention of the CITY regarding EMS and will assist in the development and implementation of a comprehensive EMS Quality Management Plan.
- c. Work with the CITY's EMS Chief responsible for EMS to develop, implement, and evaluate EMS quality improvement activities.
- d. Be made aware of and will consult on the response to all EMS clinical claims (lawsuits) against the CITY.
- e. Ensure that the CITY provides reality-based training for its EMS providers.
- f. Interact outside of the hospital setting with the CITY's EMS providers.
- g. Educate and train CITY's EMS providers on all BIOTEL Treatment Guidelines and Policies.
- h. Serve as the physician liaison to other healthcare providers in the CITY.
- i. Be notified of all significant on-duty illness or injury to CITY EMS providers. The Associate Medical Director shall serve as the liaison with the treating physician(s) in the hospital where the CITY EMS provider is transported to, shall serve as the CITY EMS providers' medical advocate and shall advise the CITY's EMS leadership of the status of the CITY EMS providers' illness or injury.

B. Additional Services

1. May attend regular or ad hoc meetings at the request of the CITY's leadership.
2. May assist in the development or provision of specialized education and training for the CITY's providers.
3. May serve as a consultant to the CITY's 911 Communications Center. The Medical Director shall review, as requested, any EMS dispatch incidents in consultation with the 911 Center's leadership. In addition, the Medical Director participates in tape audits and the evaluation of new dispatch protocols and/or procedures as requested.

4. May be made aware of and will serve as a consultant in the planning and response to any EMS special event in which the CITY serves as the emergency medical provider.
5. May oversee the clinical aspects of the CITY's Mobile Community Healthcare Program (MCHP) and will be immediately available or arrange for an appropriate individual to be immediately available for consultation regarding any patient enrolled in that program.
6. In collaboration with the CITY's Chief responsible for EMS, may ensure that the CITY's policies designed to minimize the risk of exposure to blood borne pathogens are state-of-the art. Together, recommendations for changes in policy, protocol, or protective equipment are made to the CITY Chief to mitigate the likelihood of exposure to blood-borne pathogens.
7. May serve as advocate for the CITY's role in promoting Public Access Defibrillation and CPR training for the CITY.
8. May take on additional responsibilities or projects as requested by the CITY Chief following approval of the BioTel/EMS System Medical Director.

C. Hours and Rates

1. The minimum number of hours provided to CITY for off-line medical direction will be Six (6) hours.
2. Additional hours for off-line medical direction will be provided at an hourly rate of \$180.00 per hour.

Business Associate Addendum
to
Interlocal Agreement

This Business Associate Addendum to the Interlocal Agreement (the "Addendum"), effective October 1, 2016 (the "Effective Date"), is entered into by and between The City of Garland ("Covered Entity") and the Dallas County Hospital District d/b/a Parkland Health & Hospital System, ("Business Associate").

RECITALS

This Addendum amends the Interlocal Agreement by and between Business Associate and Covered Entity, made and entered into effective the 1st day of October, 2016 (the "Agreement") by adding the provisions set forth herein, which are fully incorporated into and made a binding part of the Agreement.

Under the Agreement, Business Associate may perform or assist in performing a function or activity on behalf of Covered Entity that involves the Use and/or Disclosure of Protected Health Information (as defined in 45 C.F.R. 160.103 and as may be amended from time to time ("PHI")).

The parties desire to amend the Agreement to include certain requirements regarding the Use and/or Disclosure of PHI as required by the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"); any and all regulations promulgated thereunder including the standards for privacy of individually identifiable health information at 45 C.F.R. Parts 160 and 164 ("Privacy Rule") and the standards for the security of electronic protected health information at 45 C.F.R. Parts 160, 162, and 164 ("Security Rule") (collectively, the Privacy Rule and the Security Rule are referred to herein as the "HIPAA Rules"); any applicable state law or regulation; and the Health Information Technology for Economic and Clinical Health Act ("HITECH") provisions of the American Recovery and Reinvestment Act of 2009 ("ARRA").

NOW, THEREFORE, for and in consideration of the representations, warranties and covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

AGREEMENT

1. Terms Used. Terms used, but not otherwise defined, in this Addendum, shall have the same meaning as those terms in the HIPAA Rules.
2. Permitted Uses and Disclosures of PHI. Except as otherwise limited in the Agreement or this Addendum, Business Associate may Use and/or Disclose PHI to perform the functions,

activities, or services for or on behalf of Covered Entity as specified in the Agreement provided that such Use and/or Disclosure would not violate the HIPAA Rules if done by Covered Entity. All other Uses or Disclosures not authorized by the Agreement or this Addendum are prohibited.

3. Business Associate agrees to:

3.1. Not Use and/or Disclose PHI other than as permitted or required by the Agreement or this Addendum or as Required By Law.

3.2. Use appropriate safeguards to comply with Subpart C of 45 CFR Part 164 with respect to electronic PHI and to implement and use appropriate safeguards to reasonably and appropriately protect the confidentiality, integrity and availability of PHI and to prevent the Use and/or Disclosure of PHI other than as provided for by the Agreement or this Addendum.

3.3. Report to Covered Entity, through its Privacy Officer, any Use or Disclosure of PHI not provided for by the Agreement or this Addendum within three (3) business days of discovering the unauthorized Use or Disclosure. Additionally, within three (3) business days of discovery, Business Associate agrees to report any potential Breach of unsecured PHI as that term is defined in 45 CFR 164.402 and any successful Security Incident as that term is defined in 45 CFR 164.304. Unsuccessful Security Incidents shall be reported to Covered Entity only upon request. Business Associate shall permit Covered Entity to investigate any report submitted pursuant to this provision and shall allow Covered Entity to examine Business Associate's premises, records, and practices. In the event Covered Entity is required to provide notice to Individuals impacted by a Breach caused by Business Associate or its subcontractors and agents, Business Associate shall reimburse Covered Entity for the reasonable costs relating to the provision of such notice.

3.4. Ensure that all subcontractors and agents to whom it provides PHI received from, or created or received by, Business Associate on behalf of Covered Entity sign a business associate agreement meeting the requirements of 45 CFR 164.504 and agree in writing to the same restrictions, conditions, and requirements that apply to Business Associate pursuant to this Addendum. This shall include, without limitation, ensuring that agents and subcontractors implement administrative, physical, and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic PHI created, received, maintained, stored, or transmitted on behalf of Covered Entity. Business Associate shall be fully liable to Covered Entity for any acts, failures or omissions of its subcontractors and agents as if the acts, failures or omissions were Business Associate's own acts, failures or omissions.

3.5. Provide access (at the request of, and in a reasonable time and manner designated by, Covered Entity) to PHI in a Designated Record Set in order to meet the requirements under 45 C.F.R. 164.524. In the event an Individual submits a request for access directly to Business Associate, Business Associate shall promptly forward the request to

Covered Entity through its Privacy Officer. Business Associate is not required to provide access to PHI if it does not maintain a Designated Record Set on behalf of Covered Entity.

3.6. Make any amendment(s) (at the request of, and in a reasonable time and manner designated by, Covered Entity) to PHI in a Designated Record Set that Covered Entity directs pursuant to 45 C.F.R. 164.526. In the event an Individual submits a request for amendment directly to Business Associate, Business Associate shall promptly forward the request to Covered Entity through its Privacy Officer. Business Associate is not required to amend PHI if it does not maintain a Designated Record Set on behalf of Covered Entity.

3.7. Make internal practices, books, and records relating to the Use and Disclosure of PHI received from, created, or received by Business Associate on behalf of, Covered Entity available to Covered Entity, or at the request of Covered Entity, to the Secretary of the Department of Health and Human Services or his/her designee (the "Secretary"), in a reasonable time and manner as designated by Covered Entity or the Secretary, for the purposes of determining compliance with the Privacy Rule and this Addendum. Business Associate shall promptly notify Covered Entity of communications with the Secretary regarding PHI provided by or created by Covered Entity and shall provide Covered Entity with copies of any information Business Associate has made available under this provision. Notwithstanding the foregoing, no attorney-client, accountant-client, or other legal privilege shall be deemed waived by Business Associate or Covered Entity by virtue of this Addendum.

3.8. Document disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. 164.528 as may be amended from time to time, and incorporating exceptions to such accounting designated under the regulation. Accounting of disclosures shall be in accordance with the policies and procedures of the Covered Entity and shall be made within a reasonable time specified by Covered Entity. The first accounting in any 12 month period requested by an Individual shall be provided without charge; a reasonable charge may be made for subsequent accountings if Business Associate informs the Individual in advance of the fee and the Individual is afforded an opportunity to withdraw or modify the request. In addition, to the extent that Business Associate maintains PHI in an electronic health record, Business Associate agrees to account for all disclosures of electronic PHI upon request of an Individual for a period of at least three (3) years prior to the request (but no earlier than the Effective Date of this Addendum) as required by HITECH. Such accounting shall be directly to the Individual if requested by the Covered Entity.

3.9. Provide to Covered Entity, in a reasonable time and manner designated by Covered Entity, information collected in accordance with Section 3.8. of this Addendum, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. 164.528.

3.10. Ensure that all Uses and Disclosures of PHI are subject to the principle of “minimum necessary,” i.e., only PHI that is the minimum necessary to accomplish the intended purpose of the Use, Disclosure, or request may be Used or Disclosed.

3.11. Mitigate, to the extent practicable, any harmful effect of an unauthorized Use or Disclosure of PHI and any Breach or Security Incident by Business Associate or its subcontractors or agents of which Business Associate becomes aware.

3.12. Provide adequate training to members of its Workforce and to its subcontractors and agents regarding the requirements of the HIPAA Rules, HITECH, and this Addendum.

3.13. Provide Business Associate’s policies and procedures for maintaining the confidentiality of records in a Designated Record Set as required by the Privacy Rule and this Addendum to Covered Entity at its request.

3.14. Comply with all applicable federal and state privacy and security requirements.

4. Covered Entity agrees to:

4.1. Provide Business Associate with its notice of privacy practices if a limitation in the notice of privacy practices may affect Business Associate’s Use or Disclosure of PHI under the Agreement of this Addendum.

4.2. Provide Business Associate with any changes in, or revocation of, permission by an Individual to the Use and/or Disclosure of PHI, if such changes affect Business Associate’s permitted or required Uses and/or Disclosures. Covered Entity will further notify Business Associate of any restriction on the Use and/or Disclosure of PHI agreed to by Covered Entity in accordance with the provisions of 45 CFR 164.522 and any restriction requested by an Individual that Covered Entity is required to comply with in accordance with the provisions of HITECH.

5. Specific Uses and Disclosures Permitted by Business Associate. Except as otherwise limited in the Agreement and this Addendum, Business Associate may:

5.1. Use or Disclose PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate provided that such Uses and Disclosures are required under state and federal laws.

5.2. Use PHI to provide Data Aggregation services to Covered Entity as permitted by 42 C.F.R. 164.504(e)(2)(i)(B) when such services are required pursuant to the Agreement between the parties.

6. **LIABILITY LIMITATIONS.** All parties agree to be responsible for their own negligent acts or omissions or other tortious conduct in the course of performance of this Agreement, without

waiving any sovereign immunity, governmental immunity or available defenses available to the parties under Texas 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. All parties agree that any such liability or damages occurring during the performance of this Agreement caused by the joint or comparative negligence of the parties, or their employees, agents or officers shall be determined in accordance with comparative responsibility laws of Texas.

7. Term and Termination.

7.1. Term. The term of this Addendum shall be effective as of the Effective Date of the Agreement and shall terminate when all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such PHI, in accordance with Section 7.3 below.

7.2. Termination for Cause. Covered Entity may immediately terminate the Agreement and this Addendum if Covered Entity determines that Business Associate has breached a material term of this Addendum. Alternatively, the Covered Entity may choose, in its sole discretion, to: (i) provide the Business Associate written notice of the existence of an alleged material breach; and (ii) afford the Business Associate an opportunity to cure said alleged material breach upon mutually agreeable terms. Nonetheless, in the event that mutually agreeable terms cannot be achieved within ten (10) days, Business Associate must cure said breach to the satisfaction of the Covered Entity within thirty (30) days from the date of the original notice. Failure to cure in the manner set forth in this paragraph is grounds for the immediate termination of the underlying Agreement and this Addendum.

7.3. Effect of Termination.

7.3.1. Except as provided in paragraph 7.3.2 of this Section, upon termination of the Agreement or this Addendum, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. This Section shall also apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

7.3.2. In the event that Business Associate determines that return or destruction of the PHI is infeasible, Business Associate shall provide in writing to Covered Entity notification of the conditions that make return or destruction infeasible. Upon mutual written agreement of the Parties that return or destruction of the PHI is infeasible, Business Associate shall extend the protections of this Addendum to such PHI and limit further Uses and Disclosures of such PHI to those purposes that make the return or destruction infeasible, for so long as Business Associate maintains such PHI.

8. Rights to Proprietary Information; Injunctive Relief. Covered Entity retains any and all rights to the proprietary information, confidential information, and PHI it releases to Business Associate. Business Associate understands and acknowledges that any disclosure or misappropriation of any of PHI in violation of this Addendum will cause Covered Entity irreparable harm, the amount of which may be difficult to ascertain, and therefore agrees that Covered Entity shall have the right to apply to a court of competent jurisdiction for specific performance and/or an order restraining and enjoining any such further disclosure or breach and for such other relief as Covered Entity shall deem appropriate. Such right of Covered Entity is to be in addition to the remedies otherwise available to Covered Entity at law or in equity.

9. Miscellaneous.

9.1. Amendment. The Parties agree to take such action as is necessary to amend this Addendum from time to time to comply with the requirements of applicable federal or state laws or regulations governing the Use or Disclosure of Individually Identifiable Health Information.

9.2. Survival. The respective rights and obligations of Business Associate under Section 7 of this Addendum shall survive the termination of the Agreement and this Addendum.

9.3. Interpretation. Any ambiguity in this Addendum shall be resolved in favor of a meaning that permits the Parties to comply with HIPAA and HITECH. The provisions of this Addendum shall prevail over any provisions in the underlying Agreement that may conflict or appear inconsistent with any provision in this Addendum.

9.4. No Third Party Beneficiary. Nothing in this Addendum is intended, nor shall be deemed, to confer any benefits on any third party.

9.5. Counterparts; Facsimiles. This Addendum may be executed in any number of counterparts, each of which shall be deemed an original. Facsimile copies hereof shall be deemed to be originals.

9.6. Effect of Addendum. Except as amended by this Addendum, the terms and provisions of the underlying Agreement shall remain in full force and effect.

9.7. Supersedure. In the event that any term or provision of any agreement between the parties conflicts with a term or provision of this Addendum, this Addendum shall control.

IN WITNESS WHEREOF, the parties hereto have caused this Addendum to be executed by their respective duly authorized representatives.

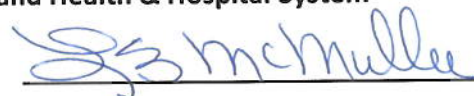
EXECUTED as of this the 7 day of October, 2016, by CITY and GARLAND, TEXAS.

GARLAND, TEXAS

By: 
City Attorney

By:  
City Manager

**Dallas County Hospital District d/b/a
Parkland Health & Hospital System**

By: 

Name: LIZ MCMULLEN
VICE PRESIDENT FINANCE

Title: _____

Date: 9.22.16



**GARLAND
CITY COUNCIL ITEM SUMMARY SHEET**

City Council Regular Session Agenda

9.

Meeting Date: September 19, 2017

Item Title: Wholesale Wastewater Customer Contract-Town of Sunnyvale

Submitted By: Wes Kucera, Managing Director

Summary of Request/Problem

At the April 17, 2017 Work Session, Council was presented a new wholesale wastewater contract with the Town of Sunnyvale. Garland's prior wholesale wastewater contracts were not consistent in terms and conditions between wholesale customers, nor were they fully reflective of the numerous changes that have occurred in wastewater regulation in recent years. More specifically, these contracts contained conflicting provisions which complicated the administration of the contracts, particularly in the area of wastewater charges. The contract with the Town of Sunnyvale is the first of five renewals with neighboring wholesale wastewater customers that will be up for renewal in the next few years to ensure operational and financial consistency.

Recommendation/Action Requested and Justification

Council is requested to consider approving the wholesale wastewater contract with the Town of Sunnyvale.

Attachments

Contract

Exhibit A & B

WHOLESALE WASTEWATER CONTRACT

This Wholesale Wastewater Contract (the "Contract") is made and entered into this, the _____ day of _____, _____, (the "Effective Date") by and between the City of Garland, Texas, a Texas home-rule municipality ("Garland"), and the City of _____, ("Customer").

WHEREAS, Garland and Customer have previously entered into that certain Wastewater Treatment Contract Between the Town Of Sunnyvale and the City of Garland dated June 4, 1991 ("1991 Agreement"), together with any and all amendments thereto, providing for wastewater treatment services; and

WHEREAS, Garland and Customer agree that this Contract is understood and intended to supersede and replace the terms and conditions of the 1991 Agreement.

Garland and Customer, in consideration of the terms, covenants and conditions herein contained, hereby agree as follows:

1. Definitions

When used in this Contract, the following terms, when capitalized, shall be defined as follows. In the event a definition herein conflicts with the same definition in Article VIII, "Industrial Wastes", Section 22.140(C) of the City of Garland Code of Ordinances, as amended, the definition in the Code of Ordinances will prevail:

1.1 Act or "the Act" - The Federal Water Pollution Control Act, also known as the Clean Water Act ("CWA"), as amended (33 U.S.C. 1251, et seq.).

1.1.1 Approved Connection Points - the Points of Entry identified in Exhibit A, as it may be amended from time to time.

1.1.2 Basin Map - The map attached hereto as Exhibit "B, which identifies the service area under this Contract."

1.2 Biochemical Oxygen Demand (BOD) - The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure, five days at 20 degrees centigrade expressed in terms of mass and concentration [milligrams per liter (mg/l)].

1.3 Calibration - Field verification of metering station flow measurement accuracy utilizing flow meter calibration and field measured velocity profile data.

1.4 Capital Improvements -Construction of or improvements to any facilities that provide utility services and benefits common to all customers and that have a life expectancy of three or more years, whether such capital improvements are located within the jurisdictional limits of Garland or Customer, including but not limited to wastewater treatment facilities, metering and sampling facilities, control systems and appurtenances, and all major collectors and interceptors and lift stations, if any, associated therewith.

1.5 Composite Sample - The sample resulting from the combination of individual wastewater samples taken at selected intervals based on an increment of either flow or time.

1.6 Customer System or Customer's System - The facilities of Customer used for pretreatment, collection or transportation of wastewater to the Point of Entry.

1.7 Delivery Facilities or Delivery Facility - All facilities necessary for the transmission of wastewater to the Garland System that are on the Customer's side of the Point of Entry.

1.8 Director - the Managing Director of Public Works or his designee.

1.9 Domestic Accounts - Those accounts under which wastewater is being discharged that does not exceed the quality parameters outlined in Section 7.3.

1.10 Facility Expansion - The expansion of the capacity of an existing facility that serves the same function as an otherwise necessary new capital improvement, in order that the existing facility may serve new or existing development.

1.11 Garland Expense - Expenses incurred by Garland related to the wastewater utility, such expenses to be allocated as a System Cost if so determined in future cost-of-service studies.

1.12 Garland System or Garland's System - Garland's wastewater collection and treatment system, which is a Publically Owned Treatment Works under Section 307 of the Act. For purposes of this Contract, the Garland System includes all wastewater treatment plants of Garland as a unified system.

1.13 General Benefit Capital Facilities - Wastewater facilities that provide utility services and benefits common to all customers; this includes wastewater treatment facilities, metering and sampling facilities, control systems and appurtenances, and all major collectors and interceptors that are eighteen inches and greater in diameter.

1.14 In Writing - means a written document signed by both parties to this Contract.

1.15 Indirect Discharge - The introduction of pollutants into the Publicly Owned Treatment Works from any nondomestic source regulated under section 307(b), (c), or (d) of the Act.

1.16 Industrial User - A source of Indirect Discharge.

1.17 Industrial Wastes - All water-borne solids, liquids or gaseous substances resulting from industrial, manufacturing or food processing operations, or from the development of a natural resource, or any mixture of these with water or domestic sewage.

1.18 Infiltration - Water that has migrated from the ground into the wastewater system.

1.19 Inflow - Water other than sewage that enters a wastewater system (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary catch basins, cooling towers, storm waters, surface runoff, street wash waters or drainage. Inflow does not include, and is distinguished from, infiltration water.

1.20 Liquid Waste - The water-borne solids, liquids, and gaseous substances derived from certain sources including, but not limited to, grease traps, septic tanks, chemical toilet waste, and sand trap waste.

1.21 Metering and Sampling Facility or Metered and Sampling Facilities - The meter station and all metering and telemetry equipment required to accurately measure or sample wastewater flows of the Customer at the Point of Entry or other such locations as may be mutually agreed upon in writing.

1.22 Non-domestic Account - Those accounts under which wastewater is being discharged that exceeds the quality parameters outlined in Section 7.3.

1.23 Non-metered Area - Areas within the Customer's corporate, certificated or service area boundaries that generate wastewater that do not drain into a part of the Customer System for which wastewater flow is measured by an approved metering and sampling facility.

1.24 Point of Entry - Any points at which the Customer's wastewater enters the Garland System, by whatever means, whether metered or unmetered.

1.25 Pretreatment - The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of introducing such pollutants into the Publicly Owned Treatment Works. The reduction or alteration can be obtained by physical, chemical or biological processes, by process changes, or by other means, except by diluting the concentration of the pollutants unless allowed by an applicable pretreatment standard.

1.26 Pretreatment Requirements - Any substantive or procedural requirement related to pretreatment imposed on an industrial user, other than a pretreatment standard.

1.27 Pretreatment Standard or Standards - Pretreatment standards shall mean prohibitive discharge standards, categorical pretreatment standards, and local limits.

1.28 Process Wastewater - Any water which, during manufacturing or processing, comes into direct contact with or result from the production or use of a raw material, intermediate product, finished product, by-product, or waste product.

1.29 Publicly Owned Treatment Works (POTW) –A treatment works as defined by Section 212 of the Act (33 U.S.C. 1292), which is owned by the State or municipality. This definition includes any devices or systems used in the collection, storage, treatment, recycling and reclamation of sewage or industrial wastes and any conveyances which convey wastewater to a treatment plant. The term also means the municipal entity having jurisdiction over the industrial users and responsibility for the operation and maintenance of the treatment works.

1.30 Significant Industrial User-

(A) Industrial users subject to categorical pretreatment standards; and

(B) Any other industrial user that:

- (i) Discharges an average of 25,000 gpd or more of process wastewater;
- (ii) Contributes a process waste stream which makes up 5 percent or more of the hydraulic or organic loading of the treatment plant; or
- (iii) Is designated as significant by Garland on the basis that the industrial user has a reasonable potential for adversely affecting the Publicly Owned Treatment Works' operation or for violating any pretreatment standard or requirement.

1.31 Standard Methods - Those testing or analysis procedures as prescribed in the then current edition of "Standard Methods for Examination of Water and Wastewater," published by the American Public Health Association or the U.S. Environmental Protection Agency Manual of Methodologies for the Examination of Water and Wastewaters, or as will otherwise comply with procedures specified in state and federal discharge permits held by Garland.

1.32 Strength - The concentration of dissolved and suspended matter in sewage, as indicated by biochemical oxygen demand or suspended solids.

1.33 System Cost - Operating expenses and capital related costs incurred by Garland pursuant to the provision of wastewater collection and treatment service to the wholesale class of sewer customers. Such costs are to be collected by Garland as a component of the annual cost of providing wholesale wastewater service.

1.34 Suspended Solids – The total suspended matter that floats on the surface of, or is suspended in, water, wastewater, or other liquid, and which is removable by laboratory filtering.

1.35 Unauthorized Discharge – Any discharge of wastewater into or adjacent to waters in the state at any location not permitted.

1.36 Wastewater - Liquid and water-carried industrial wastes, and sewage from residential dwellings, commercial buildings, industrial and manufacturing facilities, and institutions, whether treated or untreated, which are contributed to the Publicly Owned Treatment Works.

2. Connection to the Garland System

2.1 Garland hereby grants to Customer, upon compliance with the terms and conditions contained herein, permission to connect Customer's System to the Garland System for the term of this Contract provided that Customer is not in material breach of any provision of this Contract.

2.2 Garland agrees to accept all conforming wastewater as provided in Chapter 22 of the City of Garland Code of Ordinances, delivered by Customer in accordance with this Contract at the Point(s) of Entry designated on Exhibit "A", attached hereto and incorporated herein, and at such additional points as may later be mutually agreed upon by the parties In Writing. Customer agrees to deliver all of its wastewater flows from the area depicted in the Basin Map, attached as Exhibit "B", to Garland unless otherwise approved in writing by Garland.

2.3 The cost of all delivery facilities necessary to convey wastewater to Approved Connection Points, whether shown on Exhibit "A" or mutually agreed upon at a later date by the parties, together with the cost of connection of the Customer System to the Garland System, shall be borne by Customer. In the event Garland requests Customer to increase the size of any such delivery facility, the difference in the cost of the delivery facilities that would be necessary to convey wastewater to the designated Points of Entry, and the cost of the delivery facilities as requested by Garland, shall be at Garland's expense and may be allocated as a System Cost if so determined in future cost-of-service studies.

2.4 Unless mutually agreed to in writing by Garland and Customer, Customer shall be responsible for the design, contracting, construction, and financing of all Delivery Facilities including the cost and acquisition of any necessary rights-of-way and easements to and from such facilities. All designs, materials, and specifications shall, at a minimum, conform to Garland's requirements. Plans and specifications for any Delivery Facility which actually connects to the Garland System shall be submitted to the Director for written approval. Such approval shall not be unreasonably withheld. No construction shall begin until such approval has been given. Customer agrees that Garland has the right to make periodic inspections during the construction phase of the Delivery Facilities. Final acceptance of such facility is subject to the inspection and written approval of the Director.

2.5 After the date of this Contract, Customer agrees not to provide service to any new single user or new development whose need for wastewater service would

exceed 100,000 gallons per day without written notice and approval of the Director, which approval will not be unreasonably withheld.

3. Maintenance of Customer System

3.1 Customer agrees to maintain Customer's System in good condition and to make repairs in a timely manner. Garland shall not have any responsibility or liability for the operation of the Customer's System, it being Customer's sole responsibility to provide adequate facilities to deliver its wastewater to the Garland System.

4. Metering and Sampling Facilities

4.1 On the effective date of this Contract, Customer shall transfer ownership of all Metering and Sampling Facilities to Garland at no cost and Garland shall have the exclusive right to enter, use, operate, and maintain Metering and Sampling Facilities and Garland shall become solely responsible for the operational and maintenance responsibilities associated with these facilities. Should additional Points of Entry be added by Customer thereafter to deliver Customer's wastewater to the Garland System, Customer shall construct Metering and Sampling Facilities for each such Point of Entry that are designed and engineered in a manner satisfactory to Garland, and shall transfer ownership of such newly constructed facilities at no cost to Garland, together with all necessary access easements and rights-of-way to Garland in a form satisfactory to Garland, together with the authority to operate and maintain the facilities as specified in Section 4.1. Customer will always provide Garland a route of ingress and egress to Metering and Sampling Facilities, which shall be accessible to Garland without notice. Garland shall have the discretion to construct improvements, expansions, and replacements to these facilities as a System Cost and at the timing of Garland's needs, provided, however, that Garland shall permit Customer to review proposed construction, expansion, and replacement plans. Customer will grant and provide to Garland such permits or easements as are necessary for the continuous operation and maintenance of all metering and sampling facilities. All such costs incurred by Garland for operation, maintenance, construction, expansion, and replacement of Metering and Sampling Facilities shall be considered System Costs.

4.2 Unless otherwise agreed to by both parties in writing, Garland shall have the option to construct Customer Metering and Sampling Facilities not currently in existence. All construction costs, including, but not limited to, site acquisition and preparation, design and engineering, construction and equipment for such facilities,

together with the costs of necessary easements and rights-of-way, shall be System Costs, including any and all necessary modifications to accommodate a complete initial installation satisfactory to Garland. If Customer constructs new Metering and Sampling Facilities, Customer shall transfer ownership of the newly constructed facilities at no cost to Garland, together with all necessary access easements and rights-of-way to Garland in a form satisfactory to Garland, together with the authority to operate and maintain the facilities as specified in Section 4.1. Thereafter, Garland shall operate and maintain the facilities as a System Cost.

4.3 Expenses incurred by Garland for the operation and maintenance of Metering and Sampling Facilities shall be System Costs and shall include, without limitation, the following:

- (A) Cost of electricity and batteries at the facility;
- (B) Cost of the initial installation of the telemetry service at the facility and to the control center and cost of monthly lease charge for connectivity;
- (C) Cost of calibration and field measured Velocity Profiles;
- (D) Cost of parts, materials and supplies required for repairs, calibrations and upgrading of the facilities;
- (E) Labor cost plus fringe benefits and indirect costs for repairs, calibrations and upgrading of the facilities; and,
- (F) Maintenance costs of ingress and egress and meter facility site.
- (G) Administrative costs, including but not limited to record and book keeping, cost of service studies and costs associated with ratemaking.

4.4 Replacement of facilities described in this section or equipment therein occasioned as a result of obsolescence due to age, excessive maintenance, growth or other reasons as determined by the Director shall be a System Cost. Any replacement facility or equipment therein shall comply with Garland's standards and specifications.

5. Rights-of-Way

5.1 Customer shall grant, without charge to Garland, such easements and rights-of-way along public highways or other property owned by Customer, to the extent lawful and as reasonably necessary, to construct or maintain mains or facilities within the corporate limits of Customer to provide wastewater collection to Customer and to other areas; provided, however, that nothing herein shall impose upon Customer an obligation to acquire title or easement rights with regard to any property. Whenever by reason of reconstruction, widening or straightening of streets, replacement of water or sewer lines, traffic signals, traffic signs and markings or any other public works project it shall be deemed necessary by Customer to remove, alter change, adapt, or conform the underground or overhead facilities of Garland located in rights-of-way or other property owned by Customer, such alterations shall be made by Garland at Garland's expense within thirty days from the issuance of written notice to Garland to make the alterations unless a different schedule has been approved by Customer. Garland shall grant, without charge to Customer, such easements and rights-of-way along with public highways or other property owned by Garland, as to the extent lawful and as reasonably necessary, to construct and maintain wastewater mains or facilities within Garland to provide wastewater collection to Customer. Whenever by reason of reconstruction, widening or straightening of streets, replacement of water or sewer lines, traffic signals, traffic signs and markings or any other public works project it shall be deemed necessary by Garland to remove, alter change, adapt, or conform the underground or overhead facilities of Customer located in rights-of-way or other property owned by Garland, such alterations shall be made by Customer at Customer's expense within thirty days from the issuance of written notice to Customer to make the alterations unless a different schedule has been approved by Garland. All work done by or on behalf of Garland under this paragraph will be performed in accordance with specifications equal to those applying to work of a similar nature performed within Garland, but neither party hereto will be required to restore the other's property to a condition exceeding its original condition, unless otherwise mutually agreed in writing. Garland and Customer agree to coordinate the location of the mains and facilities in the other's easements and rights-of-way in order to prevent conflicts insofar as reasonably practicable.

6. Metering and Sampling

6.1 All flow discharged into the Garland System by Customer shall be metered, except as provided in below Section 6.2. Should both parties agree in writing that metering is not possible in one or more areas on the Basin Map, the agreed upon method for determining the discharge volume for such area(s) shall be deemed to include an adjustment for infiltration and inflow.

6.2 If, in the judgment of the Director, the wastewater generated within one or more areas of the Basin Map applicable to Customer cannot be accurately measured by an approved metering station, then the charge for sanitary sewer service within that drainage area will be based on 80% of the metered water usage. Garland shall have the right to audit Customer's water usage records and Customer shall produce them to the Garland within ten business days of Garland's written request. Customer shall have access to the metering and sampling facilities at all reasonable times; provided, however, that any reading, calibration or adjustment to such metering equipment shall be done by employees or agents of Garland. Garland shall notify the Customer at least 72 hours in advance of the date and time for any reading, calibration or adjustment, and Customer may be present and observe, if so desired.

6.3 All readings of meters will be entered into data collection systems maintained by Garland. Customer shall have access to such records during reasonable business hours and shall be furnished with monthly totalizer readings for each Point of Entry Metering and Sampling Facility.

6.4 Garland shall calibrate and service the meters no less than once each six months (that is once every 180 days). Copies of the results of the six month calibration, velocity profiles, and all related information shall be provided to Customer on request.

6.5 After a calibration is completed, if it is determined that a meter is under-metering or over-metering wastewater flow by more than 5%, the registration of the flow as determined by the meter shall be corrected for a period extending back to the time such inaccuracy began, if such time is ascertainable; or, if such time is not ascertainable, then for a period extending back one-half of the time elapsed since the date of the last calibration, but in no event further back than a period of twelve months.

6.6 If any meter used to determine volume from Customer is out of service or out of repair so that the amount of wastewater metered cannot be ascertained or computed from the reading thereof, the wastewater delivered through the period such meter is out of service or out of repair shall be the average use of the last twelve months plus three percent, divided by three-hundred and sixty-five, and the result multiplied by the number of days the meter is out of service or out of repair.

6.7 Garland shall periodically determine the quality of the wastewater at the Metering and Sampling Facilities or other agreed upon sampling points for the purposes of billing for the Strength of the wastewater. The sampling and testing shall occur on a random basis once per month. To determine the quality of the wastewater, Garland shall

collect 24 hour time-weighted or flow-weighted composites for a period of not less than one 24 hour periods per month for a total of twelve, 24 hour sampling periods per year. If, at the request of Customer or at the request of the Director, more extensive monitoring is desired, such additional monitoring shall be paid for by the party making the request and shall be done in compliance with this Section. If Customer requests such additional monitoring, Garland shall invoice Customer and payment shall be made within thirty days after receipt of invoice. Garland shall analyze the samples collected in accordance with standard methods and will provide analysis reports to the Customer, if requested.

6.8 If in the opinion of the Director, compliance monitoring is required, the Director may order that additional monitoring be performed with or without prior notice to Customer. Compliance monitoring is to be in addition to the periodic sampling set forth in Section 6.7. All information obtained as a result of such compliance monitoring shall be provided to the Customer upon request. Garland will provide notice of such compliance monitoring to Customer within a reasonable time thereafter.

6.9 Costs incurred by Garland under this section will be considered to be a System Cost.

7. Rates and Charges

7.1 Wholesale wastewater rates established hereunder will be determined based upon cost-of-service rate study analysis using the methodologies and principals generally accepted within the industry and detailed further herein, as applicable. The cost of such analysis will be considered a System Cost.

7.2 The parties agree that the methodologies and principals used to conduct a cost-of-service rate study shall be generally accepted within the industry as promulgated by the Water Environment Federation within the WEF Manual of Practice No. 27, Financing and Charges for Wastewater Systems, as revised. Notwithstanding the forgoing, the following methodologies and principals are agreed to between the parties until agreed otherwise in writing:

(A) The cost of service for the wholesale class shall include allocated reasonable and necessary operation and maintenance expenses based on the then adopted and approved budget for the wastewater utility, budgeted debt service including principal and interest payments, capital outlay and budgeted funds necessary to comply with Garland's established financial policies such as, but not limited to, operating cash reserves, externally required or internally adopted debt coverage requirements, repair and

replacement reserves, and any other reserve requirements that may be necessary to maintain the financial stability of the City of Garland's wastewater system.

(B) To determine the allocation and distribution of costs to the wholesale customer class, the analysis shall consider at least the following factors: total volume, rate of flow, wastewater quality, metering, and customer-related costs such as accounting, billing, and monitoring.

(C) Capital-related costs will consist of budgeted cash capital outlays as well as budgeted debt service payments including principal and interest and debt service coverage as may be required.

7.3 The initial rates for this contract shall be those adopted by the Garland City Council on September 6, 2016, with an effective date of October 1, 2016. The initial rate is \$2.81 per 1000 gallons. Any challenge to a rate established by the Garland City Council must be brought within ninety days of its adoption.

An additional charge will be made for excess Strength discharges at any Point of Entry. A surcharge for each mg/l of BOD in excess of 250 mg/l and for each mg/l of TSS in excess of 250 mg/l shall be assessed. Excess Strength determination will be based on monthly sampling.

Customer agrees that the Garland City Council has the right to revise, by ordinance, the allowable discharge Strengths, consistent with applicable regulations. At the effective date of this Contract, the allowable discharge Strength is 250 mg/l for BOD and 250 mg/l for TSS.

Surcharge - Customer shall pay a surcharge to Garland for concentrations of BOD exceeding 250 mg/l and TSS exceeding 250 mg/l at the rate provided in Article II "Utility Rates and Fees," Chapter 50 of the Code of Ordinances of the City of Garland, subject to increase or decrease without formal amendment of this Contract as the surcharge is amended by ordinance from time to time. The excess charge will be calculated each month. It will be based on the rate of excess discharge for that month. The surcharge will be assessed the entire month for each portion of the month that discharges from Customer exceed applicable limits.

7.4 Bills for wastewater treatment and disposal service shall be submitted to Customers on a monthly basis. Amounts billed shall be due and payable not more than thirty days from the billing date. The bills will show current charges, as well as past-due charges, if any. Current charges shall be the amount due for wastewater collection,

treatment and disposal service provided since the prior billing period. Past-due charges shall be the total amount unpaid from all prior billings as of the current billing date. Payments received by Garland shall first be applied to the past-due charges, if any, and thereafter to the current charges. Any challenge to a billing must be brought within 60 days of the billing date.

7.5 If Customer disputes a bill, it shall nevertheless continue to promptly make the disputed payment or payments. Dispute of a bill is not grounds for non-payment. In the event a payment is not paid as specified in this Contract, a finance charge of the lower of eighteen percent or the maximum rate allowed by law, per annum, will be calculated from the date which the payment was required to be made. In the event the amount finally determined to be due is less than the full amount of the disputed bill, then the amount found to be in excess of the amount due will be credited to the Customer's account together with an interest charge of the lower of eighteen percent or the maximum allow by law, per annum, calculated from the date payment of the disputed bill was received.

In accordance with the provisions of Subchapter I, Chapter 271, Tex. Local Gov't. Code, the parties agree that, prior to instituting any lawsuit or other proceeding arising from a dispute under this Contract, the parties will first attempt to resolve the dispute by taking the following steps: (1) A written notice substantially describing the nature of the dispute shall be delivered by the dissatisfied party to the other party, which notice shall request a written response to be delivered to the dissatisfied party, which notice shall request a written response to be delivered to the dissatisfied party not less than five (5) days after receipt of the notice of dispute; (2) If the response does not reasonably resolve the dispute, in the opinion of the dissatisfied party, the dissatisfied party shall give notice to that effect to the other party whereupon each party shall appoint a person having authority over the activities of the respective parties who shall promptly meet, in person, in an effort to resolve the dispute; and (3) If those persons cannot or do not resolve the dispute, then the parties shall each appoint a person from the highest tier of managerial responsibility within each respective party, who shall then promptly meet, in person, in an effort to resolve the dispute.

7.6 The parties hereto agree that services obtained pursuant to this Contract are essential and necessary to the operation of Customer's waterworks and wastewater facilities and that all payments made by each Customer hereunder shall constitute reasonable and necessary operating expenses of Customer's waterworks and wastewater systems, and the provisions of any and all ordinances of Customer authorizing the issuance of any revenue bond issues of Customer which are payable from its waterworks and wastewater systems.

7.7 Customer agrees, throughout the term of this Contract, to fix and collect such rates and charges for wastewater service to be supplied as will produce revenues in an amount equal to at least (i) all of operation and maintenance expenses of such system, including specifically its payments under this Contract; and (ii) all other amounts as required by law and the provisions of the ordinances or resolutions authorizing its revenue bonds or other obligations now or hereafter outstanding, including the amounts required to pay all principal of and interest on such bonds and other obligations.

7.8 The parties agree that the rates established in accordance with this Contract are reasonable and in the public interest.

7.9 Security Fund. Upon the occurrence of Customer's first failure to pay any amount billed for service under this Contract, which amount remains unpaid for more than sixty days after its due date, Customer agrees to establish a security fund in the amount of one month's average billings from which Garland may withdraw funds to secure payment of the billing. Customer shall thereafter immediately restore the account to the required amount and maintain the full balance required in the fund for the remainder of the term of the Contract, notwithstanding Garland's withdrawals to satisfy billings remaining unpaid for more than sixty days after the due date.

The security fund shall be deposited with the City Manager in cash, in the form of an unconditional letter of credit or performance/surety bond, or other instrument in a form acceptable by the City Manager and the City Attorney. The letter of credit, bond, or other instrument shall in no event require the consent of Customer prior to the collection by Garland of any amounts covered by the letter of credit, bond, or other instrument. Customer shall be entitled to all interest actually earned by Garland on any cash portion of the security fund; such interest to be paid to the Customer by Garland on an annual basis.

8. Industrial Connection and Monitoring

8.1 Customer agrees that it will, at the time of execution of this Contract, identify and locate all possible Significant Industrial Users which might be subject to Garland's Industrial Pretreatment Program. Any compilation, index or inventory of Significant Industrial Users shall be made available to the United States Environmental Protection Agency, Texas Commission on Environmental Quality and/or its predecessor agencies, and the City of Garland upon request.

8.2 Customer agrees that it will not permit any Significant Industrial User within its jurisdiction to connect directly or indirectly either to its system or to the Garland System without at least thirty days' prior written notification to the Director of such intent to connect. Such notification shall provide the Director with information pertaining to volume and composition of flow, and further information as may be requested by the Director.

8.3 Customer agrees to conduct any and all monitoring, sampling and inspection of Customer System and industrial users as necessary to insure that industrial waste introduced into the Customer System meets the quality standards set out in Section 9.2 hereof. Upon request to Customer, a representative of Garland will be permitted to observe Customer's collection of samples from industrial users. Customer agrees to furnish Garland separate duplicate samples for independent testing, and shall provide the Director sample analysis results and pretreatment records within fifteen days of receipt of laboratory reports from the Industrial User.

8.4 Customer agrees that Garland shall have the right to sample wastewater at all Points of Entry and such other locations as may be mutually agreed to in writing by both parties for the purpose of determining the volume and quality of wastewater entering the Garland System. Customer agrees to disconnect from its system any industrial user found to be in violation of allowable discharges or who refuses access to its facilities for the purpose of sampling wastewater being discharged into the Customer System; provided, however, that the disconnected industrial user shall be afforded the same rights, privileges of appeal and deficiency cure periods as are industrial users operating within Garland's jurisdiction.

8.5 Following notice to the Customer by Garland, Customer grants to Garland the right to enter Customer's jurisdiction if Garland determines that questionable discharges or prohibited discharges are entering the Garland System from the Customer System. Customer agrees to assist Garland in locating and eliminating such prohibited discharges.

9. Wastewater Quality

9.1 Customer agrees that on or before one-hundred twenty days from date of execution of this Contract it shall enact and cause to be enforced an ordinance enabling Customer to enforce within its jurisdiction regulations governing industrial waste that are at least as stringent as the provisions of the current Garland's Code of Ordinances; Chapter 22, and any necessary and reasonable amendments thereto, and state and applicable federal regulations relating to 1) discharged substances; 2) prohibited

discharges; 3) pretreatment requirements; 4) industrial discharge permitting system; and 5) industrial self-monitoring reports. Customer agrees to enact and enforce ordinances or any amendments to Garland Ordinance No. 6417, or any future ordinances relating to industrial discharges, prohibited or controlled wastes or pretreatment requirements and such amendments and future ordinances shall become incorporated as additional exhibits to this Contract; provided, however, Garland shall provide Customer with a copy of such proposed ordinances or amendments at least sixty days, if possible, prior to the presentation of such ordinances or amendments to the Garland City Council during which time Customer shall have an opportunity to review same. Customer shall adopt and enforce such proposed ordinances or amendments no later than the effective date of the Garland ordinance or amendment.

9.2 Customer agrees that the quality of the wastewater discharged into the Customer System shall be equal to or better than the quality standards established by Garland's Code of Ordinances, Chapter 22, or any amendment adopted pursuant to Section 9.1 or applicable state or federal law or regulation. Customer shall be responsible to Garland if it causes the Garland System to be in noncompliance with any federal, state or local statutes, rules, regulations or permit requirements.

9.3 Customer shall require all Significant Industrial Users within its jurisdiction that ultimately discharge into the Garland System to apply for and obtain a permit from Customer allowing such discharge. Such permit shall require industrial users to abate prohibited substances from their discharge as a condition to discharging wastewater into the Customer System. The permit application shall contain, as a minimum, the following:

- (A) Name and Address of Discharger and/or Agent for Discharger;
- (B) Description of activities, facilities, and plant processes on the premises, including a list of all raw materials and chemicals used or stored at the facility which are, or could accidentally or intentionally be, discharged to the Public Owned Treatment Works;
- (C) Number and type of employees, hours of operation, hours of discharge and proposed or actual hours of operation of the industrial user;
- (D) Each product produced by type, amount, process or processes, and rate of production;
- (E) A map of the property showing accurately all sewers and drains;

(F) The site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, floor drainages, and appurtenances by size, location, and elevation, and all points of discharge;

(G) Time and duration of all the discharges;

(H) Any other information as may be deemed necessary by the Director to evaluate the wastewater discharge permit application; and,

(I) Plans and specifications sealed by a registered professional engineer detailing all pretreatment facilities and processes including any grease, oil, or sand interceptors and control manholes.

Customer shall provide Garland a copy of such application and permit, if issued, within fifteen days after issuance.

10. Infiltration and Inflow

10.1 Customer agrees that it has an obligation to prevent infiltration and inflow into its System from entering the Garland System. Customer further agrees that all sewer connections within its jurisdiction which ultimately enter into the Garland System will be constructed in accordance with specifications and standards at least equal to those of the City of Garland technical specifications and construction standards. Further, Customer covenants and agrees to maintain strict supervision and maintenance of its System to prevent connections through which surface drainage can enter Customer's System, in order to prevent such drainage from ultimately being deposited into the Garland System. Customer shall not make, nor shall it permit to be made, any connection which will contribute storm water run-off from rainwater spouts, rainwater areas, streets, gutter drain or other source into its sanitary sewer system.

11. Sludge Disposal

11.1 Customer recognizes the importance of processing and disposing of sludge in a timely and proper manner. Customer will cooperate with Garland in any environmentally sound sludge processing and disposal program meeting federal and state standards within the area served by Customer.

12. Wastehaulers

12.1 Customer shall not introduce or permit to be introduced, and shall prohibit the introduction of, liquid waste into the Customer System by liquid waste haulers, either directly or indirectly.

13. Reports and Records

13.1 If requested by the Director or Customer, the other party shall provide the following data on a quarterly basis:

(A) Actual number of customer accounts discharging directly or indirectly into the Garland System or Customer System within its service area;

(B) Classification of domestic and nondomestic accounts within its service area by number and percentage of accounts discharging directly or indirectly into the Garland System or Customer System within its service area; and,

(C) Additional data which may assist Garland or Customer in developing methodology for cost-of-service studies, planning studies for analyzing federal grants, and system access fees; provided, however, that neither party shall request data that will require either party to incur unreasonable expenses in providing such data or require the production of confidential information.

14. Notices

Any notice, communication, request, reply or advice herein provided or permitted to be given, made or accepted by either party to the other party must be in writing to:

City of Garland: Managing Director of Water and Wastewater Utilities
City of Garland
200 N. Fifth Street
Garland, Texas 75040

Customer: Town Manager
Town of Sunnyvale
127 North Collins Road
Sunnyvale, Texas 75182

The parties hereto shall indicate in writing any change that may occur in such respective addresses from time to time.

15. Inspection and Audit

Complete records and accounts shall be maintained by each party hereto for a minimum period of five years. Each party shall at all times, upon notice, have the right at reasonable times to examine and inspect records and accounts during normal business hours; and further, if required by any law, rule or regulation, make the records and accounts available to federal and state auditors.

16. Consent

Whenever, under the terms of this agreement, Garland is permitted to give its written consent or approval, Garland, in its discretion, may give or may refuse such written consent or approval and, if given, may restrict, limit or condition such consent or approval in any manner it shall deem advisable; however, consent will not be unreasonably withheld.

17. Waiver, Remedy, Severability

17.1 No waiver by either party hereto of any term or condition of this Contract shall be deemed or construed to be a waiver of any other term or condition or subsequent waiver of the same term or condition.

17.2 In addition to any other remedy as may be provided by law, this agreement shall be specifically enforceable by the parties hereto. Venue for any action shall be in Dallas County, Texas.

17.3 It is agreed that, in the event any term or provision herein contained is held to be invalid by any court of competent jurisdiction, the invalidity of such term or provision shall in no way affect any other term or provision contained herein; further, this Contract shall then continue as if such invalid term or provision had not been contained herein.

18. Ownership and Liability

18.1 No provision of this Contract shall be construed to create any type of joint or equity ownership of any property, any partnership or joint venture, nor shall same create any other rights or liabilities and Customer payments (whether past, present, or

future) will not be construed as granting Customer partial ownership of, pre-paid capacity in, or equity in the Garland System.

18.2 Liability for damages arising out of the transportation, delivery, reception, treatment, and disposal of all wastewater discharged into the Garland System shall remain with the Customer, together with title and ownership thereto, until such wastewater passes through the Point of Entry to the Garland System, at which time title, ownership and liability for such damage shall pass to Garland, save and except that title to any prohibited discharge and any liability therefor shall not pass to Garland unless such prohibited discharge originated in the Garland System. Any effluent produced by and discharged by Garland from any treatment plants owned and/or operated by Garland shall be owned by Garland, regardless of originating source of wastewater. **Further, to the extent allowed by law, the parties hereto agree to indemnify, save and hold the other party harmless from any and all claims, demands, causes of action, damages, losses, costs, fines and expenses, including reasonable attorney's fees, that may be asserted by anyone at any time on account of the transportation, delivery, reception, treatment and/or disposal while title to the wastewater is in such party. If such liability for damages is not attributable to a specific customer or Garland, such liability shall become a Garland System Cost.**

18.3 Contracts made and entered into by either Customer or Garland for the construction, reconstruction or repair of any delivery facility shall include the requirements that the independent contractor(s) must provide adequate insurance protecting both the Customer and Garland as insured. Such contract must also provide that the independent contractor(s) covenant to indemnify, hold harmless and defend both the Customer and Garland against any and all suits or claims for damages of any nature arising out of the performance of such contract.

19. Compliance with Permit Conditions

Customer acknowledges that Garland is the holder of discharge permits issued by the United States and the State of Texas. Customer agrees that it will comply with all such permit conditions in any way relating to the collection system and the discharge into the collection system. **Customer agrees that in the event a fine is assessed against Garland for any violation of any permit condition, and the violation is attributable to any act of omission or commission by Customer, to indemnify Garland and pay to Garland the amount of such fine.** If such fine is not attributable to a specific customer, such fine shall be considered a System Cost and allocable to the customer in accordance with the provisions of this Contract.

20. Term of Contract

The term of this Contract shall be twenty years from the Effective Date.

21. Force Majeure

21.1 No party hereto shall be considered to be in default in the performance of any of the obligations hereunder (other than obligations of either party to pay costs and expenses) if such failure of performance shall be due to circumstances beyond the reasonable control of the parties, including but not limited to, the failure of facilities, flood, earthquake, tornado, storm, fire, lightning, epidemic, war, riot, civil disturbance or disobedience, labor dispute and action or non-action by a failure to obtain the necessary authorizations and approvals from any governmental agency or authority or the electorate, labor or material shortage, sabotage, or restraint by a court order or public authority, which by the exercise of due diligence and foresight such party could not have reasonably been expected to avoid and which by exercise of due diligence it shall be unable to overcome. Either party rendered unable to fulfill any obligation by reason of an uncontrollable force shall exercise due diligence to remove such inability with all reasonable dispatch.

21.2 In the event the proper operation of the Garland System, as a result of the above, requires Garland to temporarily interrupt all or part of the services to Customer, no claims for damage shall be made by Customer against Garland.

22. Termination

22.1 This Contract may be terminated in whole or in part by the mutual consent of Customer and Garland. Notwithstanding anything contained herein to the contrary, any material breach by either party hereto to perform any of the duties or the obligations assumed by such party hereunder or to faithfully keep and perform any of the terms, conditions and provisions hereof shall be cause for termination of this Contract by Garland in the manner set forth in this paragraph. Garland shall deliver to Customer ninety days prior written notice of its intention to so terminate this Contract if Customer fails to cure or adjust such material breach, including in such notice a reasonable description of the breach. If within said ninety days Customer shall fail or refuse to cure such default to the satisfaction of Garland, then and in such event, Garland shall have the right with six months advance written additional notice to Customer and without any liability whatsoever on the part of Garland to declare this Contract terminated. In the

event of termination of this Contract, all rights, powers, and privileges of Customer hereunder shall cease and terminate and Customer shall make no claim of any kind whatsoever against Garland, its agents or representatives, by reason of such termination or any act incident thereto, provided Garland acted reasonably and such termination was not unreasonable, arbitrary and capricious. Garland shall advise Customer in writing immediately upon acceptance of the cure of any default. The following breach, default or failure to perform a duty or obligation shall be considered to be a material breach:

(A) Failure to adopt and enforce any ordinance required to be adopted and enforced herein;

(B) Failure to make any payment of any bill, charge or fee as provided for in this Contract;

(C) Making any connection to the Garland System at any point except as provided in Section 2.2 hereof;

(D) Failure to provide Garland ingress and egress for purposes of sampling and operation and maintenance of any metering or any sampling facility;

(E) Failure to provide Garland rights-of-way as required herein;

(F) Failure to permit any sampling of wastewater as provided for herein;

(G) Failure to disconnect industrial users of Customer pursuant to Section 98.4 hereof;

(H) Failure to abide by Significant Industrial User requirements as outlined in Section 8 hereof;

(I) Failure to maintain the quality of discharge as required in Section 9 hereof;

(J) Failure of Customer to comply with Section 19.1 hereof.

22.2 In the event of any breach, default or failure to perform duties under this Contract, Garland shall deliver to Customer sixty days advance written notice of such default. If Customer fails to cure such breach, default or failure, then Garland shall give Customer written notice of such failure to cure and may surcharge Customer, retroactively to the initial date of notice issuance, Five-Hundred Dollars per day until

such time as Customer cures the noticed breach or failure or until such time as a judgment is entered into against the Customer.

22.3 Any failure by Garland to so terminate this Contract or the acceptance by Garland of any benefits under this Contract for any period of time after such material breach, default or failure by Customer shall not be determined to be a waiver by Garland of any rights to terminate this Contract for any subsequent material breach, default or failure.

22.4 Any failure by Customer to so terminate this Contract or the acceptance by Customer of any benefits under this Contract for any period of time after such breach, default or failure by Garland shall not be determined to be a waiver by Customer of any rights to terminate this Contract for any subsequent material breach, default or failure.

23. Effective Date

This Contract, together with all terms and conditions and covenants, shall be effective on the date indicated above.

24. Miscellaneous

24.1 This Contract terminates and supersedes that certain Wastewater Treatment Contract between The Town of Sunnyvale and the City of Garland dated June 4, 1991 under which Garland provided wastewater treatment services to Customer.

24.2 This Contract is subject to all applicable federal and state laws and any applicable permits, ordinances, or amendments adopted pursuant to Section 9.1 rules, orders and regulations of any state or federal governmental authority having or asserting jurisdiction, but nothing contained herein shall be construed as a waiver of any right to question or contest any such law, ordinance, order, rule or regulation in any forum having jurisdiction.

24.3 The Customer agrees to abide by any changes in this Contract made necessary by any amendment or revision to state or federal regulations.

24.4 Any duly authorized employee of Garland bearing proper credentials and identification may notify Customer of the need for access to any non-permitted premises located within Customer's city limits or served by Customer for the purpose of inspections and observation, measurement, sampling, testing and auditing, in accordance with the provisions of this Contract, and Customer shall permit such access. Customer may elect to accompany the Garland representative. To the extent permitted by law, Garland agrees to indemnify Customer for any damage or injury to person or property caused by the negligence of such duly authorized employee while such employee is in the course and scope of his employment.

24.5 In each instance herein where reference is made to a federal or state regulation or ordinance, it is the intention of the parties that, at any given time, the current federal or state regulation or ordinance shall apply. If a publication or reference work referred to herein is discontinued or ceases to be the generally accepted work in its field, or if conditions change, or new methods or processes are implemented by Garland, new standards shall be adopted which are in compliance with state and federal laws and any valid rules and regulations pursuant thereto.

24.6 Garland must comply with all federal, state and local government requirements to obtain grants and assistance for system design, system construction and studies. Customer agrees to assist Garland in compliance by setting adequate rates, establishing proper user charges and complying with governmental requirements.

24.7 Section headings in this Contract are for convenience only and do not purport to accurately or completely describe the contents of any section. Such headings are not to be construed as a part of this Contract or any way defining, limiting or amplifying the provisions hereof.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be executed by their respective officers thereunto duly authorized.

ATTEST:

CITY OF GARLAND

By: _____
City Secretary

By: _____
City Manager

Date: _____

Date: _____

ATTEST:

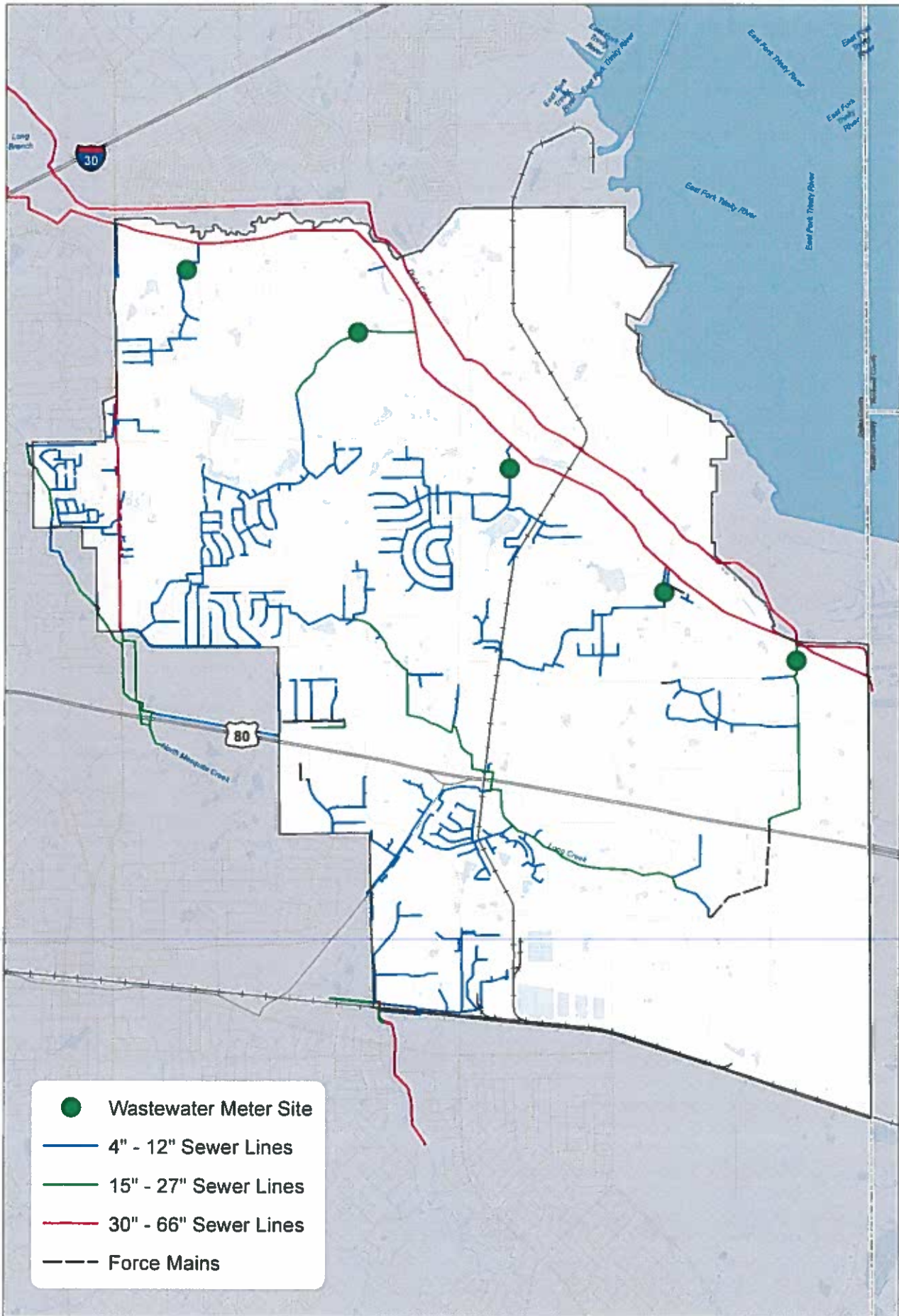
CUSTOMER

By: _____
Town Secretary

By: _____
Town Manager

Date: _____

Date: _____



- Wastewater Meter Site
- 4" - 12" Sewer Lines
- 15" - 27" Sewer Lines
- 30" - 66" Sewer Lines
- Force Mains

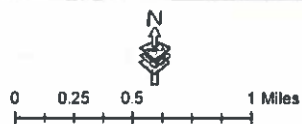
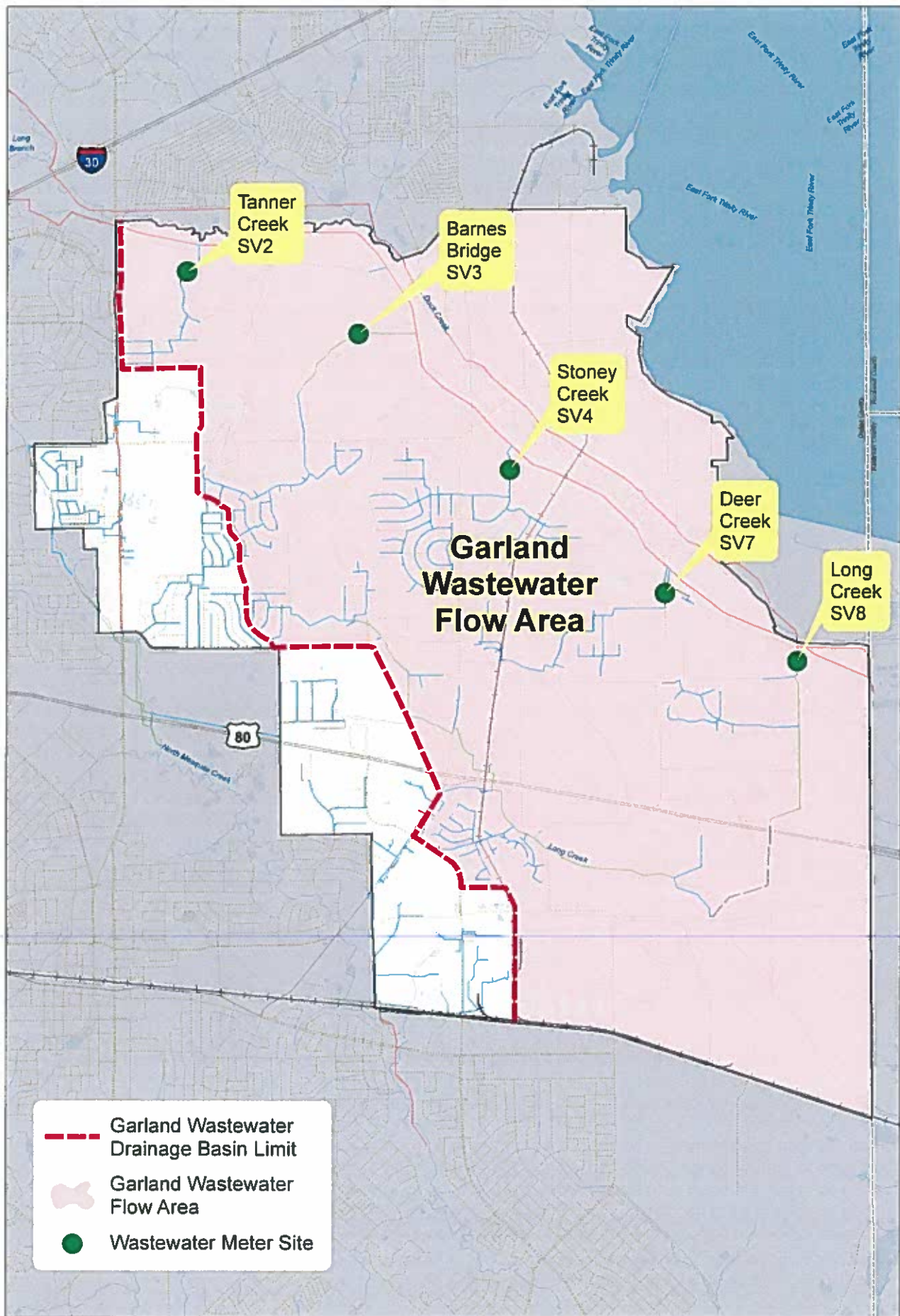


Exhibit B
City of Garland
Wastewater Flow Area
Town of Sunnyvale, Texas



2111 North Mead Avenue
 Suite #100
 Dallas, Texas 75204
 (214) 211-2311



**GARLAND
CITY COUNCIL ITEM SUMMARY SHEET**

City Council Regular Session Agenda

10.

Meeting Date: September 19, 2017

Item Title: Public Hearing - 2017-18 Proposed Budget

Submitted By: Ron Young, Budget Director

Summary of Request/Problem

Section 5, Article VII, of the City Charter requires that a Public Hearing be held on the Proposed Budget for the coming fiscal year. At the Public Hearing, all interested persons shall be given an opportunity to be heard for or against any proposed item in the Budget. The Proposed Budget for 2017-18 has been available for public inspection in the City libraries, in the City Secretary's Office, and on the City's website since August 2, 2017.

Previous Public Hearings were held on August 15 and August 24, 2017.

Recommendation/Action Requested and Justification

Open Public Hearing on Proposed Budget for 2017-18.

Take citizens' comments.

Close public hearing.



**GARLAND
CITY COUNCIL ITEM SUMMARY SHEET**

City Council Regular Session Agenda

11.

Meeting Date: September 19, 2017

Item Title: Public Hearing on 2017-18 Proposed Tax Rate

Submitted By: Ron Young, Budget Director

Summary of Request/Problem

The Texas Property Tax Code, Section 26.05 (d), provides that a governing body may not adopt a tax rate that exceeds the lower of the rollback tax rate or the effective rate until the governing body has held two public hearings on the proposed tax rate and has otherwise complied with Section 26.06 and Section 26.065. The 2017-18 Proposed Budget is based on a tax rate of 70.46 cents per \$100 of valuation, which does exceed the effective tax rate of 65.31 cents due to a 7.89% increase in taxable values.

This budget will raise more total property taxes than last year's budget by \$7,039,306 or 8.02%, and of that amount, \$1,460,036 is tax revenue to be raised from new property added to the tax roll this year.

Previous public hearings were held on August 15, August 24, and September 5, 2017.

	<u>Proposed Tax Rate</u> (Cents per \$100 Value)		
	<u>Current</u>	<u>Change</u>	<u>Proposed</u>
O&M	39.40	0.00	39.40
Debt Service	<u>31.06</u>	<u>0.00</u>	<u>31.06</u>
Total Tax Rate	<u>70.46</u>	<u>0.00</u>	<u>70.46</u>

Mayor should read the following:

The tax rate is scheduled for adoption this evening, Tuesday, September 19, 2017.

Recommendation/Action Requested and Justification

Open public hearing.

Take public comments.

Close public hearing and Mayor read statement above.



GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

12.

Meeting Date: September 19, 2017

Item Title: Adoption of 2017-18 Budget

Submitted By: Ron Young, Budget Director

Summary of Request/Problem

Adoption of the Budget for 2017-18. In accordance with the City Charter, the City Manager presented his recommended Budget for fiscal year 2017-18 to the City Council on August 1, 2017. Copies were made available for public inspection at the City libraries, at the City Secretary's Office, and on the City's website. Public hearings were held on August 15, August 24, and September 19, 2017.

An ordinance reflecting final decisions regarding the Budget for 2017-18 and revised budgets will be prepared for the Mayor's signature upon final direction from the City Council.

Two votes are required. See Attachment for process and wording.

Recommendation/Action Requested and Justification

Approve the Budget for the City of Garland for fiscal year 2017-18. **(See specific process in Attachment - two votes required.)**

Attachments

Proposal to Vote on Proposed Budget for 2017-18

Proposal to Vote on Proposed Budget for 2017-18

(1) Required Motion Wording

“Mayor, I move to ratify the property tax rate reflected in this budget.”

[VOTE]

“I move to approve the budget [as submitted] [as amended].”

[VOTE]

(2) Motion Seconded for Each Vote

(3) Council Votes



GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

13.

Meeting Date: September 19, 2017

Item Title: Adoption of 2017-18 Property Tax Rate

Submitted By: Ron Young, Budget Director

Summary of Request/Problem

The City Council has considered an Ad Valorem Tax Rate of 70.46 cents per \$100 of valuation for the fiscal year beginning October 1, 2017. All meetings, notices, and public hearing requirements related to the adoption of the Tax Rate have been met in accordance with State law.

Proposed Tax Rate
(Cents per \$100 Value)

	<u>Current</u>	<u>Change</u>	<u>Proposed</u>
O&M	39.40	0.00	39.40
Debt Service	<u>31.06</u>	<u>0.00</u>	<u>31.06</u>
Total Tax Rate	<u>70.46</u>	<u>0.00</u>	<u>70.46</u>

Public hearings were held on the Proposed Tax Rate on August 15, August 24, September 5, and September 19, 2017.

Recommendation/Action Requested and Justification

Approve an ordinance setting the Ad Valorem Tax Rate at 70.46 cents per \$100 of valuation for 2017-18. **(Required motion wording is included in Attachment.)**

Vote on above motion.

Attachments

Proposal to Vote on Proposed Tax Rate for 2017-18

Proposal to Vote on Proposed Tax Rate for 2017-18

(1) Required Motion Wording

“Mayor, I move that the property tax rate be increased by the adoption of a tax rate of 70.46 cents per \$100 of valuation, which is effectively a 7.89 percent increase in the tax rate.”

“I move first that the rate for debt service be approved in the amount of thirty-one and six hundredths of a cent.”

[VOTE]

“I move now that the rate for maintenance and operations be approved in the amount of thirty-nine and forty hundredths of a cent.”

[VOTE]

(2) Motion Seconded for Each Vote

(3) Council Votes



GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

14.

Meeting Date: September 19, 2017

Item Title: Rate and Fee Changes for 2017-18

Submitted By: Ron Young, Budget Director

Summary of Request/Problem

In considering the 2017-18 Proposed Budget, the City Council reviewed the adjustments to existing rates and fees. Revenue estimates included in the 2017-18 Proposed Budget are based on these actions.

<u>Area</u>	<u>Fees Being Added or Adjusted</u>
Stormwater	Rates for Service
Wastewater	Rates for Service
Water	Rates for Service

An ordinance will be prepared for the Mayor's signature once final direction has been given by the City Council.

Recommendation/Action Requested and Justification

Approve an ordinance making certain fee and rate adjustments and establishing an effective date of October 1, 2017.



GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Regular Session Agenda

15.

Meeting Date: September 19, 2017

Item Title: Civil Service Actions

Submitted By: Leslie Cloer, Director of Civil Service

Summary of Request/Problem

Pursuant to Chapter 143 of the Local Government Code of Texas, the City Council must establish the civil service classifications in the Police and Fire Departments, the number of positions in each classification, the base salary, and the types of incentive pays for each classification. The attached ordinance reflects the positions and compensation approved in the 2017-2018 budget.

The ordinance reflecting final decisions regarding the proposed salary schedule, incentive plans, and staffing levels will be signed by the Mayor upon final direction from the Council.

Recommendation/Action Requested and Justification

Approve an ordinance authorizing all civil service classifications, number of positions, base salary and types of incentive pay for classified positions.

Attachments

FY 17-18 Civil Service Ordinance

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF GARLAND, TEXAS, ESTABLISHING CIVIL SERVICE CLASSIFICATIONS WITHIN THE POLICE AND FIRE DEPARTMENTS; PRESCRIBING THE NUMBER OF POSITIONS IN EACH CLASSIFICATION; PRESCRIBING THE BASE SALARY AND TYPES OF PAY FOR THOSE CLASSIFICATIONS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, pursuant to Chapter 143 of the Texas Local Government Code, the City Council shall establish certain classifications and shall prescribe the number of positions in each of these classifications by ordinance, and

WHEREAS, the City Council has reviewed and approved a budget for the City for the fiscal year beginning October 1, 2017, and ending September 30, 2018, and

WHEREAS, such budget contains a program of planned expenditures for the police and fire departments, including changes to the operations and human resources of those departments,

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

Section 1

That the City Council of the City of Garland, Texas, hereby establishes the classifications and number of authorized positions within each classification and the base salary and types of pay for those classifications as specified on "Exhibits A-1 through A-4" attached hereto and made a part hereof as if fully set forth herein.

Section 2

That this Ordinance shall take effect on October 1, 2017.

PASSED AND APPROVED this the _____ day of _____, 2017.

THE CITY OF GARLAND, TEXAS

By: _____
Douglas Athas,
Mayor

ATTEST:

Rene Dowl,
City Secretary

EXHIBIT "A-1"

CIVIL SERVICE

**2017/2018
Budgeted Positions**

POLICE

Total: 348

Classification	Number of Positions Effective 10-01-2017
Police Officer ^{B,C}	296
Police Supervisor ^C	38
Police Captain ^B	9
Assistant Chief	4
Police Chief (Managing Director)	1
Total	348

FIRE

Total: 257

Classification	Number of Positions Effective 10-01-2017
Firefighter ^{A,D}	121
Driver	72
Lieutenant ^A	14
Captain	37
Battalion Chief	9
Assistant Chief	3
Fire Chief (Managing Director)	1
Total	257

A) Revision as per City Council instruction on July 5th, 2016

B) Revision reflects reducing the number of Police Officers from 287 to 286 and increasing the number of Police Captains from 8 to 9 effective May 16, 2017

C) Includes one new requested Police Supervisor and ten new requested Police Officer positions

D) Includes three new requested Firefighter positions

EXHIBIT "A-2"

Civil Service
2017-2018 Salary Schedules

Effective 1/1/2018

Police

Years	Step	Classification	Hourly	Annual	Spread
Hire	1	Recruit	\$28.39	\$59,047	
6 months	2	Officer 2	\$29.51	\$61,375	4%
1 year	3	Officer 3	\$30.70	\$63,861	4%
2 year	4	Officer 4	\$32.20	\$66,985	5%
3 year	5	Officer 5	\$33.78	\$70,268	5%
4 year	6	Officer 6	\$35.05	\$72,897	4%
5 year	7	Officer 7	\$36.84	\$76,637	5%
10 years	8	Officer 8	\$38.39	\$79,852	4%
12 years	9	Officer 9	\$39.36	\$81,866	3%
Year 1	1	Supervisor 1	\$48.71	\$101,327	
Year 2	2	Supervisor 2	\$51.38	\$106,872	5%
Year 1	1	Captain 1	\$56.93	\$118,422	
Year 2	2	Captain 2	\$60.06	\$124,931	5%
Year 1	1	Assistant Chief 1	\$67.19	\$139,756	
Year 2	2	Assistant Chief 2	\$70.76	\$147,172	5%

Fire

Years	Step	Classification	Staff*	Shift**	Annual	Spread
Hire	1	Recruit 1	\$26.78	\$19.13	\$55,696	
6 months	2	Recruit 2	\$28.15	\$20.11	\$58,555	5%
1 year	3	Firefighter 3	\$29.33	\$20.95	\$61,004	4%
2 year	4	Firefighter 4	\$30.86	\$22.04	\$64,189	5%
3 year	5	Firefighter 5	\$32.14	\$22.96	\$66,859	4%
5 years	6	Firefighter 6	\$34.69	\$24.78	\$72,165	8%
7 years	7	Firefighter 7	\$35.66	\$25.47	\$74,178	3%
8.5 years	8	Firefighter 8	\$36.66	\$26.19	\$76,260	3%
Year 1	1	Fire Driver 1	\$38.81	\$27.72	\$80,717	
Year 2	2	Fire Driver 2	\$40.38	\$28.84	\$83,994	4%
Year 1	1	Lieutenant 1	\$43.09	\$30.78	\$89,622	
Year 2	2	Lieutenant 2	\$45.00	\$32.14	\$93,599	4%
Year 1	1	Captain 1	\$47.57	\$33.98	\$98,936	
Year 2	2	Captain 2	\$49.90	\$35.64	\$103,784	5%
Year 1	1	Battalion Chief 1	\$54.30	\$38.79	\$112,947	
Year 2	2	Battalion Chief 2	\$57.28	\$40.92	\$119,151	5%
Year 1	1	Assistant Chief 1	\$66.30	\$47.36	\$137,914	
Year 2	2	Assistant Chief 2	\$70.02	\$50.01	\$145,642	6%

* Staff - hourly rate calculated from 2080 hours per year

** Shift - hourly rate calculated from 2912 hours per year

EXHIBIT "A-3"

POLICE DEPARTMENT

**2017/2018
INCENTIVE PAY PLANS**

ELIGIBILITY:

1. Must be a full time, paid, duly sworn peace officer in the Garland Police Department.
2. Must have more than one year of service as a peace officer in the department.

CERTIFICATION AND EDUCATIONAL INCENTIVE PAY:

1. Certification Incentive

Description	Amount Per Month
Advanced Certification	\$75 per month
Master Certification	\$95 per month

2. Education Incentive

Description	Amount Per Month
Bachelor Degree	\$125 per month
Masters or Doctoral Degree	\$150 per month

ASSIGNMENT PAY:

Description	Amount Per Month
Officers designated by the Chief of Police as Field Training Officers (FTO) shall receive FTO Pay in compensation for this job assignment. This job assignment is of a temporary nature and can be removed at the discretion of the Chief of Police.	\$250 per month

BILINGUAL PAY:

Description	Amount Per Month
a) Certification by the State of Texas indicating proficiency in verbal bilingual skills.	\$100 per month
b) Certification by the State of Texas indicating proficiency in verbal and written bilingual skills.	\$150 per month

Note: The above is a synopsis of these special pay plans. Details of these plans are available from the Director of Civil Service or Chief of Police.

EXHIBIT "A-4"

FIRE DEPARTMENT

**2017/2018
INCENTIVE PAY PLANS**

ELIGIBILITY:

Must be a Certified Texas Firefighter

CERTIFICATION AND EDUCATIONAL INCENTIVE PAY:

1. Certification Incentive

- a) Per TCFP Rules
- b) Available to all ranks

Description	Amount Per Month
a) Intermediate	\$45 per month
b) Advanced	\$85 per month
c) Master	\$125 per month

2. Education Incentive

- a) Per TCFP Rules
- b) Available to all ranks

Description	Amount Per Month
1. Bachelor or Master Degree + Intermediate Certification	\$50 per month
2. Bachelor or Master Degree + Advanced Certification	\$100 per month
3. Bachelor Degree + Master Certification	\$150 per month
4. Master Degree + Master Certification	\$200 per month

EXHIBIT "A-4" (Continued)

ASSIGNMENT PAY:

Assignment Pay Incentive - Available to Firefighter, Driver/Engineer, Lieutenant and Captain classifications.

Description	Amount Per Month
a) Instructor II	\$25 per month
b) Instructor III Must be assigned full time to Training Division Not eligible for Intermediate Instructor incentive pay	\$100 per month
c) Paramedic Must be certified by the State, and be accepted by the City Medical Control Director and approved by the Fire Chief.	\$100 per month
d) Paramedic Paramedics who staff an ambulance receive an additional \$30 per shift.	\$30 per shift
e) Fire Inspector Must be certified and assigned to Inspection Section of Fire Prevention Bureau	\$100 per month
f) Fire/Arson Investigator Must be certified and assigned to the Investigation Section of Fire Prevention Bureau.	\$100 per month

BILINGUAL PAY:

Description	Amount Per Month
a) Certification by the State of Texas indicating proficiency in verbal bilingual skills.	\$100 per month
b) Certification by the State of Texas indicating proficiency in verbal and written bilingual skills.	\$150 per month

Note: The above is a synopsis of these special pay plans. Details of these plans are available from the Director of Civil Service or Fire Chief.



GARLAND

City Council Regular Session Agenda

Meeting Date: September 19, 2017

Item Title: Boards & Commission Appointment

Submitted By: Elisa Morales, Management Services Coordinator , Administration

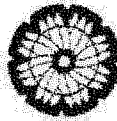
Summary:

Council Member Rich Aubin

- Gina Shanks - Community Multicultural Commission
-

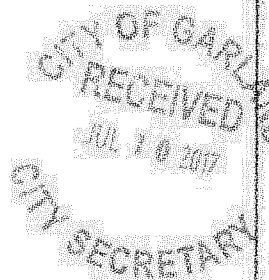
Attachments

Gina Shanks - Community Multicultural Commission



GARLAND

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Application for City of Garland Boards/Commissions/Committees

Return completed application to: City Secretary's Office, 200 North Fifth Street, Garland, Texas 75040

Please Type or Print Clearly:

Date: 7/7/17

Name: Gina Shanks

Phone: —

Address: 714 Winifred Dr.

Phone: [REDACTED]

City, State, Zip: Garland, TX 75041

Email: [REDACTED]

Resident of Garland for 2 years

Resident of Texas for 20 years

Dallas County Voter Registration Number [REDACTED]

Garland City Council District Number 5

Have you ever been convicted of a felony? ☐ Yes ☒ No

Have you ever been convicted of a Class A misdemeanor? ☐ Yes ☒ No

Please list any experience that qualifies you to serve in the areas you have indicated. My experience as a teacher, parent & resident of Garland qualifies me to have a say in my community & to help promote the positive aspects of this city.

List civic or community endeavors with which you have been involved.

What is your educational background?

BA, English

What is your occupational experience?

English Teacher

I hereby affirm that all statements herein are true and correct.

[Signature]

Board or Commission of first, second, and third choice:		
☐ Board of Adjustment	<u>3</u> ☒ Garland Cultural Arts Commission	☐ Parks and Recreation Board
☐ Building and Fire Codes Board	<u>1</u> ☒ Garland Youth Council **	☐ Plan Commission **
☐ Citizens Environmental and Neighborhood Advisory Committee	☐ Property Standards Board	☐ Planning and Mechanical Codes Board
☐ Community Multicultural Commission	<u>2</u> ☒ Library Board	☐ Senior Citizens Advisory Committee
☐ Electrical Board		

* Plan Commission members must live in district ** Garland Youth Council has a separate application

FOR OFFICE USE ONLY

Ad Valorem Tax Status
Utility Account Status

Current [Signature]
Current [Signature]

Past Due —
Past Due —

Date Appointed —

Appointed By —

Date Notified —

Disclosure Form Filed —

CSO Suit/Claim Filed
Clerk Signature & Date

[Signature]
[Signature]



GARLAND

City Council Regular Session Agenda

Meeting Date: September 19, 2017

Item Title: Boards & Commission Appointment

Submitted By: Elisa Morales, Management Services Coordinator , Administration

Summary:

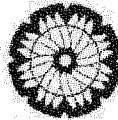
Council Member Robert Vera

- Carlos Porras - Downtown TIF Board
 - Joel Requenez - Community Multicultural Commission
-

Attachments

Carlos Porras - Downtown TIFF Board

Joel Requenez - Community Multicultural Commission



GARLAND

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CITY OF GARLAND
RECEIVED
AUG 25 2017

Application for City of Garland Boards/Commissions/Committees

Return completed application to: City Secretary's Office, 200 North Fifth Street, Garland, Texas 75040

Please Type or Print Clearly:

Date: 08-14-17

Name: Carlos Porras

Phone: [REDACTED]

(Home)

Address: 3302 S. Country Club Rd

Phone: [REDACTED]

(Other)

City, State, Zip: Garland TX 75043

Email: [REDACTED]

Resident of Garland for 9 years

Resident of Texas for 50 years

Dallas County Voter Registration Number

Garland City Council District Number 3

Have you ever been convicted of a felony? ☐ Yes ☒ No

Have you ever been convicted of a Class A misdemeanor? ☐ Yes ☒ No

Please list any experience that qualifies you to serve in the areas you have indicated.

Business owner and property owner in the Garland downtown area. previously the President of the Garland Downtown Business Ass.

If you have previously served on a City Board or Commission, please specify and list dates of service.

IN 2016/2017 served on Preservation Board which worked to get the Downtown area recognized as a National Historic

List civic or community endeavors with which you have been involved.

Hope Clinic, Good Samaritan, Habit for Humanity, and some Local Historic Circle de Mayo, Hispanic Chamber, GDBA, Fall for Gold recognition too.

What is your educational background?

BA IS. Bachelor of Arts in Interdisciplinary Studies Business and Science

What is your occupational experience?

Business Owner and Operator (Restaurant Business)

I hereby affirm that all statements herein are true and correct.

Carl Porras

Board or Commission of first, second, and third choice:

☐ Board of Adjustment	☐ Garland Cultural Arts Commission	☐ Parks and Recreation Board
☐ Building and Fire Codes Board	☐ Garland Youth Council **	☐ Plan Commission *
☐ Citizens Environmental and Neighborhood Advisory Committee	☐ Property Standards Board	☐ Planning and Mechanical Codes Board
☐ Community Multicultural Commission	☐ Library Board	☐ Senior Citizens Advisory Committee
☐ Electrical Board		

* Plan Commission members must live in district ** Garland Youth Council has a separate application

FOR OFFICE USE ONLY

Ad Valorem Tax Status
Utility Account Status

Current ☒
Current ☒

Past Due ☐
Past Due ☐

Date Appointed

Appointed By

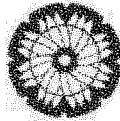
CSO Suit/Claim Filed
Clerk Signature & Date

Yes ☐ No ☒

Date Notified

Disclosure Form Filed

Laura Sullivan 8/20



GARLAND

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CITY OF GARLAND
RECEIVED
AUG 10 2017

CITY SECRETARY

Application for City of Garland Boards/Commissions/Committees

Return completed application to: City Secretary's Office, 200 North Fifth Street, Garland, Texas 75040

Please Type or Print Clearly:

Date: 7-29-17

Name: Joel Requenez

Phone: [REDACTED]

(Home)

Address: 3841 Mosswood DR

Phone: [REDACTED]

(Other)

City, State, Zip: Garland Texas 75042

Email: [REDACTED]

Resident of Garland for 17 years

Resident of Texas for 70 years

Dallas County Voter Registration Number [REDACTED]

Garland City Council District Number 6

Have you ever been convicted of a felony? ☐ Yes ☒ No

Have you ever been convicted of a Class A misdemeanor? ☒ Yes ☐ No

Please list any experience that qualifies you to serve in the areas you have indicated.

Have visited nursing homes as a volunteer, have served as Mediator for postal service, good bilingual communicating skills

If you have previously served on a City Board or Commission, please specify and list dates of service.

List civic or community endeavors with which you have been involved.

SERVED as coordinator for MDA March of Dimes, food drive for Postal Service Corpus Christi, Volunteer state fair, EARLY voting clerk 12/9/13

What is your educational background?

Associate of Arts degree - Del Mar College Corpus Christi
has short of Bachelor's Degree (Sociology) Texas A&M Corpus Christi

What is your occupational experience?

served as mediator between labor & management for the postal service

I hereby affirm that all statements herein are true and correct.

Joel Requenez

Board or Commission of first, second, and third choice:

- | | | |
|---|---|--|
| ☐ Board of Adjustment | ☐ Garland Cultural Arts Commission | ☐ Parks and Recreation Board |
| ☐ Building and Fire Codes Board | ☐ Garland Youth Council ** | ☐ Plan Commission * |
| ☐ Citizens Environmental and Neighborhood Advisory Committee | ☐ Property Standards Board | ☐ Plumbing and Mechanical Codes Board |
| ☒ Community Multicultural Commission (V) | ☐ Library Board | ☒ Senior Citizens Advisory Committee (2) |
| ☐ Electrical Board | | |

* Plan Commission members must live in district ** Garland Youth Council has a separate application

FOR OFFICE USE ONLY

Ad Valorem Tax Status
Utility Account Status

Current ☒
Current ☒

Past Due
Past Due

Date Appointed

Appointed By

CSO Sub/Claim Filed
Clerk Signature & Date

Laura Sullivan

Date Notified

Disclosure Form Filed

Revised 03/2017



GARLAND

City Council Regular Session Agenda

17.

Meeting Date: September 19, 2017

Item Title: Boards & Commission Appointment

Submitted By: Elisa Morales, Management Services Coordinator , Administration

Summary:

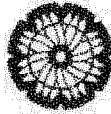
Council Member Robert John Smith

- Rex Kyle - TIF I-30
- Christopher Ott - Plan Commission

Attachments

Rex Kyle - TIFF I-30

Christopher Ott - Plan Commission



GARLAND

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Application for City of Garland Boards/Commissions/Committees

Return completed application to: City Secretary's Office, 200 North Fifth Street, Garland, Texas 75040

Please Type or Print Clearly:

Date: 8-15-2017

Name: Rex Kyle

Phone: [REDACTED]

(Home)

Address: 5437 Meadow Vista Ln

Phone: [REDACTED]

(Other)

City, State, Zip: Garland, TX 75043

Email: [REDACTED]

Resident of Garland for 5 years Resident of Texas for 32 years

Dallas County Voter Registration Number _____ Garland City Council District Number _____

Have you ever been convicted of a felony? ☐ Yes ☒ No

Have you ever been convicted of a Class A misdemeanor? ☐ Yes ☒ No

Please list any experience that qualifies you to serve in the areas you have indicated.

6 years of real estate acquisition and sales.

If you have previously served on a City Board or Commission, please specify and list dates of service.

Previous appointment to this board.

List civic or community endeavors with which you have been involved.

Eagle Scout

What is your educational background?

Bachelors Degree

What is your occupational experience?

Construction, Real Estate, Business owner.

I hereby affirm that all statements herein are true and correct.

Rex Kyle

Board or Commission of first, second, and third choice:		
☐ Board of Adjustment	☐ Garland Cultural Arts Commission	☐ Parks and Recreation Board
☐ Building and Fire Codes Board	☐ Garland Youth Council **	☐ Plan Commission *
☐ Citizens Environmental and Neighborhood Advisory Committee	☐ Property Standards Board	☐ Plumbing and Mechanical Codes Board
☐ Community Multicultural Commission	☐ Library Board	☐ Senior Citizens Advisory Committee
☐ Electrical Board	* Plan Commission members must live in district ** Garland Youth Council has a separate application	

FOR OFFICE USE ONLY

Ad Valorem Tax Status
Utility Account Status

Current ☒
Current ☒

Past Due ☐
Past Due ☐

Date Appointed _____

Appointed By _____

CSO Suit/Claim Filed
Clerk Signature & Date

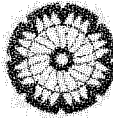
Yes ☐ No ☒

Date Notified _____

Disclosure Form Filed _____

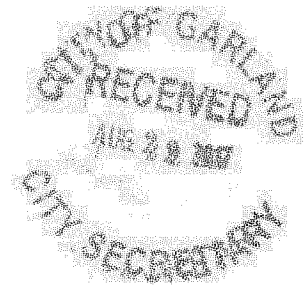
Cheryl Sullivan 8/30

Revised 03/2017



GARLAND

TEXAS MADE HERE



Application for City of Garland Boards/Commissions/Committees

Return completed application to: City Secretary's Office, 200 North Fifth Street, Garland, Texas 75040

Please Type or Print Clearly:

Date: 8-11-17

Name: Christopher Ott

Phone:

(Home)

Address: 901 Bromwich St

Phone:

(Other)

City, State, Zip: Garland, TX 75040

Email:

Resident of Garland for 28 years Resident of Texas for 42 years

Dallas County Voter Registration Number _____ Garland City Council District Number 8

Have you ever been convicted of a felony? ☐ Yes ☒ No

Have you ever been convicted of a Class A misdemeanor? ☐ Yes ☒ No

Please list any experience that qualifies you to serve in the areas you have indicated.

Incumbent Plan Commissioner for District 8

If you have previously served on a City Board or Commission, please specify and list dates of service.

Plan Commission Sept 2010 to today : Fire Board Sept 2009 to Sept 2010

List civic or community endeavors with which you have been involved.

Boy Scout adult leader (Eagle scout as youth) plus church activities

What is your educational background?

Associates degree Richland College and most of a Mech Engineering degree (Texas Tech and SMU)

What is your occupational experience?

Self employed with Rotary Performance since May 1988

I hereby affirm that all statements herein are true and correct.

Board or Commission of first, second, and third choice:		
☐ Board of Adjustment	☐ Garland Cultural Arts Commission	☐ Parks and Recreation Board
☐ Building and Fire Codes Board	☐ Garland Youth Council **	☒ Plan Commission *
☐ Citizens Environmental and Neighborhood Advisory Committee	☐ Property Standards Board	☐ Planning and Mechanical Codes Board
☐ Community Multicultural Commission	☐ Library Board	☐ Senior Citizens Advisory Committee
☐ Electrical Board	* Plan Commission members must live in district ** Garland Youth Council has a separate application	

FOR OFFICE USE ONLY

Ad Valorem Tax Status
Utility Account Status

Current ☒
Current ☒

Past Due _____
Past Due _____

Date Appointed _____

Appointed By _____

CSO Suit/Claim Filed
Clerk Signature & Date

Yes _____

No ☒

Date Notified _____

Disclosure Form Filed _____

Revised 05/2017