



GARLAND

NOTICE OF MEETING CITY OF GARLAND, TEXAS

PLAN COMMISSION

**City Hall, Council Chambers
William E. Dollar Municipal Building
200 N. Fifth Street
Garland, Texas
November 11, 2021 at 7:00 p.m.**

A meeting of the Plan Commission of the City of Garland, Texas will be held at the aforementioned location, date, and time to discuss and consider the following agenda items.

A pre-meeting will begin at 6:15 p.m. at the same location as the regular meeting. The agenda for the pre-meeting is the same as for the regular meeting, and may include additional items as set forth below.

INVOCATION AND PLEDGE OF ALLEGIANCE: It is the custom and tradition of the members of the Plan Commission 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 Plan Commission and will not affect the decisions to be made during the meeting.

The meeting will be broadcast on City of Garland Government Access Television (CGTV). CGTV is available via GarlandTX.gov, channel 16 (Spectrum), Channel 44 (Frontier), and channel 99 (AT&T U-verse). Meetings are broadcast online via live-streaming, on-demand, and air on CGTV with several rebroadcasts during the week of the meeting.

Alternatively, the meeting will be broadcast by webinar at the following URL:
https://garlandtx.zoom.us/webinar/register/WN_WwDONmpGTUCBOU5jCHK1hQ

After registering, you will receive a confirmation email containing information about

joining the webinar.

For those without internet access to the meeting, a dial-in option is available. The toll-free numbers are:

877-853-5247
888-788-0099

Additionally, the meeting may be accessed by phone at the following numbers:

346-248-7799
470-250-9358
470-381-2552

The Meeting ID is: 959 8032 8642

For participants (online and by phone) who wish to speak on an item on the agenda, you must use the "raise hand" feature in order to be recognized.

Those joining the meeting by phone may press *9 to raise your hand. After speaking, please re-mute your phone by pressing *6.

Public Comments

Whether you are attending the meeting in-person or via webinar, you are invited to offer a comment or make a statement on any item on the agenda as that item is called. Your comments must relate to an item on this agenda - non-germane comments are not in order. Time limits will be imposed by the Chairman as appropriate to the nature of the agenda item. Generally, public speakers are given three minutes.

REGISTRATION: If you are attending the meeting via webinar, Registration for the webinar will be required for any citizen wishing to speak. If you choose to speak via the webinar, you must use the "raise hand" feature in order to be recognized.

IN-PERSON COMMENTS: If you are attending the meeting in-person, Registration will be required for any citizen wishing to speak. Speakers shall register using the electronic registration kiosks in the lobby of City Hall.

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.

If the Plan Commission adjourns into executive session during this meeting, the executive session will be conducted by teleconference between and among the members of the Plan Commission and relevant City staff. Public access to that call is prohibited by State law.

CONSENT AGENDA

All items under this section are recommended for approval by a single motion of the Plan Commission, without discussion. The Plan Commission has had the opportunity to review each of these items during a pre-meeting. The Chairman will announce the agenda and provide an opportunity for members of the audience and the Plan Commission to request that an item be removed and considered separately.

1. MINUTES

- a. Consider approval of the Plan Commission Minutes for the October 25, 2021 meeting.

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 Plan Commission Secretary before speaking (cards are located at the entrance to the Council Chambers). The Chairman 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.

2. ZONING

- a. Consideration of the application of **Kimley-Horn**, requesting approval of an amendment to Planned Development (PD) District 17-37 to allow additional Single-Family Detached Homes. This property is located at 1902 Patterson Lane. (District 6) (File Z 21-38 - Zoning)
- b. Consideration of the application of **Kimley-Horn**, requesting approval of a Detail Plan for Single-Family Detached Homes on a property zoned Planned Development (PD) District 17-37. This property is located at 1902 Patterson Lane. (District 6) (File Z 21-38 - Detail Plan)

3. MISCELLANEOUS

- a. Consideration and possible recommendation to re-adopt the 2016 Water and Roadway Impact Fee Study: Land Use Assumptions, Roadway and Water Impact Fee CIP, and Maximum Fee.

4. ADJOURN

NOTICE: The Plan Commission may recess from the open session and convene in a closed session if the discussion of any of the listed agenda items concerns matters regarding privileged and unprivileged client information deemed confidential by Rule 1.05 of the Texas Disciplinary Rules of Professional Conduct. Sec. 551.071, Tex. Gov't Code.

NOTE: A quorum of the City Council may be in attendance and may or may not participate in the discussions of the Committee or board.



GARLAND

Plan Commission

1. a.

Meeting Date: 11/11/2021

Item Title: Plan Commission Minutes for October 25, 2021

Summary:

Consider approval of the Plan Commission Minutes for the October 25, 2021 meeting.

Attachments

Plan Commission Minutes for October 25, 2021

Minutes of the Garland Plan Commission Meeting

The Plan Commission of the City of Garland met in regular session on Monday, October 25, 2021, at 7:00 p.m., in the Council Chambers at the William E. Dollar Municipal Building (City Hall), with the following members present:

COMMISSION PRESENT

1 st Vice-Chair	Christopher Ott
2 nd Vice-Chair	Douglas Williams
Commissioner	Wayne Dalton
Commissioner	Julius Jenkins
Commissioner	Stephanie Paris
Commissioner	Margaret Lucht
Commissioner	Mike Rose

STAFF PRESENT

Recording Secretary	Tracy Allmendinger
Sr. Assistant City Attorney	Stephen Hines
Planning Director	Will Guerin
Sr. Planner	Josue De La Vega
Lead Development Planner	Nabiha Ahmed
Development Planner	Kimberly Hopkins

CONSENT AGENDA

All items marked with asterisks (**) on the Consent Agenda were voted on at the beginning of the meeting. Chair Roberts read those items into the record. **Motion** was made by Commissioner Dalton to **approve** the Consent Agenda as presented, seconded by Commissioner Jenkins. **Motion carried: 6 Ayes, 0 Nays.** Commissioner Williams did not vote due to his absence from this meeting.

MINUTES

1a. APPROVED** Consider approval of Minutes for the October 14, 2021 meeting.

PLATS

2a. APPROVED** P 21-31 Canaan Christian Church Addition Replat

MISCELLANEOUS

3a. APPROVED** Impact Fee Report

ZONING

4a. APPROVED Consideration of the application of **Millennium Village, LP. / Masterplan**, requesting approval of a Change in Zoning from Planned Development (PD) District 85-20 for Community Retail Uses to a Planned Development (PD) District for Multi-Family Use. This property is located at 1602 Belt Line Road. (District 7) (File Z 21-29 - Zoning)

The applicant Maxwell Fisher, 2595 Dallas Parkway, Frisco, Texas, provided an overview of the request and remained available for questions.

There was discussion between the Plan Commission and Mr. Fisher regarding property ownership of land between the subject property and neighboring property, grading and the retaining wall, density, setbacks, and architectural design.

Plan Commissioners also spoke in support of the request.

Motion was made by Commissioner Jenkins to close the public hearing and approve the request as presented. Seconded by Commissioner Paris. **Motion carried: 7 Ayes, 0 Nays.**

4b. APPROVED Consideration of the application of **Millennium Village, LP. / Masterplan**, requesting approval of a Detail Plan for Multi-Family development. This property is located at 1602 Belt Line Road. (District 7) (File Z 21-29 - Detail Plan)

There was discussion among the Plan Commission regarding density, long-term stability, and development of the subject property.

Motion was made by Commissioner Rose to **approve** the request as presented. Seconded by Commissioner Lucht. **Motion carried: 7 Ayes, 0 Nays.**

4c. APPROVED Consideration of the application of **Westfall Engineering, PLLC**, requesting approval of a Specific Use Provision for a Restaurant, Drive-Through on a property zoned Planned Development (PD) District 13-02. This property is located at 5300 North Garland Avenue. (District 1) (Z 21-34 - Specific Use Provision)

The applicant's representative, Michael Westfall, 1719 Angel Parkway, Allen and Luke Steinback, 5622 Dyre Street, Dallas, Texas, provided an overview of the request and remained available for questions.

There was discussion between the Plan Commission, Mr. Westfall and Steinback regarding the requested length of the Specific Use Provision and construction start date.

Motion was made by Commissioner Dalton to close the public hearing and **approve** the request for a period of thirty (30) years. Seconded by Commissioner Paris. **Motion carried: 7 Ayes, 0 Nays.**

4d. APPROVED

Consideration of the application of **Westfall Engineering, PLLC**, requesting approval of a Detail Plan for a Restaurant, Drive-Through. This property is located at 5300 North Garland Avenue. (District 1) (Z 21-34 – Detail Plan)

Motion was made by Commissioner Dalton to **approve** the request as presented. Seconded by Commissioner Paris. **Motion carried: 7 Ayes, 0 Nays.**

4e. APPROVED

Consideration of the application of **Mousa Abudaabes, Plato's Closet Store**, requesting approval of an amendment to Planned Development (PD) District 04-54 to allow a Used Goods, Retail Sales (Indoors) Use. This property is located at 4430 Lavon Drive, Suite 374. (District 1) (Z 21-40 - Zoning)

The applicant's representative Wes Hoblet, 2595 Dallas Parkway, Frisco, Texas, provided an overview of the request and remained available for questions.

There were no questions of this applicant.

Motion was made by Commissioner Lucht to **approve** the request as presented. Seconded by Commissioner Williams. **Motion carried: 7 Ayes, 0 Nays.**

4f. APPROVED

Consideration of the application of **Mousa Abudaabes, Plato's Closet Store**, requesting approval of a Specific Use Provision to allow a Used Goods, Retail Sales (Indoors) Use. This property is located at 4430 Lavon Drive, Suite 374. (District 1) (Z 21-40 - Specific Use Provision)

Motion was made by Commissioner Lucht to **approve** the request as presented. Seconded by Commissioner Williams. **Motion carried: 7 Ayes, 0 Nays.**

4g. APPROVED Consideration of the application of **Mousa Abudaabes, Plato's Closet Store**, requesting approval of a Detail Plan to allow a Used Goods, Retail Sales (Indoors) Use. This property is located at 4430 Lavon Drive, Suite 374. (District 1) (Z 21-40 – Detail Plan)

Motion was made by Commissioner Lucht to **approve** the request as presented. Seconded by Commissioner Williams. **Motion carried: 7 Ayes, 0 Nays.**

MISCELLANEOUS

5a. POSTPONED Consider approval of the 2022 Plan Commission meeting dates.

Motion was made by Commissioner Williams to **approve** the request. Seconded by Commissioner Rose. **Motion carried: 7 Ayes, 0 Nays.**

ADJOURNMENT

There being no further business to come before the Plan Commission, the meeting adjourned at 8:03 p.m.

City of Garland, TX

Approved:

Chairman

Attested:

Recording Secretary



GARLAND

Plan Commission

2. a.

Meeting Date: 11/11/2021

Item Title: Z 21-38 Kimley-Horn - Zoning (District 6)

Summary:

Consideration of the application of **Kimley-Horn**, requesting approval of an amendment to Planned Development (PD) District 17-37 to allow additional Single-Family Detached Homes. This property is located at 1902 Patterson Lane. (District 6) (File Z 21-38 - Zoning)

Attachments

Z 21-38 Kimley-Horn (Zoning) Report and Attachments

Z 21-38 Kimley-Horn Responses

Planning Report

File No: Z 21-38/District 6

Agenda Item:

Meeting: Plan Commission

Date: November 11, 2021



GARLAND

TEXAS MADE HERE

REQUEST

Approval of 1) an amendment to Planned Development (PD) District 17-37 to allow additional Single-Family Detached Homes and 2) an Alley Waiver.

Approval of a Detail Plan for Single-Family Detached Homes on a property zoned Planned Development (PD) District 17-37.

LOCATION

1902 Patterson Lane

APPLICANT

Kimley-Horn

OWNER

Wilbow-Riverset, LLC

BACKGROUND

In 2017, City Council approved an amendment to Planned Development (PD) District 15-41 to allow Single-Family (SF-5) Detached Homes and Single-Family (SFA) Attached Homes on a property zoned Planned Development (PD) District 15-41.

Subsequently, an Amended Concept Plan and Detail Plan were approved by City Council in Planned Development (PD) District 17-37 establishing a revised site layout for the overall PD 17-37 area.

SITE DATA

The overall subject property is one hundred and one (101) acres with approximately 1,800 lineal feet of frontage along West Buckingham Road and 2,500 lineal feet of frontage along North Shiloh Road. The site has access from Buckingham Road and Shiloh Road.

The area of request is approximately 2.904 acres with approximately 400 lineal feet of frontage along West Buckingham Road and 456 lineal feet of frontage along Patterson Lane. The site can be accessed from Patterson Lane.

USE OF PROPERTY UNDER CURRENT ZONING

The subject site is currently zoned Planned Development (PD) District 17-37 for mixed uses including commercial and residential types. The Concept Plan shows the commercial neighborhood service location at the north side of the site with frontage along Buckingham Road. The residential detached homes and residential attached townhomes are located in the remainder of the site with open spaces interspersed throughout, including a centrally located green park. The Concept Plan includes a trails map that shows trails connecting the larger open spaces throughout the community. The portion of the site near the northeast side of the property, near the intersection of Shiloh and Buckingham and entirely within the Duck Creek floodplain, is developed with a public trail maintained by the City.

The applicant is requesting approval to allow thirteen (13) additional Single-Family Detached Homes on a 2.904-acre tract within the Riverset Development.

CONSIDERATIONS

Detail Plan

1. In 2017 a Detail Plan was approved (PD 17-37) which consisted of a total of 590 residential lots, trail patterns, street sections and development standards to be completed in two (2) phases. Additionally, the approved Detail Plan included a lot intended for Neighborhood Services Uses. The applicant has submitted an amended Detail Plan application to propose thirteen (13) additional Single-Family Detached Homes on the lot designated for Neighborhood Services Uses.
2. The Planned Development Standards / Regulating Plan, Detail Plan, and Pattern Book include not only development standards, but also illustrations and diagrams that serve to guide the implementation of the standards for the development of the residential Districts.
3. The Manor and Garden Homes comply with the design requirements of the Planned Development (PD) District 17-37.

The approved development standards allow a minimum of 5,100 square foot lot for Manor lots.

The approved development standards allow a minimum 4,100 square foot lot for Garden lots.

The minimum front setback for the Manor homes is fifteen (15) feet, and the Garden homes minimum is ten (10) feet.

4. The proposed landscape layout (Exhibit D) complies with the applicable screening and landscaping regulations of the Planned Development (PD) District 17-37. A six (6)-foot brick soldier course wall is proposed for the Phase 3 development. The six (6)-foot brick soldier course wall is located along Buckingham Road and Patterson Lane.

Alley Waiver

5. The two (2) "Manor" residential lots to the north would front a seventy (70) foot right-of-way with access to each lot limited to the street front. Section 3.80 of the GDC requires every lot in a residential subdivision with two or more lots to be served by an alley at the rear, or if a corner lot, at the rear or one side. Alleys are utilized to facilitate drainage for the subdivision development, provide an area for the placement of utilities, and to provide rear access to a single-family lot. The Engineering Department has reviewed the plans and has indicated the layout is conducive to providing adequate drainage while meeting the City's requirements.

The eleven (11) Garden Homes would be served by an existing alley.

COMPREHENSIVE PLAN

The Future Land Use Map of the Envision Garland Plan designates the subject property as Compact Neighborhoods. Compact neighborhoods provide areas for moderate increase in residential density, including townhomes and single-family detached housing. It expands

housing options through infill and redevelopment, while continuing walkable development patterns.

These areas provide transitions between traditional residential neighborhoods and higher density residential neighborhoods and non-residential developments. These areas accommodate uses such as convenience retail (goods and services), office space, and public services. The architectural character and scale of these areas are compatible with adjacent residential development.

This use is compatible with the surrounding area and the Comprehensive Plan.

COMPATIBILITY OF REQUEST WITH SURROUNDING ZONING AND LAND USES

The properties to the west and south of the overall subject property are zoned Single-Family (SF-7) District and are developed with single-family detached homes. The property to the north, across West Buckingham Road, is zoned Planned Development (PD) 03-27 District and is developed with single-family detached homes. Also to the north of the property boundaries but remaining south of West Buckingham Road is an existing freestanding antenna. The property to the east of the overall subject property, across North Shiloh Road, are various existing uses including commercial, multi-family, a single-family detached residence, and amenity trails a part of the Planned Development (PD) 17-37 District.

STAFF RECOMMENDATION

Approval of 1) an amendment to Planned Development (PD) District 17-37 to allow additional Single-Family Detached Homes and 2) an Alley Waiver.

Approval of a Detail Plan for Single-Family Detached Homes on a property zoned Planned Development (PD) District 17-37.

ADDITIONAL INFORMATION

- i. Location Map
- ii. Exhibits
- iii. PD Conditions
- iv. Photos

CITY COUNCIL DATE: December 7, 2021

PREPARED BY:

Kimberly Hopkins
Development Planner
Planning & Community Development
972-205-2454
khopkins@garlandtx.gov

REVIEWED BY:

Will Guerin, AICP
Director of Planning



0 70 140 Feet
1 inch = 108 feet

Zoning Map Z 21-38

 INDICATES AREA OF REQUEST

PLANNED DEVELOPMENT CONDITIONS

ZONING FILE Z 21-38

1902 Patterson Lane

- I. Statement of Purpose:** The purpose of this Planned Development District is to amend the Planned Development (PD) District 17-37 to allow additional Single-Family Detached Homes.
- II. Statement of Effect:** This Planned Development shall not affect any regulations found in the Garland Development Code, Ordinance No. 6773, as amended prior to the adoption of this ordinance, except as specifically provided herein.
- III. General Regulations:** All regulations of the Single-Family Attached (SF-5) District set forth in Chapter 2 of the Garland Development Code, Ordinance 6773 and Planned Development (PD) District 17-37, are included by reference and shall apply, except as otherwise specified by this ordinance.
- IV. Development Plans:**
- A. Detail Plan: Development is to be in general conformance with the approved site plan labeled Exhibit C. In the event of conflict between the conditions and development plans, the conditions listed below are to apply.
- V. Specific Regulations:**
- A. Regulating Plan and Pattern Book: All uses, conditions, and standards shall comply with Exhibit C, D and E. If not provided in Exhibit C, D and E, all applicable standards in the Garland Development Code, Ordinance 6773, shall apply.
- B. Maximum Number of Lots: Thirteen (13) total lots for single-family detached use.
- C. Homeowners Association: A Homeowners Association shall be incorporated and each lot/homeowner shall be a mandatory member. The bylaws of this association shall establish a system of payment of dues; a system of enforcement of its rules and regulations; shall establish a clear and distinct definition of the responsibility of each member; and other provisions as deemed appropriate to secure a sound and stable association.

EXHIBIT B

D. Maintenance of Open/Common Space, Landscape Areas, Entry Features, Access Easements, Screening Walls/Fence In HOA Lots or Wall/Fence Maintenance Easements And Amenities In HOA Lots: Maintenance of open/common space, landscaped areas, entry features, access easements, screening walls/fences in HOA lots or wall/fence maintenance easements and amenities in HOA lots shall be the responsibility of the Homeowners Association.

Z 21-38



View of the subject property from Buckingham Road.



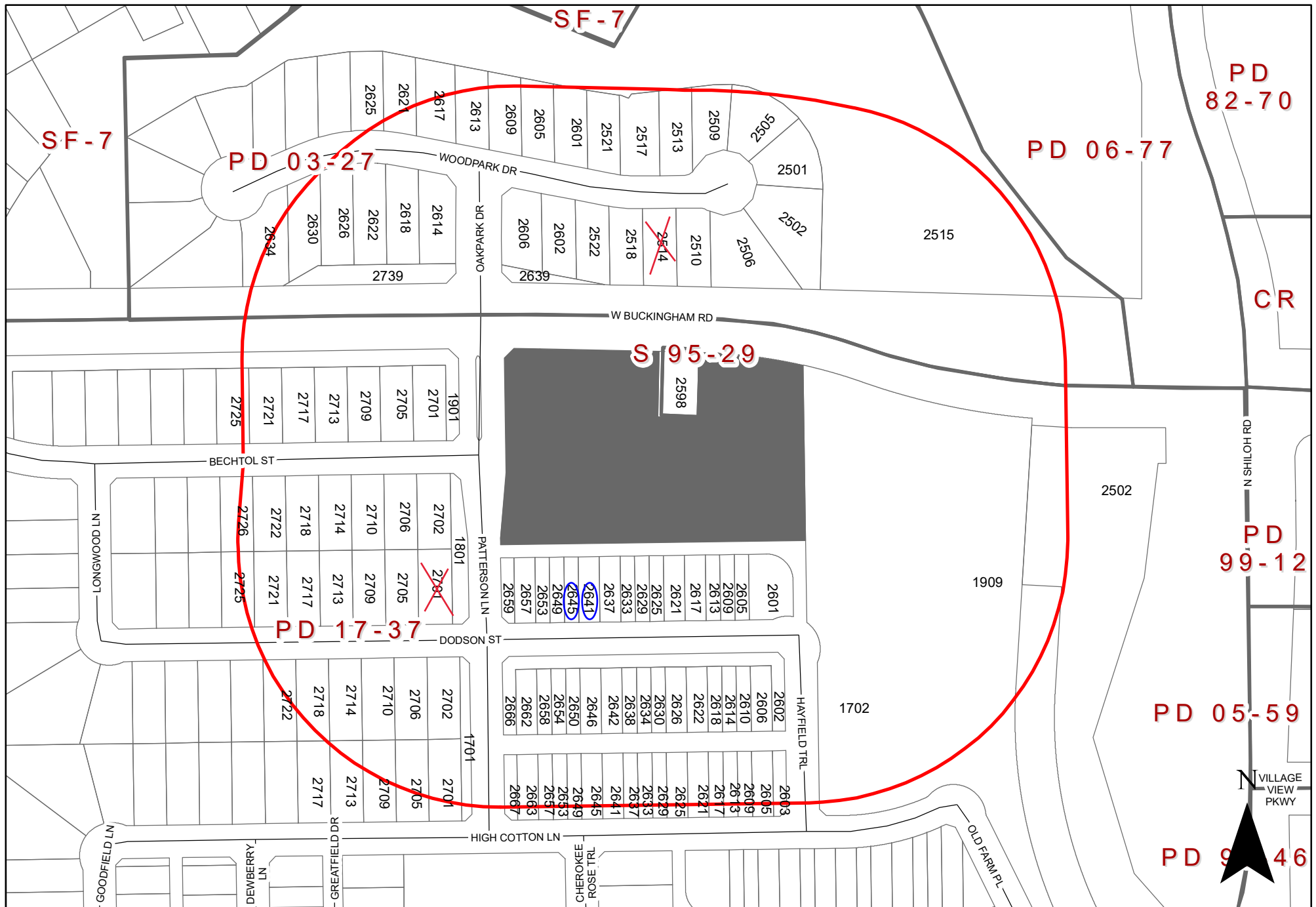
View of the property to the north.



View of the property to the east across Shiloh Rd.



View of the property to the south.



0 125 250 Feet
1 inch = 192 feet

Zoning Map Z 21-38 **1902 Patterson Lane**

 INDICATES AREA OF REQUEST  INDICATES NOTIFICATION AREA

Comment Form

Case Z 21-38

Kimley-Horn proposes to allow 13 additional Single-Family Detached Homes at Riverset. This site is located at 1902 Patterson Lane. (District 6)

Kimley-Horn propone permitir 13 viviendas unifamiliares adicionales en Riverset. Este sitio está ubicado en 1902 Patterson Lane. (Distrito 6)

Kimley-Horn đề xuất cho phép thêm 13 Ngôi nhà Biệt lập Một Gia đình tại Riverset. Trang web này nằm ở 1902 Patterson Lane. (Quận 6)

Please Check One Below / Marque uno a continuación / Vui lòng kiểm tra một bên dưới



For / A Favor / Đúng



Against / En Contra / Không

Please complete the following information and email the form to Planning@garlandtx.gov; deliver to the Planning Department at 800 Main Street Garland, TX; or mail to City of Garland, Planning Department, P.O. Box 469002 Garland, TX 75406-9002. / Por favor Complete la siguiente información y envíe el formulario por correo electrónico a Planning@garlandtx.gov; entregar al Departamento de Planificación en 800 Main Street Garland, TX; o envíelo por correo a City of Garland, Planning Department, P.O. Box 469002 Garland, TX 75406-9002. / Vui lòng điền đầy đủ thông tin sau và gửi biểu mẫu qua email tới Planning@garlandtx.gov; giao cho Phòng Kế hoạch tại 800 Main Street Garland, TX; hoặc gửi thư đến Thành phố Garland, Sở Kế hoạch, P.O. Hộp 469002 Garland, TX 75406-9002.

Israel Ramos, Property Owner

Printed Name & Title / Nombre Impreso y Título / Tên in và Tiêu đề

(Property Owner, Business Owner, Tenant, etc.) / (Dueño de la propiedad, Dueño de la empresa, Inquilino, etc.) / (Chủ sở hữu bất động sản, Chủ doanh nghiệp, Người thuê, v.v.)

2645 Dodson Street

Your Property Address / La dirección de su propiedad / địa chỉ tài sản

Garland, TX

City, State / Estado de la Ciudad / Thành bang

75042

Zip Code / Código postal / Mã B u Chính

Signature / Firma / Chữ ký

11/1/2021
Date / Fecha / Ngày

(Providing email address and phone number is optional. / La dirección de correo electrónico y el número de teléfono son opcionales. / Địa chỉ email và số điện thoại là tùy chọn.)

Comment Form

Case Z 21-38

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For / A Favor / Đúng



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Weston Myers ~~Lauren Karmann~~ & Lauren Karmann

Printed Name & Title / Nombre Impreso y Título / Tên in và Tiêu đề

(Property Owner, Business Owner, Tenant, etc.) / (Dueño de la propiedad, Dueño de la empresa, Inquilino, etc.) / (Chủ sở hữu bất động sản, Chủ doanh nghiệp, Người thuê, v.v.)

2641 DODSON ST

Your Property Address / La dirección de su propiedad / địa chỉ tài sản

GARLAND, TX

City, State / Estado de la Ciudad / Thành bang

75042

Zip Code / Código postal / Mã Bưu Chính



Signature / Firma / Chữ ký

10/30/21

Date / Fecha / Ngày

(Providing email address and phone number is optional. / La dirección de correo electrónico y el número de teléfono son opcionales. / Địa chỉ email và số điện thoại là tùy chọn.)

NOV 3 '21 PM 3:01

Comment Form

Case Z 21-38

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Please Check One Below / Marque uno a continuación / Vui lòng kiểm tra một bên dưới

☐

For / A Favor / Đúng

☒

Against / En Contra / Không

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Miguel Garcia

Printed Name & Title / Nombre Impreso y Título / Tên in và Tiêu đề

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2514 Woodpark Drive

Your Property Address / La dirección de su propiedad / địa chỉ tài sản

Garland, TX ~~75044~~

City, State / Estado de la Ciudad / Thành bang

75044

Zip Code / Código postal / Mã B u Chính

Miguel Garcia

Signature / Firma / Ch ữ ký

11/2/2021

Date / Fecha / Ngày

(Providing email address and phone number is optional. / La dirección de correo electrónico y el número de teléfono son opcionales. / Địa chỉ email và số điện thoại là tùy chọn.)

Zoning Response Case Comments

Case Number	PC Hearing Date	CC Hearing Date	Planner Name
Z 21-38	November 11, 2021	December 7, 2021	Kimberly Hopkins

Kimley-Horn proposes to allow 13 additional Single-Family Detached Homes at Riverset. This site is located at 1902 Patterson Lane. (District 6)

Son Nguyen

against

10/31/2021
7:53:52 PM

2701 Dodson St

Raynguyen75@yahoo.com

Garland

Texas

United States

75042

Son Nguyen

against

10/31/2021
7:53:51 PM

2701 Dodson St

Raynguyen75@yahoo.com

Garland

Texas

United States

75042



GARLAND

Plan Commission

2. b.

Meeting Date: 11/11/2021

Item Title: Z 21-38 Kimley-Horn - Detail Plan (District 6)

Summary:

Consideration of the application of **Kimley-Horn**, requesting approval of a Detail Plan for Single-Family Detached Homes on a property zoned Planned Development (PD) District 17-37. This property is located at 1902 Patterson Lane. (District 6) (File Z 21-38 - Detail Plan)

Attachments

Z 21-38 Kimley-Horn (Detail Plan) Report and Attachments

Z 21-38 Kimley-Horn Responses

Planning Report

File No: Z 21-38/District 6

Agenda Item:

Meeting: Plan Commission

Date: November 11, 2021



GARLAND

TEXAS MADE HERE

REQUEST

Approval of 1) an amendment to Planned Development (PD) District 17-37 to allow additional Single-Family Detached Homes and 2) an Alley Waiver.

Approval of a Detail Plan for Single-Family Detached Homes on a property zoned Planned Development (PD) District 17-37.

LOCATION

1902 Patterson Lane

APPLICANT

Kimley-Horn

OWNER

Wilbow-Riverset, LLC

BACKGROUND

In 2017, City Council approved an amendment to Planned Development (PD) District 15-41 to allow Single-Family (SF-5) Detached Homes and Single-Family (SFA) Attached Homes on a property zoned Planned Development (PD) District 15-41.

Subsequently, an Amended Concept Plan and Detail Plan were approved by City Council in Planned Development (PD) District 17-37 establishing a revised site layout for the overall PD 17-37 area.

SITE DATA

The overall subject property is one hundred and one (101) acres with approximately 1,800 lineal feet of frontage along West Buckingham Road and 2,500 lineal feet of frontage along North Shiloh Road. The site has access from Buckingham Road and Shiloh Road.

The area of request is approximately 2.904 acres with approximately 400 lineal feet of frontage along West Buckingham Road and 456 lineal feet of frontage along Patterson Lane. The site can be accessed from Patterson Lane.

USE OF PROPERTY UNDER CURRENT ZONING

The subject site is currently zoned Planned Development (PD) District 17-37 for mixed uses including commercial and residential types. The Concept Plan shows the commercial neighborhood service location at the north side of the site with frontage along Buckingham Road. The residential detached homes and residential attached townhomes are located in the remainder of the site with open spaces interspersed throughout, including a centrally located green park. The Concept Plan includes a trails map that shows trails connecting the larger open spaces throughout the community. The portion of the site near the northeast side of the property, near the intersection of Shiloh and Buckingham and entirely within the Duck Creek floodplain, is developed with a public trail maintained by the City.

The applicant is requesting approval to allow thirteen (13) additional Single-Family Detached Homes on a 2.904-acre tract within the Riverset Development.

CONSIDERATIONS

Detail Plan

1. In 2017 a Detail Plan was approved (PD 17-37) which consisted of a total of 590 residential lots, trail patterns, street sections and development standards to be completed in two (2) phases. Additionally, the approved Detail Plan included a lot intended for Neighborhood Services Uses. The applicant has submitted an amended Detail Plan application to propose thirteen (13) additional Single-Family Detached Homes on the lot designated for Neighborhood Services Uses.
2. The Planned Development Standards / Regulating Plan, Detail Plan, and Pattern Book include not only development standards, but also illustrations and diagrams that serve to guide the implementation of the standards for the development of the residential Districts.
3. The Manor and Garden Homes comply with the design requirements of the Planned Development (PD) District 17-37.

The approved development standards allow a minimum of 5,100 square foot lot for Manor lots.

The approved development standards allow a minimum 4,100 square foot lot for Garden lots.

The minimum front setback for the Manor homes is fifteen (15) feet, and the Garden homes minimum is ten (10) feet.

4. The proposed landscape layout (Exhibit D) complies with the applicable screening and landscaping regulations of the Planned Development (PD) District 17-37. A six (6)-foot brick soldier course wall is proposed for the Phase 3 development. The six (6)-foot brick soldier course wall is located along Buckingham Road and Patterson Lane.

Alley Waiver

5. The two (2) "Manor" residential lots to the north would front a seventy (70) foot right-of-way with access to each lot limited to the street front. Section 3.80 of the GDC requires every lot in a residential subdivision with two or more lots to be served by an alley at the rear, or if a corner lot, at the rear or one side. Alleys are utilized to facilitate drainage for the subdivision development, provide an area for the placement of utilities, and to provide rear access to a single-family lot. The Engineering Department has reviewed the plans and has indicated the layout is conducive to providing adequate drainage while meeting the City's requirements.

The eleven (11) Garden Homes would be served by an existing alley.

COMPREHENSIVE PLAN

The Future Land Use Map of the Envision Garland Plan designates the subject property as Compact Neighborhoods. Compact neighborhoods provide areas for moderate increase in residential density, including townhomes and single-family detached housing. It expands

housing options through infill and redevelopment, while continuing walkable development patterns.

These areas provide transitions between traditional residential neighborhoods and higher density residential neighborhoods and non-residential developments. These areas accommodate uses such as convenience retail (goods and services), office space, and public services. The architectural character and scale of these areas are compatible with adjacent residential development.

This use is compatible with the surrounding area and the Comprehensive Plan.

COMPATIBILITY OF REQUEST WITH SURROUNDING ZONING AND LAND USES

The properties to the west and south of the overall subject property are zoned Single-Family (SF-7) District and are developed with single-family detached homes. The property to the north, across West Buckingham Road, is zoned Planned Development (PD) 03-27 District and is developed with single-family detached homes. Also to the north of the property boundaries but remaining south of West Buckingham Road is an existing freestanding antenna. The property to the east of the overall subject property, across North Shiloh Road, are various existing uses including commercial, multi-family, a single-family detached residence, and amenity trails a part of the Planned Development (PD) 17-37 District.

STAFF RECOMMENDATION

Approval of 1) an amendment to Planned Development (PD) District 17-37 to allow additional Single-Family Detached Homes and 2) an Alley Waiver.

Approval of a Detail Plan for Single-Family Detached Homes on a property zoned Planned Development (PD) District 17-37.

ADDITIONAL INFORMATION

- i. Location Map
- ii. Exhibits
- iii. PD Conditions
- iv. Photos

CITY COUNCIL DATE: December 7, 2021

PREPARED BY:

Kimberly Hopkins
Development Planner
Planning & Community Development
972-205-2454
khopkins@garlandtx.gov

REVIEWED BY:

Will Guerin, AICP
Director of Planning

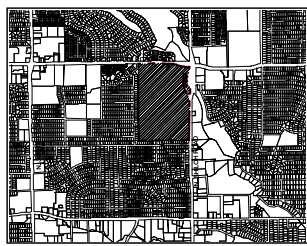
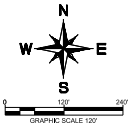


0 70 140 Feet
1 inch = 108 feet

Zoning Map Z 21-38

 INDICATES AREA OF REQUEST

EXHIBIT C



VICINITY MAP
SCALE: 1" = 2,000'



LEGEND	
---	PROPERTY LINE
---	PHASE LINE
---	PROPOSED DEVELOPER FENCE
---	PROPOSED SCREEN WALL
---	NEIGHBORHOOD SERVICES
---	LAND DEDICATED TO CITY OF GARLAND
---	AMENITY AREA
---	OPENSPACE
---	EXISTING ROW
---	2-STORY TOWN HOME (22'312" X 100')
---	VILLA (42'0145" X 82')
---	GARDEN (40' X 113')
---	MANOR (50' X 115')
---	PROPOSED TURN LANE
---	ALLOWABLE NEIGHBORHOOD OFFICE

Land Use Acreage Summary	
Land Dedicated to City of Garland	2.3
Amenty Center	1.2
Open Space (OS)	14.1
Residential Lots / Residential Street ROW	83.5
Total	101.1
Existing City of Garland ROW	1.1

Open Space Acreage Summary	
Open Space (OS)	14.1
Land Dedicated to City of Garland	2.3
Total Percent Open Space	16.2%

Lot Type Summary	
Phase 1	
2-Story Town Home	99
Villa	70
Garden	58
Manor	65
Phase 1 Total Residential Lots	286
Phase 1 HOA Lots	21
Phase 2	
2-Story Town Home	70
Villa	0
Garden	191
Manor	0
Phase 2 Total Residential Lots	266
Phase 2 HOA Lots	10
Phase 3	
2-Story Town Home	0
Villa	0
Garden	11
Manor	2
Phase 3 Total Residential Lots	13
Phase 3 HOA Lots	2
Total Residential Lots	565

Density Summary (Units per Acre)	
Gross	5.0

CITY CASE NO. 150611-1 & 20025-2
ZONING: Z 21-38

DETAIL PLAN
FOR
RIVERSET
565 RESIDENTIAL LOTS / 33 HOA OPEN SPACES
BEING 101.12 ACRES
OUT OF THE
LEVI TURNER SURVEY, ABSTRACT NO. 1487
IN THE
CITY OF GARLAND, DALLAS COUNTY, TEXAS

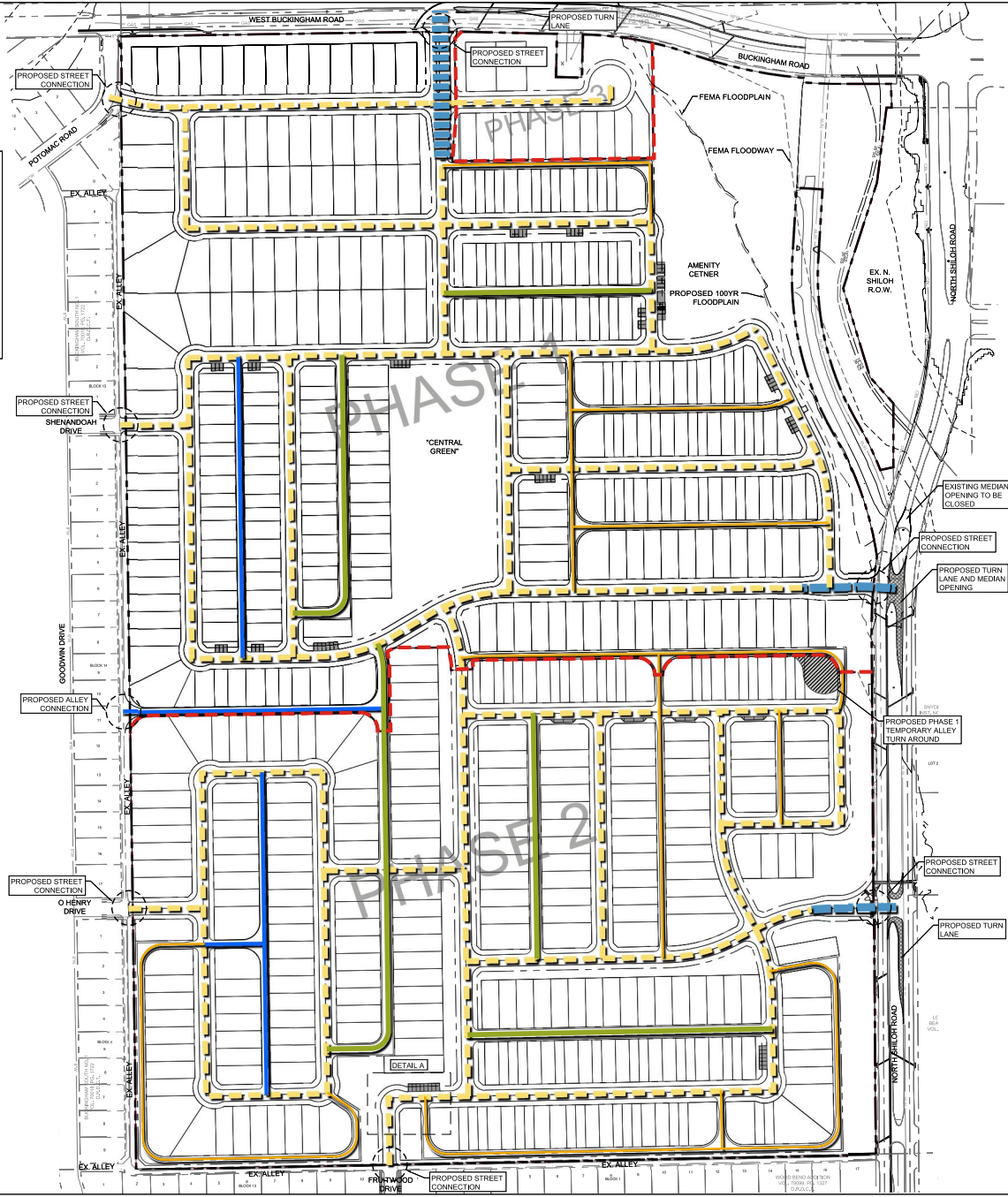
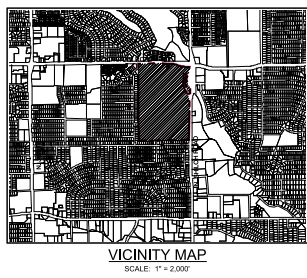
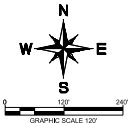
OWNER/DEVELOPER:
Wilbur-Smith, LLC
5307 E. Mockingbird Lane Ste. 900
Dallas, TX 75205 (Tel) (972) 855-1343
Contact: Jennifer Rabon

ENGINEER/SURVEYOR:
Kimley-Horn
13455 Moor Rd. Two Galleria Office Tower
Ste. 700
Dallas, TX 75240
Tel (972) 770-1300
Contact: RYCE T. ECKENBERGER, P.E.

DESIGNED	DRAWN	CHECKED	SCALE	DATE	PROJECT NO.
RTE	RTE	MEH	AS SHOWN	OCT. 2021	200770003

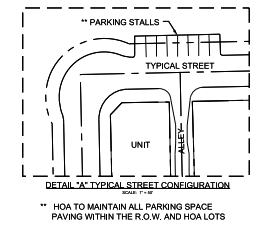
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LEGEND	
---	PROPERTY LINE
---	PHASE LINE
---	70' DIVIDED ENTRY STREET
---	60' RESIDENTIAL COLLECTOR
---	50' RESIDENTIAL STREET
---	20' RESIDENTIAL ALLEY (10' PAVEMENT)
---	20' VILLA ALLEY (18' PAVEMENT)
---	30' MEWS ALLEY (24' PAVEMENT)
---	PROPOSED PARKING
---	PROPOSED TURN LANE
---	PROPOSED ALLEY TEMPORARY TURNAROUND

Required Parking for Single Family Attached	
Required Parking (1/4 space per lot)	60
Provided Parking (SFA)	66
Amenity Center Parking	12
Total Parking	78

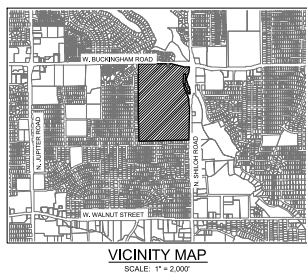
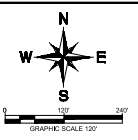


CITY CASE NO. 150611-1 & 20025-2
ZONING: Z 21-38

DETAIL PLAN
FOR
RIVERSET

565 RESIDENTIAL LOTS / 33 HOA OPEN SPACES
BEING 101.12 ACRES
OUT OF THE
LEVI TURNER SURVEY, ABSTRACT NO. 1487
IN THE
CITY OF GARLAND, DALLAS COUNTY, TEXAS

OWNER/DEVELOPER				ENGINEER/SURVEYOR			
Wilbur-Smith, LLC 5307 E. Mockingbird Lane Ste. 900 Dallas, TX 75205 (Tel: 972) 855-1343 Contact: Jennifer Rabon				Kimley-Horn 13455 Moor Rd. Two Galleria Office Tower Ste. 700 Dallas, TX 75240 Tel: 972/770-1300 Contact: RYCE T. ECKENBERGER, P.E.			
DESIGNED	DRAWN	CHECKED	SCALE	DATE	PROJECT NO.	PROJECT NO.	
RTE	RTT	MEH	AS SHOWN	OCT. 2021	260779003	260779003	D-2



CITY CASE NO. 150611-1 & 20025-2
ZONING: Z 21-38

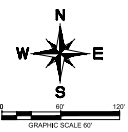
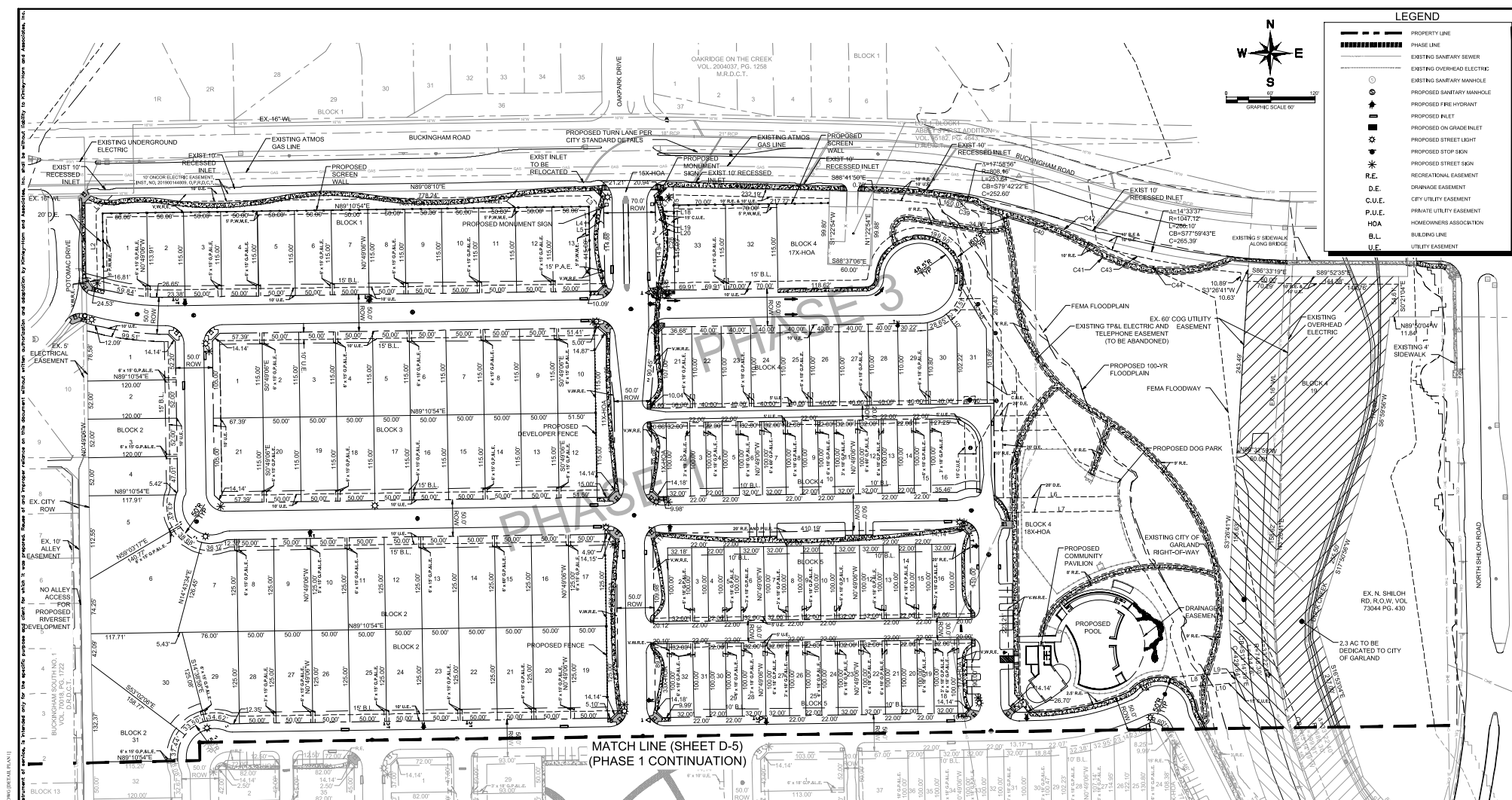
DETAIL PLAN
FOR
RIVERSET

565 RESIDENTIAL LOTS / 33 HOA OPEN SPACES
BEING 101.12 ACRES

OUT OF THE
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IN THE
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OWNER/DEVELOPER				ENGINEER/SURVEYOR			
Wilbur-Smith, LLC 2307 E. Mockingbird Lane, Ste. 900 Dallas, TX 75205 (972) 855-3443 Contact: Jennifer Rabon				Kimley-Horn 13455 North Rd. Two Galleria Office Tower Ste. 700 Dallas, TX 75240 Tel: (972) 774-1300 Contact: RYCE T. ECKENBERGER, P.E.			
DESIGNED	DRAWN	CHECKED	SCALE	DATE	IN PROJECT NO.		
RTE	RTS	NEP	AS SHOWN	OCT. 2011	20077069		

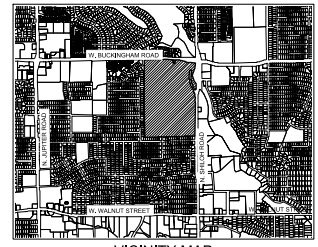


LEGEND	
---	PROPERTY LINE
----	PHASE LINE
----	EXISTING SANITARY SEWER
----	EXISTING OVERHEAD ELECTRIC
----	EXISTING SANITARY MANHOLE
----	PROPOSED SANITARY MANHOLE
----	PROPOSED FIRE HYDRANT
----	PROPOSED INLET
----	PROPOSED ON GRADE INLET
----	PROPOSED STREET LIGHT
----	PROPOSED STOP SIGN
----	PROPOSED STREET SIGN
----	RECREATIONAL EASEMENT
----	DRAINAGE EASEMENT
----	CITY UTILITY EASEMENT
----	PRIVATE UTILITY EASEMENT
----	HOMEOWNERS ASSOCIATION
----	BUILDING LINE
----	UTILITY EASEMENT

THIS DOCUMENT, TOGETHER WITH THE PRELIMINARY PLANS, IS A PRELIMINARY DESIGN AND SHOULD NOT BE USED FOR CONSTRUCTION OR AS A BASIS FOR ANY OTHER DESIGN OR CONSTRUCTION WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

MATCH LINE (SHEET D-5)
(PHASE 1 CONTINUATION)

- NOTES
1. HOA TO MAINTAIN ALL PARKING SPACE PAVEMENT WITHIN THE ROW AND HOA LOTS.
 2. ALL FENCES SHOWN ON PLAN ARE TO BE BUILT BY DEVELOPER.
 3. CONTRACTOR TO INSTALL TWO-WAY BLUE REFLECTOR BUTTONS AT CENTERLINE AT ALL PROPOSED FIRE HYDRANT LOCATIONS.
 4. ALL VISITOR PARKING SPACES TO BE MAINTAINED BY HOA.



CITY CASE NO. 150611-1 & 20025-2
ZONING: Z 21-38

DETAIL PLAN FOR R/VERSET	
565 RESIDENTIAL LOTS / 33 HOA OPEN SPACES BEING 101.12 ACRES OUT OF THE LEVI TURNER SURVEY, ABSTRACT NO. 1487 IN THE CITY OF GARLAND, DALLAS COUNTY, TEXAS	
OWNER/DEVELOPER Wilbur-Roswell, LLC 8307 E. Montclair Lane, Ste. 900 Dallas, TX 75207-1474 (972) 855-343-3434 Contact: Jennifer Rabon	BUSINESS SURVEYOR Kinley & Horn 13455 Moor Rd. Two Galleria Office Tower Ste. 700 Dallas, TX 75240 Tel: (972) 770-1300 Contact: BRYCE T. ECKERBERGER, P.E.
DESIGNED RFE	DRAWN BWT
CHECKED MGR	SCALE AS SHOWN
DATE OCT. 2011	PROJECT NO. 20070000

D-4



LEGEND

PHASE LINE [Symbol]

MAJOR 8' CONCRETE TRAIL [Symbol]

MINOR 5' CONCRETE TRAIL [Symbol]

Project:
RIVERSET

GARLAND, TEXAS

D17247


Designed: JH, MM

Drawn: BD, LW

Reviewed: JH

Date Issued:
OCTOBER 13, 2021

Revisions:

Sheet Title:
**MASTER TRAIL
PLAN**

Sheet Number:
LSP 1.00

Z:\Ting\Garland_Vyrick\027527\02_Development\05_Pattern Book\04_CAD\02_Sheets\017247-LSP-0.dwg



PLANT LIST					
SYMBOL	PLANT NAME	PLANT SIZE	PLANT TYPE	PLANT COLOR	PLANT NOTES
1	SHRUB	12"	SHRUB	12"	SHRUB
2	SHRUB	12"	SHRUB	12"	SHRUB
3	SHRUB	12"	SHRUB	12"	SHRUB
4	SHRUB	12"	SHRUB	12"	SHRUB
5	SHRUB	12"	SHRUB	12"	SHRUB
6	SHRUB	12"	SHRUB	12"	SHRUB
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98	SHRUB	12"	SHRUB	12"	SHRUB
99	SHRUB	12"	SHRUB	12"	SHRUB
100	SHRUB	12"	SHRUB	12"	SHRUB

NOTES:
1. ALL PLANTING SHALL BE COMPLETED BY DEVELOPER.
2. THE OWNER, TENANT, AND THEIR RESPECTIVE AGENTS, IF ANY, SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPING. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, PRUNING, FERTILIZING, WATERING, MOWING, WEEDING, AND OTHER SUCH ACTIVITIES NECESSARY FOR THE PROPER MAINTENANCE OF THE PLANT MATERIAL. ALL AREAS SHALL BE KEPT FREE OF TRASH, LITTER, WEEDS, AND OTHER SUCH MATERIALS THAT ARE NOT PART OF THE LANDSCAPE. ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY AND GROWING CONDITION AS IS APPROPRIATE FOR THE SEASON OF THE YEAR.
3. STREET TREES: ALL TREES ARE PLACED IN THE PARKWAY BETWEEN 2ND AND 3RD FROM THE BACK OF CURB. TREES TO BE SPACED AT A MAXIMUM OF 40' O.C. NO TREES ARE LOCATED IN VISIBILITY TRIANGLES AT INTERSECTIONS. TREE LOCATIONS ARE LAYING CONTRACTORS TO VERIFY UTILITIES PRIOR TO INSTALLATION.
4. SIDEWALKS: PLANTING 6" (6") ROOT SIDEWALKS ALONG BUCKINGHAM ROAD AND 6" (6") ROOT SIDEWALKS ALONG SHILOH ROAD ARE TO BE PROVIDED WITH A 4" UNSTRUCTURED NOTCH.
5. IRRIGATION SYSTEM: THE IRRIGATION SYSTEM SHALL PROVIDE WATER TO MAINTAIN THE PLANT MATERIAL IN A HEALTHY GROWING CONDITION AT ALL TIMES BY MEANS OF AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM. THE SYSTEM SHALL INCLUDE A MAIN SLUIT AND PRESSURE SENSOR AND CONTROL TO MONITOR SYSTEM STATUS.
6. BARRIERS: HSA TO MAINTAIN ALL PARKING SPACE PAVING WITHIN THE ROAD & SIDE LOTS.

NOTE:
ALL GRAY HATCHED TREES INSTALLED BY DEVELOPER, BUT USED TO SATISFY LOT REQUIREMENTS

2 SHRUB DETAIL

SECTION NOT TO SCALE

1 TREE DETAIL

SECTION NOT TO SCALE

LANDSCAPE CALCULATIONS BUCKINGHAM		
	PROVIDED	REQUIRED
LANDSCAPE BUFFERS AT THOROUGHFARE		PERIMETER BRICK OR STONE SCREENING WALL ALONG SHILOH ROAD AND BUCKINGHAM ROAD. A MINIMUM 6' WIDE TRAIL, COMBINATION OF SHADE TREES, UNDER STORY TREES, SHRUBS, GRASSES, AND IRRIGATION
TOTAL LANDSCAPE AREA	36,740 S.F. (1,453 L.F.)	
LANDSCAPE TREE	24 TREES	24 TREES
EXISTING TREES	0	
LANDSCAPE BERMUDA	12,667 S.F.	
LANDSCAPE BUFFER	37,946 S.F.	16,840 S.F.

SHRUBS, ORNAMENTAL GRASSES, AND TREES					
SYMBOL	PLANT NAME	PLANT SIZE	PLANT TYPE	PLANT COLOR	PLANT NOTES
1	SHRUB	12"	SHRUB	12"	SHRUB
2	SHRUB	12"	SHRUB	12"	SHRUB
3	SHRUB	12"	SHRUB	12"	SHRUB
4	SHRUB	12"	SHRUB	12"	SHRUB
5	SHRUB	12"	SHRUB	12"	SHRUB
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7	SHRUB	12"	SHRUB	12"	SHRUB
8	SHRUB	12"	SHRUB	12"	SHRUB
9	SHRUB	12"	SHRUB	12"	SHRUB
10	SHRUB	12"	SHRUB	12"	SHRUB
11	SHRUB	12"	SHRUB	12"	SHRUB
12	SHRUB	12"	SHRUB	12"	SHRUB
13	SHRUB	12"	SHRUB	12"	SHRUB
14	SHRUB	12"	SHRUB	12"	SHRUB
15	SHRUB	12"	SHRUB	12"	SHRUB
16	SHRUB	12"	SHRUB	12"	SHRUB
17	SHRUB	12"	SHRUB	12"	SHRUB
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24	SHRUB	12"	SHRUB	12"	SHRUB
25	SHRUB	12"	SHRUB	12"	SHRUB
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29	SHRUB	12"	SHRUB	12"	SHRUB
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31	SHRUB	12"	SHRUB	12"	SHRUB
32	SHRUB	12"	SHRUB	12"	SHRUB
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97	SHRUB	12"	SHRUB	12"	SHRUB
98	SHRUB	12"	SHRUB	12"	SHRUB
99	SHRUB	12"	SHRUB	12"	SHRUB
100	SHRUB	12"	SHRUB	12"	SHRUB



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Meet Sheet 008
10/19/2021

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Fort Worth • Houston • San Antonio

Project:
RIVERSET

CITY CASE
NO. 150611-1
FILE NO. Z 17-37

WILBOW USA
GARLAND, TEXAS

D17247

Designed: JH, MM
Drawn: BD, LW
Reviewed: JH

Date Issued:
OCTOBER 13, 2021

Revisions:
1
2
3
4
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6
7
8
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10

Sheet Title:
LANDSCAPE
PLAN

Sheet Number:
LSP 1.01



TBG



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Project:

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GARLAND, TEXAS

D17247

Designed: JH, MM

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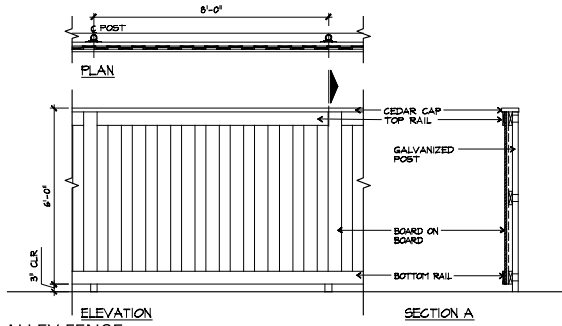
Reviewed: JH

Date Issued:
OCTOBER 13, 2021

Revisions:

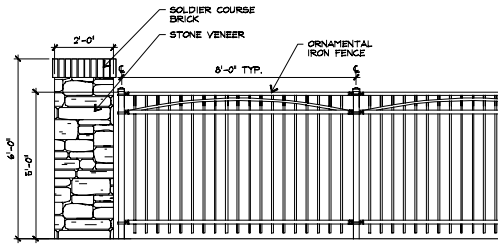
Sheet Title:
SITE DETAILS

Sheet Number:
LSP 1.03



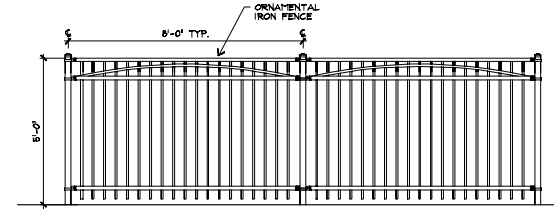
6 ALLEY FENCE

SCALE: 1/2"=1'-0"



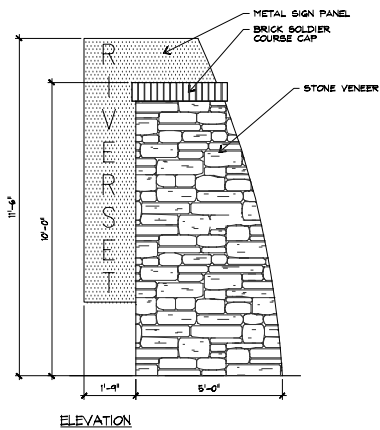
3 SIDE YARD FENCE WITH COLUMN

SCALE: 1/2"=1'-0"



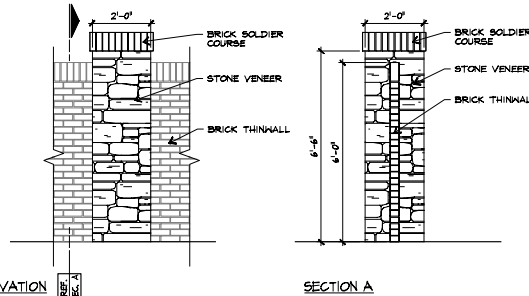
2 SIDE YARD FENCE

SCALE: 1/2"=1'-0"



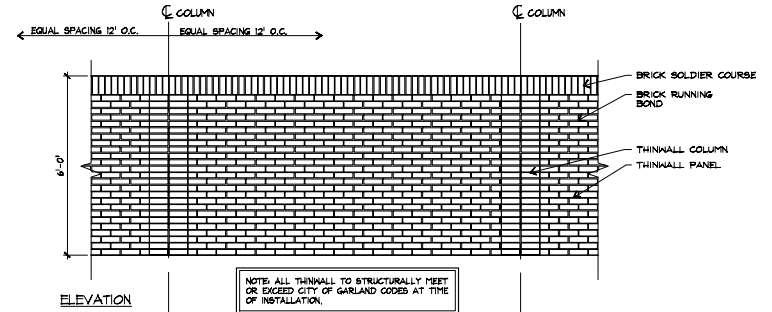
5 ENTRY MONUMENT

SCALE: 1/2"=1'-0"



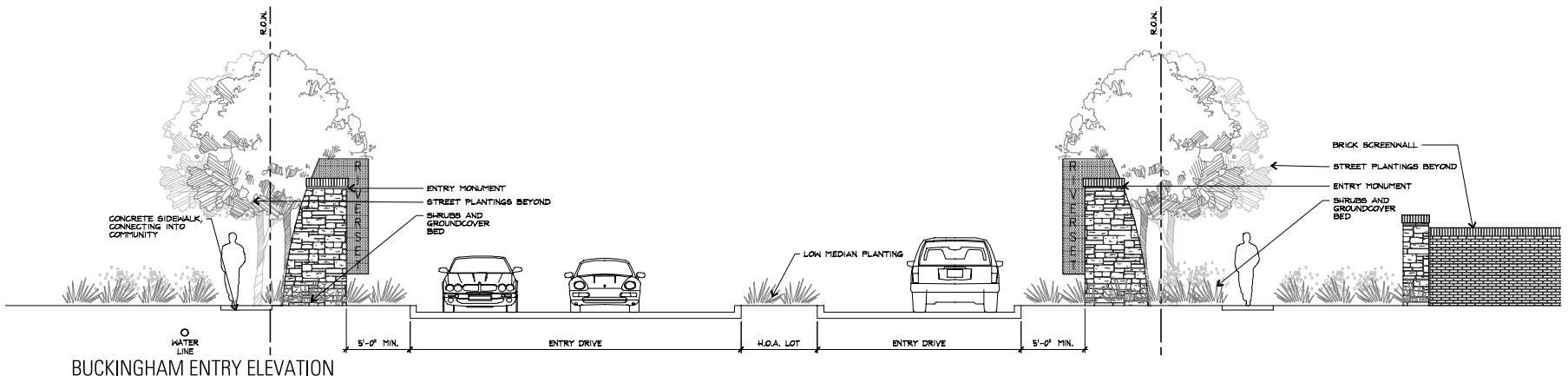
4 COLUMN

SCALE: 1/2"=1'-0"



1 THIN WALL: PERIMETER FENCE @ SHILOH & BUCKINGHAM

SCALE: 1/2"=1'-0"



BUCKINGHAM ENTRY ELEVATION

SCALE: 1/4"=1'-0"



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Drawn: BD, LW

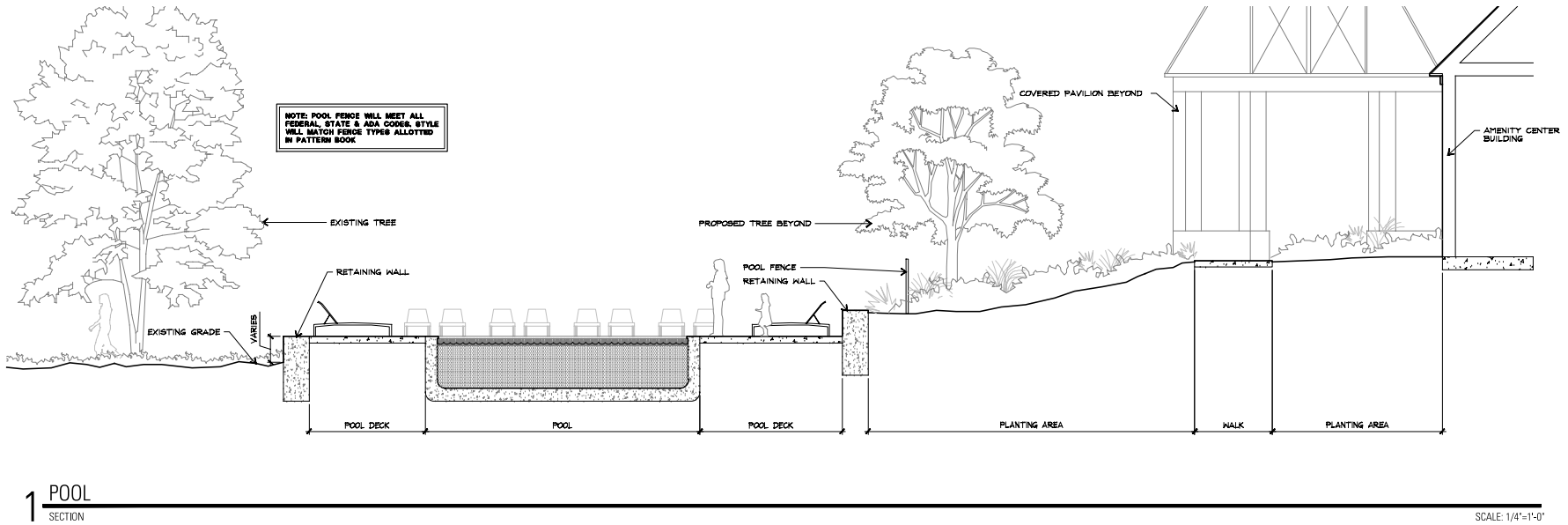
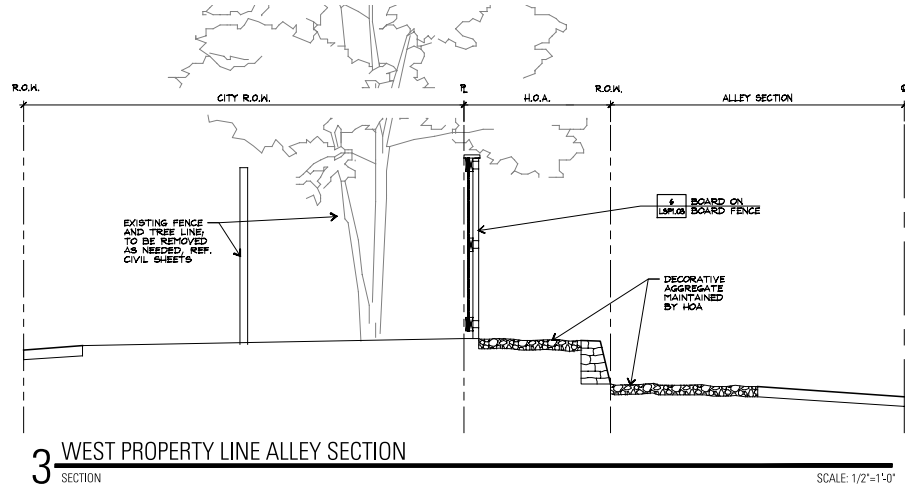
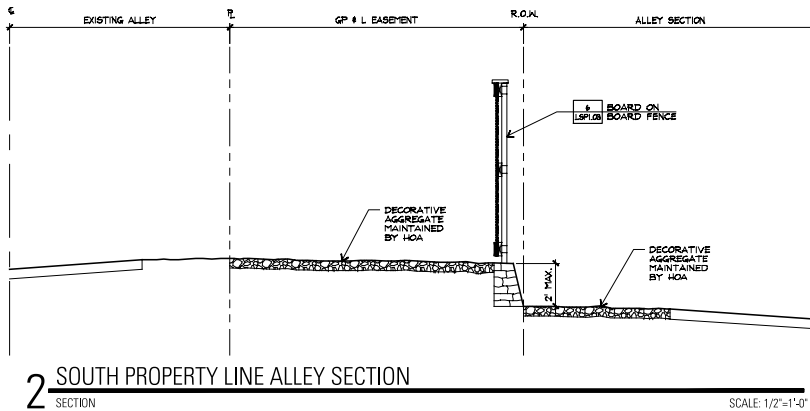
Reviewed: JH

Date Issued:
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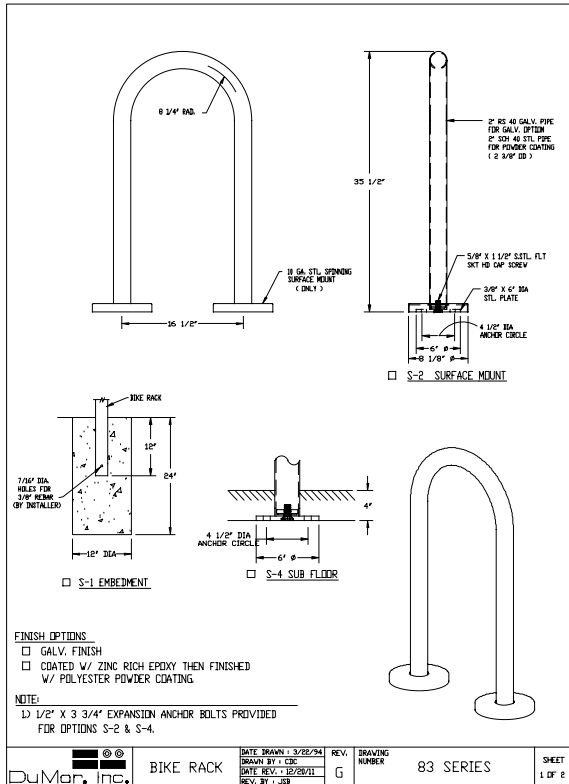
Revisions:

Sheet Title:
SITE DETAILS

Sheet Number:
LSP 1.04



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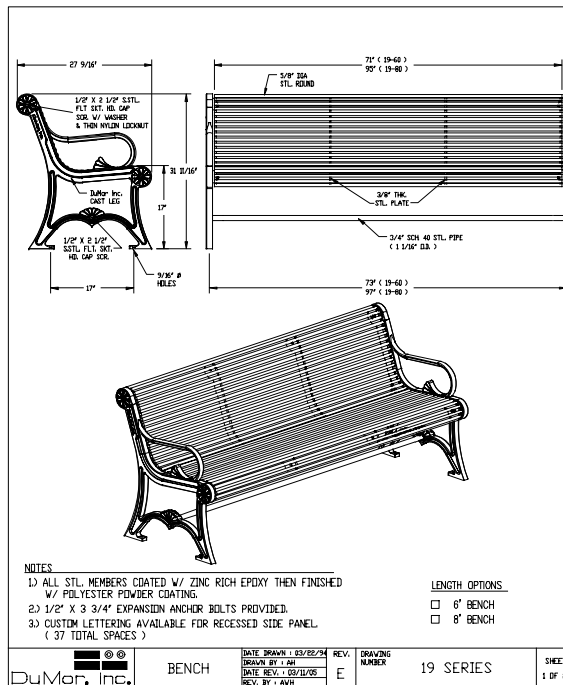


5 BIKE RACK (DUMOR - LOOP BIKE RACK 83)

SCALE: 1"-1'-0"

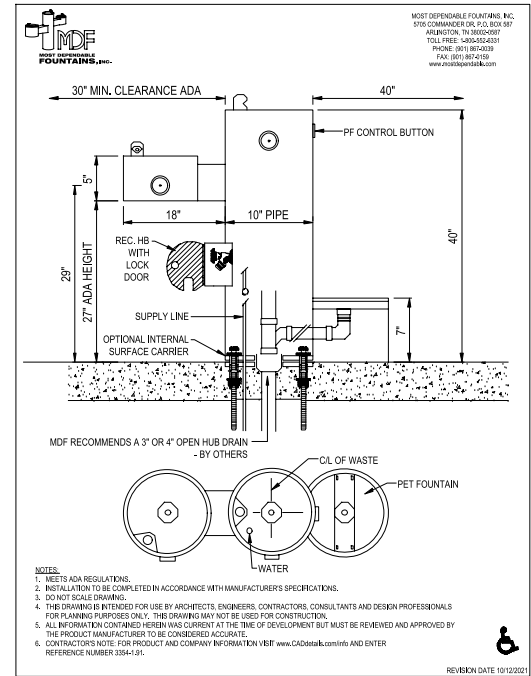
4 DOG WASTE STATION

SCALE: 1"-1'-0"



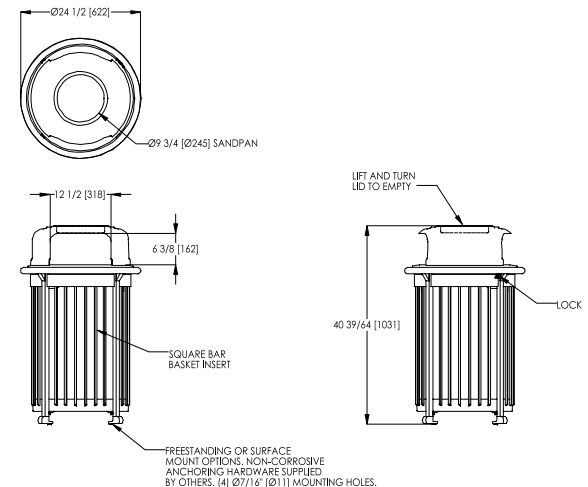
3 BENCH (DUMOR - BENCH 19)

SCALE: 1"-1'-0"



2 DOG WATER FOUNTAIN (MDF INC. MODEL 440 SM-FA)

NOT TO SCALE



1 TRASH RECEPTACLE (LANDSCAPE FORMS - SCARBROUGH)

SCALE: 1"-1'-0"



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Project:
RIVERSET

CITY CASE
NO. 150611-1
FILE NO. Z 17-37
WILBOW USA

GARLAND, TEXAS

D17247

Designed: JH, MM

Drawn: BD, LW

Reviewed: JH

Date Issued:
OCTOBER 13, 2021

Revisions:

Sheet Title:
SITE DETAILS

Sheet Number:

LSP 1.05

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2 STREET LIGHT (KIM LIGHTING - ERA HERITAGE)

NOT TO SCALE



NOTE: ALL RELATED TRAFFIC CONTROL AND DIRECTIONAL FACILITIES SHALL MATCH SIGNAGE AS SHOWN.

1 BRANDON INDUSTRIES SIGNAGE

NOT TO SCALE



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DATE: 10/19/2021
CITY
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Meet Mayor 2021

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NO. 150611-1
FILE NO. Z 17-37
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GARLAND, TEXAS

D17247

Designed: JH, MM

Drawn: BD, LW

Reviewed: JH

Date Issued:
OCTOBER 13, 2021

Revisions:

Sheet Title:
SITE DETAILS

Sheet Number:
LSP 1.06

Riverset

(Wyrick tract)

Case # 150611-1

File# Z-17-37

A Master-Planned
Community Garland, Texas

September 5, 2017

Planned Development Standards / Regulating Plan

I. Purpose Statement: Applicable Regulations.

To establish a quality master planned multi-phase and multiple product residential community for the property described by metes and bounds on Exhibit “A” (the “Property”) of this PD Ordinance with a strong “Sense of Place” consisting of a diverse collection of detached and attached homes arranged in “districts” within walkable distance to open spaces. The Planned Development will have a conscientious street typology with short blocks and meandering grid to discourage traffic speeds and calm traffic. The range of housing choices is to appeal to a broad range of people of different ages and life stages with a consistent level of quality, architectural embellishments, landscape standards, and an extensive system of private and public open spaces. These open spaces will feature “paseos” which are promenades of open green space where homeowners may stroll leisurely to central and dispersed recreational amenities. These paseos can anticipate future connections to a city wide trail system along thoroughfares and Duck Creek. Allowances for the inclusion of a small neighborhood retail area at the community’s main entrance may attract a daycare and/or a café/coffee shop. This area is envisioned for the community to supplement household needs for socialization and support. A private community amenity center is planned as well as a neighborhood gathering place. Public trails and meandering landscaped greenbelts will buffer the community along the road perimeters.

Development and use of the Property shall comply with the Garland Development Code as it existed on the date of its adoption on May 19, 2015 (the “Development Code”) and this PD

ordinance. In the event of a conflict between the Development Code and this PD Ordinance, this PD ordinance shall control.

II. Community Features.

The hardscape within the community shall include entry monuments, community signage and a way-finding program which shall be of uniform materials and permitted within medians and rights of way at the discretion of the Director of Engineering and with an executed License Agreement for any signs located within the right of way. Monuments may be up to twelve (12) feet in height. Signs shall not be within the sight visibility triangles.

A mandatory homeowners association shall be established to own and maintain the open spaces, common areas, greenbelts, and paseos; all landscape improvements; dog parks and dog waste stations, perimeter masonry and tubular steel fencing; entry monuments and signage; and an amenity center/clubhouse and swimming pool(s). The homeowners association shall maintain on street parking spaces within a street right-of-way and any parking spaces located within a common area lot. All amenity structures shall comply with the residential construction standards herein. No parking shall be required for any amenity use or structure.

Trails and sidewalks shall be constructed within a pedestrian access easement and owned and maintained by the HOA.

Duck Creek 100 year floodplain shall be designated as a public drainage easement within the Public Parkland dedication. Maintenance responsibility shall be identified on the plat using the City of Garland Standard drainage easement inscription.

III. Street Trees.

To beautify the community's streets, to promote traffic calming, lower summer temperatures over sidewalks and to create attractive pedestrian environment to encourage walking, street trees will be planted in the parkways, the area between the sidewalk and back of curb. Tree species and planting specifications shall be approved as shown on the Detail Plan. Tree maintenance shall be the responsibility of the homeowner's association, and a minimum eight-foot clearance shall be maintained between the sidewalk and overhanging tree limbs at maturity. Street trees shall count as mitigation trees. The general locations and number and species of trees to be planted in the public rights of way to be installed by homebuilders will be generally as shown

in the landscape plans that are made a part of the civil plans. Approved tree species shall not require root barriers. The location of street trees in the parkway portions of rights of way and other landscaping on lots or common areas employed to screen utilities may encroach in utility easements to achieve their purposes. These locations shall be permissible.

IV. Non-Residential Land Uses.

The following uses are permitted on a maximum of five acres within the Property for community retail/civic uses per the Neighborhood Services District (NS) generally in the location shown on Exhibit C. Allowable uses by right shall be:

Automated Teller Machine (ATM) - Walk-Up Church or Place of Worship

Day Care, Youth-Licensed Child-Care Center Bakery, Retail

Financial Institution

Laundry, Drop-Off (with drive-through or window)
Laundry, Drop-Off (without drive-through or window) Office, General

Studio, Fitness or Performing Arts Business and Media Service

Coffee Shop, with or without a drive-through window Farmer's Market/Seasonal Produce Sales

Restaurants, with or without a walk-up window, with or without outdoor dining. Outdoor dining shall allow mulched or gravel ground surfaces.

Doggie Camp, Dog day care with outdoor yard.

Allowable uses by a Specific Use Provision shall be: Cultural Facility

Convenience Store (1,000-5,000sf)
School, Private, Religious or Charter Grocery or Supermarket under 15,000sf.

Such uses shall be:

- a. Located adjacent to a perimeter thoroughfare; however, the uses may also be accessible to the main entrance street off Buckingham Rd. as well as pathways within the development to facilitate community access.
- b. A continuous landscape buffer shall be provided between NS and residential alley in lieu of masonry screening and may provide pedestrian access points.
- c. At the time of development of the Neighborhood Services tract and approval of its Detail Plan(s) by the City, its frontage along Buckingham Road shall be planted generally consistent with the residential Detail Plan perimeter tree planting with tree planting at fifty (50) feet on center. The tract shall also connect and extend the 6ft wide concrete perimeter rail along its thoroughfare frontage. Should the tract be subdivided, then at the time of development of each tract, its respective thoroughfare frontage shall be improved with trees and trail. In addition, any internal street frontage shall be improved with sidewalk and street trees of species and spacing consistent with the Pattern Book.

The following shall apply to the Neighborhood Services District:

1. The building height for a pitched roof building shall be a maximum of 35 feet.
2. The front, rear and side building setbacks adjacent to any internal street shall be a minimum of 15 feet.
3. Any mechanical equipment including roof top equipment shall be screened from residential districts either by fencing, landscaping or rooftop screening as applicable.

The following uses are permitted on a maximum of ten acres within the Property for limited business, service and medical uses per the Neighborhood Office District (NO) generally in the location shown on Exhibit C. Allowable uses by right shall be:

Automated Teller Machine (ATM) - Walk-
Up Church or Place of Worship
Day Car, Adult
Day Care, Youth- Licensed Child-Care
Center Post Office
Medical and Dental
Office/Clinic Business and
Media Service Financial
Institution
Office-General

Allowable uses by a Specific Use Provision shall be: School, Private, Religious or Charter Veterinary Clinic-Small Animal (indoors only) Pharmacy (with drive-through or window) Pharmacy (without drive-through or window) Studio-Fitness or Performing Arts

Such uses shall have:

1. The building height for a pitched roof building shall be a maximum of 35 feet.
2. Any mechanical equipment including roof top equipment shall be screened from residential districts either by fencing, landscaping or rooftop screening as applicable.

The following shall apply to the Neighborhood Offices District:

3. Landscaping and screening shall otherwise comply with the requirements for non-residential development in Chapter 4, Article 3 of the Development Code.
4. The building height for a pitched roof building shall be a maximum of 35 feet.
5. The front, rear and side building setbacks adjacent to any internal street shall be a minimum of 20 feet.
6. Any mechanical equipment including roof top equipment shall be screened from residential districts either by fencing, landscaping or rooftop screening as applicable.
- d. If any of the property is developed under the Neighborhood Office uses, after approval of its Detail Plan(s) by the City, its tract frontage along Shiloh Road shall be planted generally consistent with the Detail Plan perimeter tree planting with tree planting at fifty (50) feet on center. The tract shall also connect and extend the 6ft wide concrete perimeter trail along its thoroughfare frontage. Should the tract be subdivided, then at the time of development of each tract, its respective thoroughfare frontage shall be improved with trees and trail. In addition, any internal street frontage shall be improved with sidewalk and street trees of species and spacing consistent with the Pattern Book.

V. Residential Land Uses.

Single family attached residences, single family detached residences, and accessory uses are permitted by right, in accordance with the Detail Plan layout. In addition, the following ancillary uses and structures are permitted by right within the PD: private community swimming pools; splash parks; indoor and outdoor recreational and athletic facilities and events; social clubhouses

and their related facilities; community gardens; outdoor amphitheater; and dog parks. One or more of these ancillary uses and structures shall satisfy the amenity requirements for townhouses in Section 2.37(K)(4) of the Development Code. Each single family attached and detached residence shall have a minimum of two enclosed parking spaces. A diagram of each Lot Type is illustrated on page D-8 of the Detail Plan and location as shown on page D-1 of the Detail Plan.

A. SFA, Single Family Attached (Townhouses):

1. Generally

Temporary marketing and sales offices shall be permitted in connection with attached single family development so long as units are owned by a builder.

The architectural style and scale of the proposed attached single family residential units shall be in accordance with the Pattern Book. To achieve Craftsman style architecture and American colonial style architecture and all other styles in the Pattern Book, attached residential residences may incorporate non-masonry HardiPlank lap siding, cementitious shake shingle, or cementitious sheet material and cementitious trim components for such treatments as Board and Batten siding to achieve the overall 80 percent masonry requirement. The side elevation of any end unit shall have 100 percent masonry on the ground floor except for architectural features and areas under a porch. Cementitious sheet material shall be allowed with trim components for chimney stacks. The architecture for the townhouses will be representative of the elevations as described in the Pattern Book.

The requirement for a minimum aggregate common area of at least ten percent of the gross platted area for an attached single family development shall be satisfied at the time of full build out of all attached single family development within the Property, and is not required to be met with each individual phase of attached single family development. However, Phase 1 satisfies the open space requirement for the entire development.

Development of attached single family residences shall comply with the SFA Single Family Attached (Townhouse) base zoning district in Section 2.37 of the Development Code, subject to the changes noted above and the following changes:

Except as otherwise provided below for villas, attached single family residences shall comply with Table 2-4 of the Development Code for all SFA lot types, subject to the following changes:

Special Side Setbacks.

For end dwelling units that abut a common area lot rather than an alley or street right of way, the minimum side yard setback adjacent to the common area lot shall be five feet. The minimum side yard setback for an end dwelling unit that abuts an alley or street right of way shall be ten feet.

Driveway Depth.

Driveway depth shall either be 18 feet or greater in length or five feet in depth (driveway apron) as measured from the alley or mews lane right of way to the garage. The five foot setback or “garage build to line” is only allowed when the lot is adjacent to an alley with a pavement width of 18 feet or greater. No garages shall enter from the fronting street except that as shown on the Detail Plan at the south project entry from Shiloh, in order to achieve mews townhomes at this entry, six (6) townhouses may use the street abutting the rear of the lots (the north lot lines) to access the garages. The driveways shall be a minimum of 18ft in depth in this application and street trees shall be exempt across the portion of the street abutting these six lots.

Minimum Lot Width, Depth, and Size.

The minimum lot width shall be 22 feet. The minimum lot depth shall be 90 feet. The minimum lot size shall be 2,000 square feet.

Minimum House Size.

The minimum air conditioned area within each residence shall be 1,400 square feet.

Maximum Lot Coverage.

Lot Coverages shall not apply to any Townhouse or Villa residential lots.

Rear Yard Setback.

The minimum rear yard setback shall be five feet from the rear facade of the residence to the alley right-of-way.

2. Villas

The PD envisions an attached townhouse or “Villa” typically with second floor bonus rooms incorporated under the first floor roof line. They are rear entry, and generally have front yard semi-private courtyards or covered porches and are oriented to the front for their outdoor living area. Being predominately one story, they are wider than two story townhouses.

For the villa houses the following shall apply:

Driveway Depth.

Driveway depth shall be either five feet in depth (driveway apron) as measured from the alley or mews lane right of way to the face of the garage or eighteen feet or greater. No garages shall enter from the fronting street.

Minimum Lot Width, Depth, and Size.

The minimum lot width shall be 30 feet, the minimum lot depth shall be 75 feet, and the minimum lot size shall be 2,250 square feet.

Minimum House Size.

The minimum air conditioned area within each residence shall be 1,300 square feet.

Rear Yard Setback.

The minimum rear yard setback shall be five feet from the façade of the residence to the alley right of way.

B. SF-5, Single-Family Detached District:

1. Generally

The architectural styles and scale of the proposed detached single family residences shall be in accordance with the Pattern Book, otherwise development of detached single family residences

(including zero lot line residences or Garden homes) shall comply with the SF-5 base zoning district in Sections 2.34 and 2.36 of the Development Code, subject to the following changes:

Driveways.

Driveway depth shall be 18 feet or greater as measured from the street or alley right of way to the face of the garage door. Refer to page D-8 of the Detail Plan.

Masonry Construction.

To achieve Craftsman style architecture and American colonial style architecture and all other styles in the Pattern Book, single family detached residences may incorporate non-masonry HardiPlank or similar lap siding, cementitious shake shingle, or cementitious sheet material and cementitious trim components for such treatments as Board and Batten siding to achieve the overall 80 percent masonry requirement. Cementitious sheet material shall be allowed with trim components for chimney stacks.

Maximum Lot Coverage.

Lot Coverages shall not apply to any Manor or Garden residential lots.

Garages.

The face of a garage door must be located at least 18 feet from the street or alley right-of-way line that the garage door faces, and at least 24 feet from any interior property line that the garage door faces.

2. Manor Homes

The PD envisions a limited number of family oriented traditional homes with back yards. These are called “Manor Homes.” These residences are based on SF-5 but with larger required home size and allowances for architectural enhancements to the street realm. They are shown on page D-1 of the Detail Plan.

For Manor houses the following provisions shall apply in addition to those noted above in this Section V.B.1:

Minimum Lot Width, Depth, and Size

The minimum lot width shall be 50 feet. The minimum lot depth shall be 100 feet. The minimum lot size shall be 5,100 square feet.

Minimum House Size.

The minimum air conditioned area within each residence shall be 2,000 square feet. Front Yard Setback.

The minimum front yard building setback shall be 15 feet. Front porches and architectural features such as stoops, overhangs, courtyard walls, masonry chimneys and bay windows may extend into the front yard a maximum of five feet. For front entry garages, the minimum distance between a garage door and the right-of-way line shall be 18 feet.

Side Yard Setback.

The minimum side yard building setback shall be five feet. A side yard adjacent to a street on a corner lot shall be a minimum of ten feet; however, any garage door accessed from the side street shall be a minimum of 18 feet from the right of way.

Rear Yard Setback.

The minimum rear yard building setback shall be 15 feet (excluding any porches or projecting architectural features). If a rear entry garage is provided, there shall be a minimum of 18 feet from the garage door to the alley right-of-way. The minimum rear yard building setback for a detached front entry garage, granny flat, or other accessory structure shall be five feet. A front entry detached garage may be connected to the main structure with a canopy roof breezeway, in which case the minimum rear yard building setback for the detached garage shall remain five feet. This same setback shall apply to porches and trellises and other projecting architectural features.

Maximum Height.

The maximum building height shall be 2.5 stories or 40 feet. For any detached garage, granny flat or ancillary structure, the maximum building height shall be 30 feet.

Garages.

Detached garages are permitted. Houses may have front, side, or rear entry garages. Front entry garages located on lots that are 55 feet or greater in width shall (1) be located on the front of the residence with a “j-swing” entry such that garage doors are perpendicular to the fronting street; (2) be street-facing front entry garages, or (3) be located in the rear of the lot and accessed with a drive that enters from the front of the lot. All front entry garages are required to have a garage door that is set back at least three feet behind the front facade of the house, including porches or other architectural projections. All garage doors facing a street shall be clad in stained wood or be dimensional steel embossed panel with decorative hardware.

Alley Waiver.

It is the intention of the PD that alleys are permitted, but not required for the Manor house only. If an alley abuts a lot with a manor home, the builder may elect to construct either a front entry or rear entry house however; all houses on a particular block shall be consistently front or rear entry except that corner lots may utilize the side street for garage access. An alley waiver will be submitted to the Director of Planning during the Detail Plan stage.

Granny Flats.

A maximum 600 square foot air-conditioned space in a detached structure for “granny flats” is permitted to be used as a multi-generational living space, guest quarters, or home office space so long as the business does not draw commercial traffic to the property. Such space shall be metered on the same water, sewer and utility meters as the main residence and shall meet the same masonry requirement as the main structure. Such units shall not be permitted or used in a manner to make these lots Two-Family or Multi-Family uses as defined by the GDC Article 4, Division 2, Sections 2.38 and 2.39 respectively.

3. Garden Homes

The PD envisions “Garden Homes” to appeal to homeowners who desire less yard and lower maintenance living. These homes may be constructed in the center of the lot or along one side, commonly referred to as a “zero-lot line” house in Section 2.36(c) of the Development Code. These homes shall be rear entry. Refer to page D-1 of the Detail Plan.

For Garden Homes, the following provisions shall apply in addition to those noted above in this Section V.B.1:

Minimum Lot Width, Depth, and Size.

The minimum lot width shall be 36 feet. The minimum lot depth shall be 100 feet. The minimum lot size shall be 4,100 square feet.

Minimum House Size.

The minimum air conditioned area within each residence shall be 1,700 square feet.

Maximum Height.

The maximum building height shall be 2 stories or 40 feet.

Front Yard Setback.

The minimum front yard building setback shall be ten feet. Front porches and architectural features such as stoops, overhangs, courtyard walls, masonry chimneys and bay windows may extend into the front yard a maximum of five feet.

Side Yard Setback.

The minimum side yard building setback shall be either five feet on each side or these lots shall have a designated “zero” setback line on the Plat of one to three feet in width and a corresponding side yard setback of nine to seven feet in width such that houses have a minimum of ten feet of separation. On zero lot line lots, the plat shall designate a three-foot wide maintenance easement on each lot to the benefit of the adjacent lot. The “zero side” elevation of any house shall be limited to clerestory windows above six feet from the floor or glass block. A side yard adjacent to a street on a corner lot shall always have a minimum ten-foot side yard building setback.

Rear Yard Setback.

The minimum rear yard building setback shall be 12 feet from the rear facade of the residence (excluding porches and projecting architectural features) to the alley right-of-way, and 18 feet from the garage to the alley right-of-way.

VI. General Conditions.

- A. The community is envisioned to be developed in two or more phases to deliver a staged offering of different housing types over time (and anticipating later phased commercial

development with individual site plans). Additionally, the goal is to adjust to market tastes and preferences. Lot types are envisioned to ensure a diverse housing mix. Final lot counts for each type will be determined the phase's Final Plat and *generally consistent* with the Detail Plan. No individual phase is required to encompass all lot types. Individual phases will be *generally consistent* with the overall Detail Plan, but are permitted flexibility for lot type allocations. Maximum density for residential development within the Property shall not exceed six units per gross acre within the Property. As development will occur in phases, changes in the Detail Plan are permitted without need for additional city approval to accommodate changes in market conditions, subject to compliance with these PD regulations.

- B. For the purposes of determining compliance with the lot width requirements, lot widths shall be measured at the rear of the required front yard as shown on the Final Plats.
- C. The PD envisions a street typology necessary to create safe streets conducive to a pedestrian environment. The street typology identifies a specific alley section to different lot types and conditions. For example, if a lot fronts onto a common area rather than a street, the alley type is a mews lane which provides fire lane access. Please refer to page D-8 of the Detail Plan.
- D. Certain streets such as those that front common areas may be designed to accommodate parking. As such, designated on-street parking spaces shall count towards guest parking requirements for attached single family residences. Guest parking may also be located in common area lots at the ends of blocks or alley returns onto streets, provided they do not hinder visibility. The City shall issue a license agreement with the homeowners association for on-street parking spaces.
- E. Any lot type may front onto a common area in lieu of a public street, in which the common lot line shall serve as the front property line for purposes of minimum front yard building setbacks and the lot shall be alley-served with a mews type alley as shown on page D-2 of the Detail Plan.
- F. Each townhouse or villa building shall satisfy the requirement to be within 150 feet of hoselay length from a street or fire lane except as approved by the City Fire Department as shown on page F-1 of the Detail Plan and 400 feet to a fire hydrant.

- G. Sidewalks may be located outside of the public right-of-way if located within an adjacent open space lot with a pedestrian access easement to provide for meandering sidewalks and trails that may be located within adjacent common area lots or to preserve existing trees along perimeter roads.

VII. Residential Landscape Requirements.

The following requirements apply to residential development:

- A. Each attached and detached single family residence shall have an irrigation system in the front yard and street corner side yard with a freeze sensor regulator shut off.
- B. Each Manor Home and Garden Home lot shall have a minimum of one shade tree that is at least three inches in caliper planted in the front yard or the parkway in front of the home as shown on in the Pattern Book and civil plans, and every corner lot with a Manor Home or Garden Home shall have at least two shade trees that are a minimum of three inches in caliper in the side street parkway. If the lot fronts or sides onto a common area lot, the front yard and side yard tree requirements may be satisfied with the trees located in the adjacent greenspace. No other front yard or side yard tree planting requirement shall apply to a Manor Home or Garden Home. Compliance with the front yard or street requirements shall be generally consistent with the tree planting plans that are a part of the civil plans. Each Manor Home shall have at least one understory tree or shade tree planted in the back yard. No other back yard tree planting requirement shall apply to a Manor Home.
- C. Each attached single family Villa shall have a minimum of one shade tree that is at least three inches in caliper planted in the parkway in front of the home, and every corner lot with a villa shall have at least one shade tree that is a minimum of three inches in caliper planted in the street side yard. If the lot fronts or sides onto a common area lot, the front yard or side yard tree requirements may be satisfied with the trees located in the adjacent greenspace. No other front yard or side yard tree planting requirement shall apply to a villa. Compliance with these provisions shall be generally consistent with the tree planting plans that are a part of the civil plans.
- D. With the exception of Villas, each single family townhouse shall have one understory tree that is a minimum of two inches in caliper planted in the front yard or parkway in front of the home. If the lot fronts onto a common area lot, the tree requirement may be satisfied with the trees located in the adjacent greenspace. No other front yard tree planting requirement shall apply to attached single family residences described by this paragraph. Compliance with these provisions shall be generally consistent with the tree planting plans that are a part of the civil plans.
- E. For Villa and townhouses where guest parking has been located in the right of way fronting the lot, the street tree requirement will be waived as shown on the tree planting plans that are a part of the civil plans.

- F. All required trees shall be selected from a tree list approved during the Detail Plan stage.

VIII. Parkland Dedication.

- A. Developer, and its assigns, agree to dedicate approximately 1.9 acres of the Duck Creek floodplain from the Old Shiloh Road right of way to the center line of the creek as park property (the “Public Parkland”) to the City as part of the City’s trail head area in the Phase 1 Final Plat. A minimum of ten percent of the Property at the time of full build out shall be reserved as a common area that will be owned by the homeowners association and improved with publicly accessible trails as shown in page LSP 1.00 of the Detail Plan. Individual plats are not required to demonstrate compliance with the requirement for ten percent of the Property to be reserved as a common area. Common areas may include floodplain, detention areas, and mini-parks as shown on the Concept Plan. Mini-parks and paseos shall be connected with sidewalks to be a comprehensive pedestrian system. Common areas will abut a public street right-of-way in at least one location with a sidewalk connections. The Public Parkland shall be credited toward the ten percent common area requirement.
- B. A minimum of seven acres within the Duck Creek floodplain including the Public Parkland dedication will be reserved as a common area with the filing of the Phase 1 Final Plat. This area shall be included as part of the ten percent common area required by Section VIII.A
- C. A pedestrian circulation system shall be provided that affords connectivity to the NS or NO sites, private open spaces, the neighborhood amenity center, and the perimeter of the Property. The pedestrian circulation system shall include perimeter concrete trails that are a minimum of six feet in width. Minor trails in greenbelts and paseos may be constructed of concrete, decomposed granite, pea gravel, or mulch, shall be a minimum of five feet in width, and shall connect with the wider system of concrete trails and sidewalks. The pedestrian circulation system may be located on private property with a pedestrian access easement or within the right- of-way. The pedestrian circulation system may include benches, landscaping, signage, lighting, bike racks, water fountains, trash cans, and doggie waste stations.
- D. All street rights-of-way shall be improved with sidewalks that are a minimum of four feet in width and (1) constructed by the homebuilders at the time of adjacent house construction; or (2) constructed by the developer for all non-buildable lots. All sidewalks along Shiloh and Buckingham and along NS and NO lot(s) thoroughfare frontages are to be six feet in width.
- E. The minimum size of any common area shall be one thousand square feet with no dimension that is less than 10 feet in width. All common areas shall connect to a public right-of-way to create the envisioned network of pedestrian paseos. Common areas may abut rights-of-way to further make use of the parkways as “attached greens.”

IX. Fencing Requirements.

- A. The developer shall install a perimeter brick or stone screening wall along Shiloh Road and Buckingham Road in phases at the time of platting the adjacent phase of the Property where residential lots side or back to Shiloh or Buckingham or where alleys abut Shiloh or Buckingham as shown on pages LSP 1.01 and 1.02 of the Detail Plan. Where interior streets or common areas front Shiloh road or Buckingham Road, in lieu of masonry screening, a landscape border improved with a minimum six-foot wide public trail shall be provided. The landscape border shall include a combination of shade trees, understory trees, shrubs, grasses, and irrigation as shown on pages LSP 1.01 and 1.02 of the Detail Plan. Floodplain, parks, open spaces, right-of- way, and NS or NO sites shall be exempt from the screening requirements in this Section IX.A; however, tubular steel fencing may be installed in these areas at the developer's option.
- B. Homebuilder side yard and back yard fencing on residential lots shall be a maximum of six feet in height, and shall be setback a minimum of five feet from the front building line shown on the Detail Plan. Garbage containers may be screened along alleys with wood butt joint fencing from four to six feet in height. On street side corner residential lots, fences shall be constructed of cedar butt joint stained pickets in a uniform color stain with a flat top rail or tubular steel painted black or any of the fence types described and illustrated in the Pattern Book. Fencing as described in the Pattern Book may be installed in the front yard if 42 inches or less in height. Elements such as fence posts and gates may be 54 inches in height and trellis and arbor features shall also be permissible up to nine feet in height measured from the ground plane.
- C. Fencing on all residential lots abutting an open space lot, greenbelt, side street or paseo shall be restricted to (1) tubular steel painted black; (2) decorative cattle wire not to exceed five feet in height; (3) picket fences; or (4) a courtyard brick and/or stone masonry wall not to exceed three and a half feet (42 inches) in height in accordance with the Pattern Book. No solid fencing other than a brick and/or stone masonry courtyard wall under 42 inches shall be permitted abutting an open space lot, greenbelt, or paseo; however, landscape borders, included trimmed hedges, are permitted.

X. Street Typology.

- A. To foster a sense of place and create safe streets with low traffic speeds for residents of the community, development of the Property shall employ a hierarchy of residential street and alley types as shown on page D-2 of the Detail Plan.

- B. For divided streets with landscaped medians, a 70 foot right of way will be provided with an entrance of 14 feet and an exit of 24 feet with a maximum 8 foot landscape median and 12 feet of parkway along both sides of the divided street.
- C. Mountable curbs in conformance with the City of Garland Standard Details are permitted on front entry Manor Home lots. Standard curbs will be required adjacent to streets abutting all other residential lot types unless otherwise approved by the City's engineering department.
- D. Streets fronting open space lots may either have no curb or standard curbs adjacent to the common area lot. Streets adjacent to common area lots may provide for on-street parking. In addition, the street faces adjacent to open spaces are not required to have a curb if an integral part of the landscape design and the street face is lined with bollards to prevent vehicle entry.
- E. Streets abutting medians and retail/commercial and business tracts shall have a standard curb. Intersections shall be designed at 90 degrees +/- 5 degrees. Variances from this standard shall be per the approval of the Director of Transportation during the Detail Plan stage.
- F. Developer shall work with City to determine the location and number of stop signs within the subdivision and speed limits to facilitate traffic calming and maximum benefit the pedestrian system.
- G. Alley radius shall be per the City of Garland's Technical Standards. Variances from this standard shall be per the approval of the Director of Transportation during the Detail Plan stage.
- H. All alley and mews lane intersections with streets shall be perpendicular or radial, within a +/- 5 degree tolerance, at the intersection of right-of-way lines provided that a 200-foot stopping sight distance (SSD) is maintained. Variances from this standard shall be per the approval of the Director of Transportation during the Detail Plan stage.
- I. Alleys and mews lanes may align with existing or future streets/alleys on the opposite side of a street. The offset between mews lanes and alleys on opposite sides of a residential street shall be per the City of Garland's Technical Standards. Variances from this standard shall be per the approval of the Director of Transportation during the Detail Plan Stage.
- J. Any lot type that fronts onto a common area lot in lieu of fronting onto a street shall be served with a mews lane consisting of 30 feet of right-of-way. The mews lane shall serve as a fire lane, have a 24-foot wide pavement, and have a 30-foot radius at intersections.
- K. The minimum horizontal radius for an interior street shall be per the City of Garland's Technical Standards. Variances from this standard shall be per the approval of the Director of Transportation during the Detail Plan stage.
- L. Dead-end fire lanes shall not be allowed.

- M. Alleys along the perimeter may not exceed 1600ft without an intermediate connection to a residential street. All other alleys shall not exceed 800ft without a connection to a residential street.



EXHIBIT D

RIVERSET PATTERN BOOK
GARLAND, TX

CASE NUMBER: 150611-1
FILE NUMBER: Z 17-37

RIVERSET PATTERN BOOK

GARLAND, TX

CASE NUMBER: 150611-1
FILE NUMBER: Z 17-37

These Design Guidelines are provided as a straightforward guide to assist architects, house designers and builders in understanding the comprehensive level of planning, design principles, and implementation that is required for new homes, improvements and additions within Riverset.



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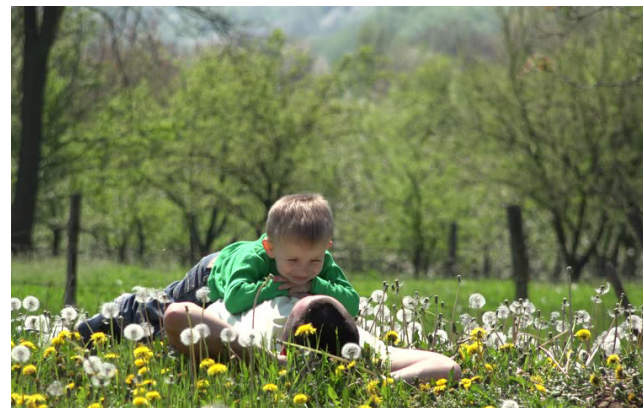
INTRODUCTION

COMMUNITY VISION

OVERVIEW OF GUIDELINES

COMMUNITY PLAN

COMMUNITY VISION



VISION

The community vision embraces a deep connection to nature and neighbors, family and friends, and shared support for personal aspirations. It is a purposeful place rooted in informal daily fellowship and a mutual appreciation for the simple joys of life. Through progressive planning and profound respect for the land, a truly walkable community is created with connected street networks and embedded with abundant park space, trail corridors and paseos. We celebrate streets as a public realm and people place with shading from street trees in the parkway; on-street parking for safety; and terminating views into parks, community spaces or good architecture forms. Riverset is a place where life unfolds at a slower, safer pace. At its essence, the community will be an inclusive enclave where dreams come to fruition, neighbors are brothers, and nature is the connective fabric to memorable moments.

TRADITION

Destined to become one of the area's most notable residential developments, Riverset offers timeless elegance with modern convenience. Classic architecture is the hallmark of Riverset. The homes provide a variety of complementary styles including Texana Farmhouse, American Colonial, Spanish Revival, Craftsman, European Romantic, and Modern. In addition, a variety of lot sizes and lot types (townhome, villa, garden, and manor) make Riverset ideal for households of all sizes and ages.

APPEAL

Riverset has the visual appeal of small town character, while meeting the desires of modern convenience and outstanding amenities. The yards, streets, parks and open spaces, as well as our relationships with the people who live nearby, affect the quality of our homes. Riverset offers a pool and clubhouse, numerous walking paths, and family-friendly park areas that provide a variety of activities. The landscape of Riverset will act as a unifying element to bring all aspects of our neighborhood into a wonderful, cohesive whole. It will help create an intimate sense of scale and pedestrian comfort.

LIFESTYLE

Riverset offers more than just a change of scenery; it offers a change in lifestyle. With a variety of housing styles and sizes; large families, newlyweds, and empty nesters will find more than a house, but a cohesive community. The variations of home selections and price ranges provide the opportunity for several generations of the same family to not just live nearby, but live in the same Riverset neighborhood.

VALUE

Riverset provides the best of the past with sustainable value for the future. Offering time tested character with state-of-the-art construction materials, a Riverset residence is more than a home - it's a lasting investment. All construction will be reviewed by Architectural Review Committee (ARC) to ensure consistence of quality and the character to achieve the vision of the Riverset community.

OVERVIEW OF GUIDELINES



These Design Guidelines are intended to create a complete integrated community of streetscapes and buildings that are based upon American town building principles. While each building should stand on its own design merit, it is intended that each individual building will contribute to the desired community character so that the compatibility, long-term quality and appreciation of value may be optimized for all involved. These Design Guidelines are not intended to reproduce historical buildings, but rather result in streetscapes featuring a variety of distinct but harmonious architectural styles using timeless design principles, modern materials and current building practices.

These guidelines and the information contained herein are intended as a general and sometimes specific guide to owners, architects, and builders as to the general style, character, and level of quality required for homes and improvements within the neighborhood of Riverset.

The guidelines are not intended to be subjective value judgments of the images and elements indicated, but instead are provided to illustrate the intended design character of the neighborhood. While the images and elements contained herein are not fully comprehensive in scope, they will be used by the Architectural Review Committee (ARC) as a standard for reviewing new homes or improvements. The ARC will have the exclusive authority to define any term or interpret the applicability of any item or component in part or whole contained in these Design Guidelines.

These Design Guidelines are the basis for the ARC to evaluate submissions for new homes, improvements and additions within Riverset.



The ARC will have the power to approve, conditionally approve or deny any proposed building or improvement. A building or improvement designed of a character not shown in the Design Guidelines, but which is architecturally compatible with the appropriate character contained herein, may be permitted by the ARC. In such instances, it is required that a preliminary concept plan, elevations or photos of intent be submitted for review prior to the preparation of detailed plans. Any approval or denial by the ARC does not set precedent for future reviews.

In addition to the appropriate architectural images, details, and materials, the main design elements that must be adequately addressed and that will be reviewed for compliance are:

- Site plan and building orientation
- Garage location, access, and architectural treatment
- Location and screening of all utility/service elements
- Streetscape character/relationship to surroundings
- Overall house image, style, and character - front, sides, and rear
- Scale, massing and proportions
- Roof lines, roof elements, and cornices
- Facade composition and forms
- Exterior materials, colors and detailing
- Front entry, porches, columns and details
- Doors, windows, and shutters
- Secondary porches, decks, terraces, details, etc.
- Ceiling, roof and window plate heights
- Chimney design and materials



These Design Guidelines have been produced in an 11" x 17" color format. The use of these Design Guidelines, including information and imagery contained within, is solely at the risk of the user. The Developer and the ARC, and their employees and agents, shall have no liability or responsibility to any party in connection with the use of these Design Guidelines or for comments, suggestions and/or redesigns from the actual design review process. Any person or entity using these Design Guidelines should do the following:

- Independently evaluate any design image, character, element, material or detail contained herein, and ascertain its suitability for such person's or entity's intended use.
- Ensure that all designs prepared in connection with the use of these Design Guidelines meet all applicable regulations of Federal, State, and local requirements, including but not limited to, all applicable zoning, building construction codes, accessibility requirements, fire sub-code and other life safety provisions necessary for the intended use of any property.

These Design Guidelines do not relieve the City of Garland building permitting process.

Every effort has been made to ensure consistency with these Design Guidelines and the Development Agreement, Planned Development District, and other elements of the Detail Plan for this property. In case of conflict, these guidelines do not relieve the requirements of these other documents.

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KEY LEGEND

LOT TYPES

- 22' x 100' - Town homes
- 30' x 82' - Villa Lot
- 40' x 113' - Garden Lot
- 50' x 115' - Manor Lot

SPECIAL CONDITION LOTS

- Corner and Multiple Frontage Homes
- Homes Terminating Views
- Homes Defining Common Spaces



COMMUNITY GUIDELINES

SITE PLANNING

LOT TYPES

FRONTAGE ELEMENTS

GARAGES



BUILDING PLACEMENT & ORIENTATION

- ❑ The primary facade of a minimum 85% of the houses on one block face should be located along or near the front setback line to establish a compatible streetscape. Homes may be located behind the front setback when deemed appropriate by the ARC.
- ❑ Buildings should be sited towards and relate to the street or adjacent common space.
- ❑ Social areas of the home such as the living room and dining room should be oriented to the street or adjacent common space whenever possible.
- ❑ Each building should have a walkway connection between the front entrance and the adjoining public sidewalk.

UTILITIES & EQUIPMENT

- ❑ Electrical and gas utility meters and AC condensers should be unobtrusively located beyond the front or side street facade zone and screened from view from adjacent streets or common open spaces with landscaping or appropriate fencing.
- ❑ Transformers on individual lots should be screened to minimize visual impact.
- ❑ Satellite dishes, and solar panels should be located in less conspicuous locations and out of view from adjacent streets or common open spaces when possible.
- ❑ Antennas should be located inside the building when possible.
- ❑ Solar panels when visible from the front should be flush with the roof.



REFUSE LOCATIONS

- ❑ Refuse containers should be stored within an enclosed storage area, fenced, walled or screened from view from adjacent streets or common open spaces with landscaping.

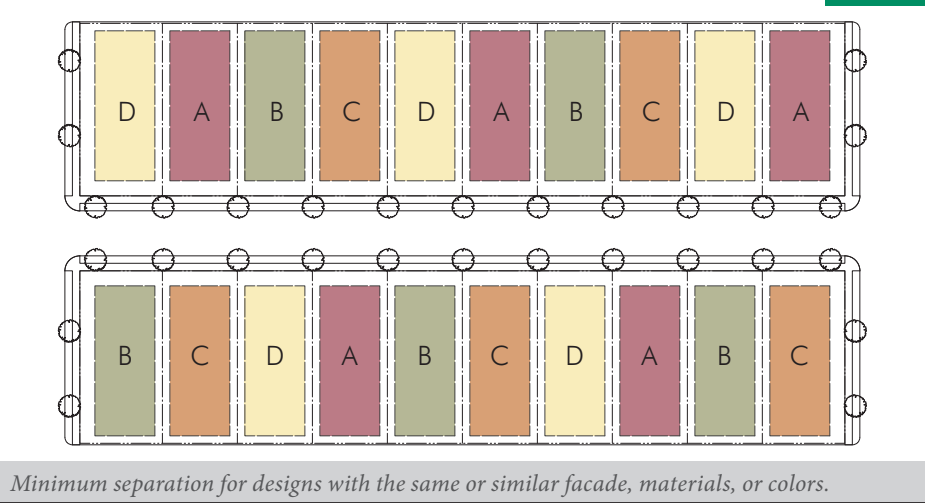
ACCESSORY STRUCTURES

- ❑ Pools, spas and accessory structures should complement the home design.
- ❑ Materials and detailing of accessory structures within pubic view must be approved by the ARC.

VARIETY

- ❑ At the community scale, a variety of individual architectural designs with their respective appropriate details, materials and colors are encouraged to create a unique overall compelling streetscape character.
- ❑ Building footprints including porches and entry locations, should generally vary from adjacent homes.
- ❑ Detached home designs with the same or similar facade, materials, or colors should be separated by a minimum of three lots on the same side of the street and should not be located directly across or diagonally across the street from each other.
- ❑ If a detached home plan is repeated on an adjacent lot it should be elevated with a different architectural style or two of the following three elevation changes - brick color, roof color, or flipped plan.
- ❑ For attached units, architectural styles should be applied by building rather than by the individual unit. Units with shared walls should be elevated with the same architectural style.

VARIETY IN DETACHED HOME DESIGNS





Inappropriate architectural character, massive irregular form and a lack of appropriate detailing fail to address the secondary street facade.



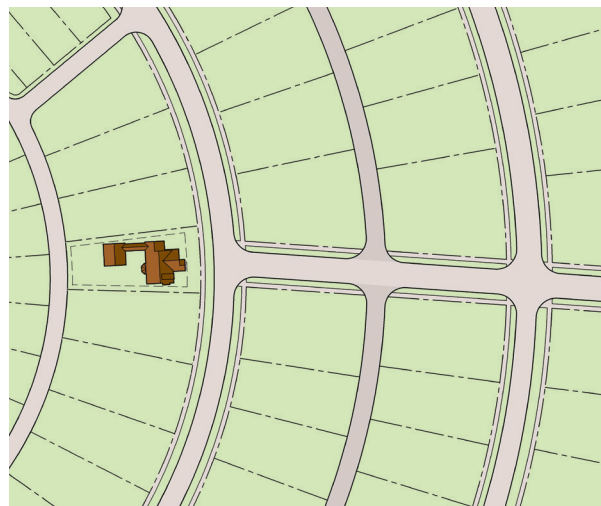
Homes on corner lots with multiple frontages.



Architectural character, materials and detailing continue from the front to the side facade appropriately addressing both streets.



Garage is inappropriately placed with the garage doors orienting onto a common space and terminating a view corridor.



Homes that terminate views.



Site orientation and building form emphasize the axis or focal point of this streetscape and appropriately terminate the view.



Homes that turn their side or rear to the common space offer no added value to this area.



Homes that define the street edge and are located adjacent to a common space.



Homes and entries front on the common space, clearly defining and creating an attractive outdoor room.

SPECIAL CONDITION LOTS

Special Condition Lots are typically located at street corners, at the end of a street intersection or view corridor, and/or against a street or pedestrian path edge that defines common space. Home designs located on Special Condition Lots should be designed and/or selected to be appropriately responsive to the identified special condition or location. Special Condition Lots and home designs have a greater impact upon the overall character of the community due to their locations of high visibility to either the front and/or the side facades of these homes. Homes on Special Condition Lots should exhibit characteristics such as: a prominent well designed front elevation, a side elevation in which the identifiable character and detailing of the front facade continues along the side elevation, a front porch that continues along or turns the corner of the home along the side elevation, or they are easily adaptable to add bay windows or appropriate offsets to the plan and elevations in order to capture the additional corner lot buildable area provided. Each builders' selection of submitted home designs should be reviewed and approved to determine which are, or should be easily adaptable to be considered as an appropriate Special Condition Design. The following are examples of Special Condition Lots/ Homes:

Homes on Corner Lots and Lots with Multiple Frontages

- ☐ Homes on lots with two facades visibly exposed to the street or common space should be designed specifically to respond to these more prominent locations.
- ☐ The main body of the house on the primary street should generally be located parallel to the front setback line to establish a compatible streetscape defining form.
- ☐ The architectural treatment of the corner side facade should generally be treated like the front facade.
- ☐ Architectural character, materials and detailing should continue from the front facade around the corner to the corner side facade appropriately addressing both primary and secondary street frontages. Wrap around porches or other architectural massing such as projecting bays or forms are recommended to articulate the corner side facade.

Homes on Lots that Terminate Views

- ☐ Homes located at the termination of view corridors, vistas or street axes should require appropriate design considerations regarding building form and architectural treatment, in order to enhance and emphasize a pleasant and desirable terminated view.
- ☐ Such homes should not align a front loaded driveway or garage doors with the vista or axis.
- ☐ The main body of the house should be prominent and align with these street axes.

Homes on Lots that Define Common Space

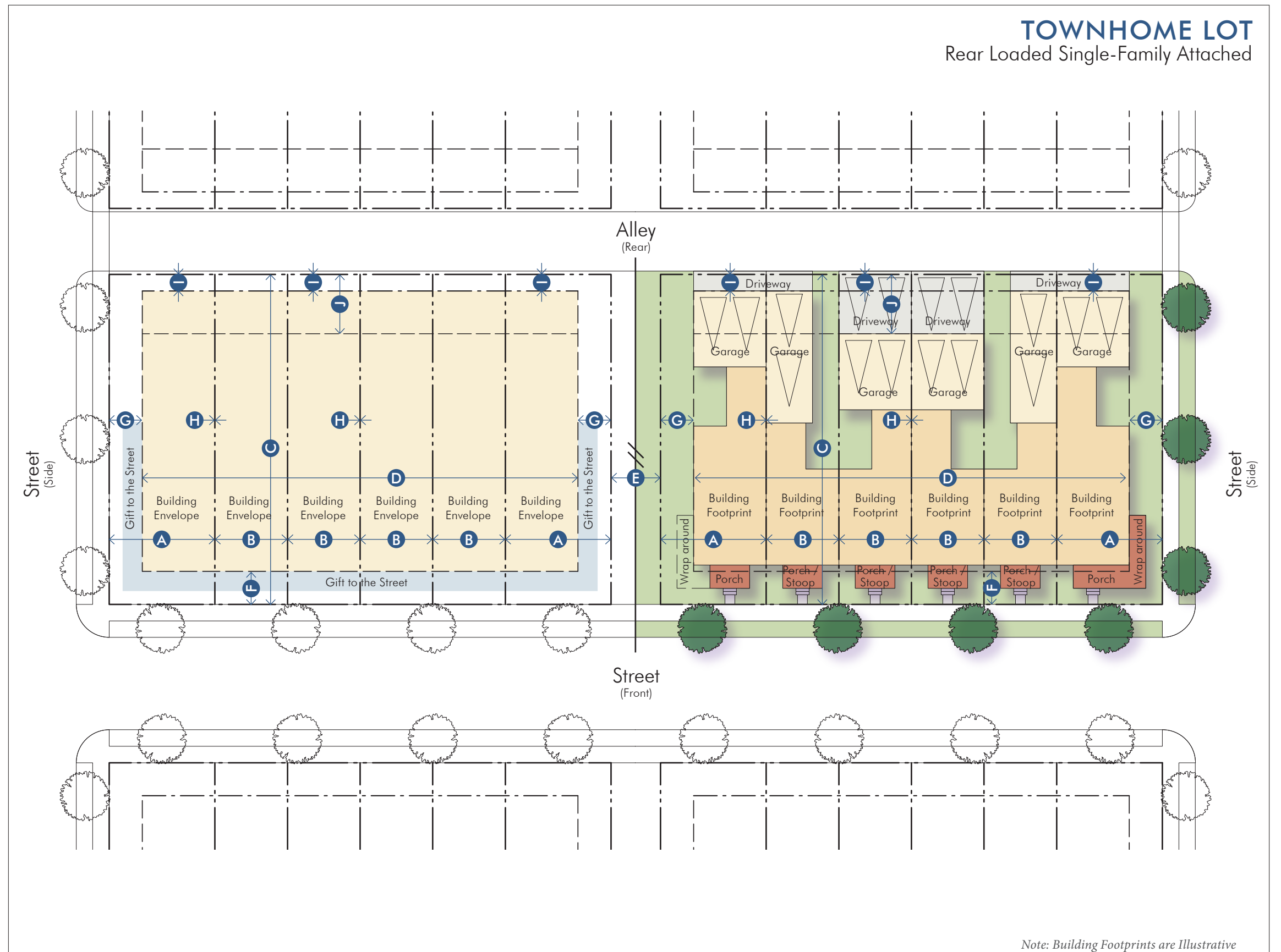
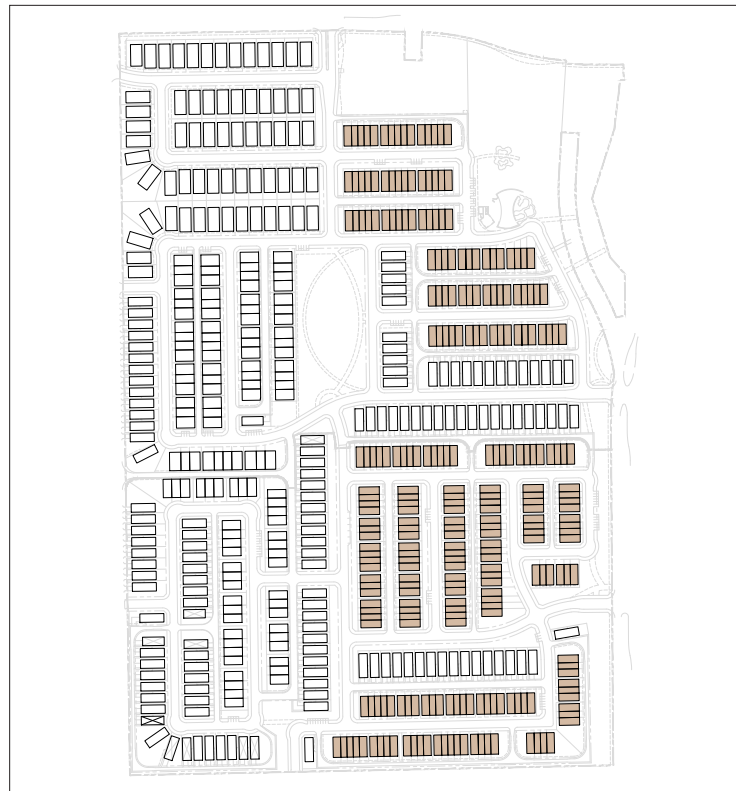
- ☐ Facades of homes on lots adjacent to a street edge defining a common space should be articulated.
- ☐ These homes should provide interesting and appropriate facade articulation, which may include porches, bay windows and other elements which respond to both the street and the common space.
- ☐ The homes and entries should be sited to front towards the common space so they clearly define the space and create the 'feeling' of an attractive 'outdoor room'.

Typical Lot Dimensions

Lot Width	
Corner Lot	32' min. A
Interior Lot	22' min. B
Lot Depth	90' min. C
Number of Attached Units	3 min.; 6 max. D
Passage Width, if provided	10' min. E
Setbacks / Build-to-Lines (BTL)	
Front Yard	10' Setback F
Side Yard	
Along Side Street / Common Space	10' Setback G
Along Interior Lot Line	0' Setback H
Rear Yard	5' BTL ¹ ; or I
	18' Setback J

For corner lots, a Rear Yard 5' BTL is recommended where allowed; if an 18' setback is used, the rear yard should be screened up to 5' from the Alley R.O.W. with appropriate landscaping or fencing.

¹ The 5' BTL is only allowed when a lot is adjacent to an alley with a pavement width of 18' or greater.

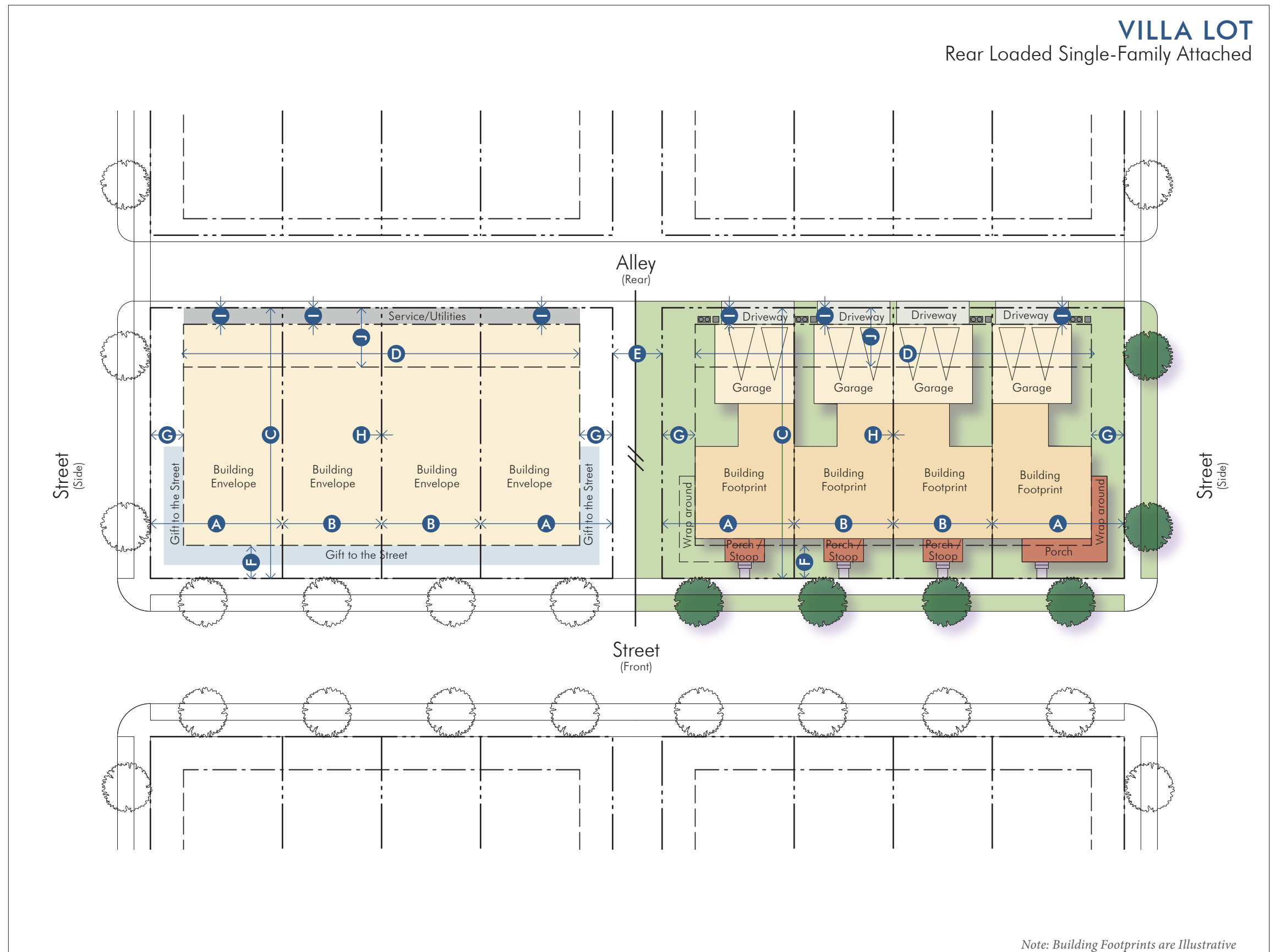
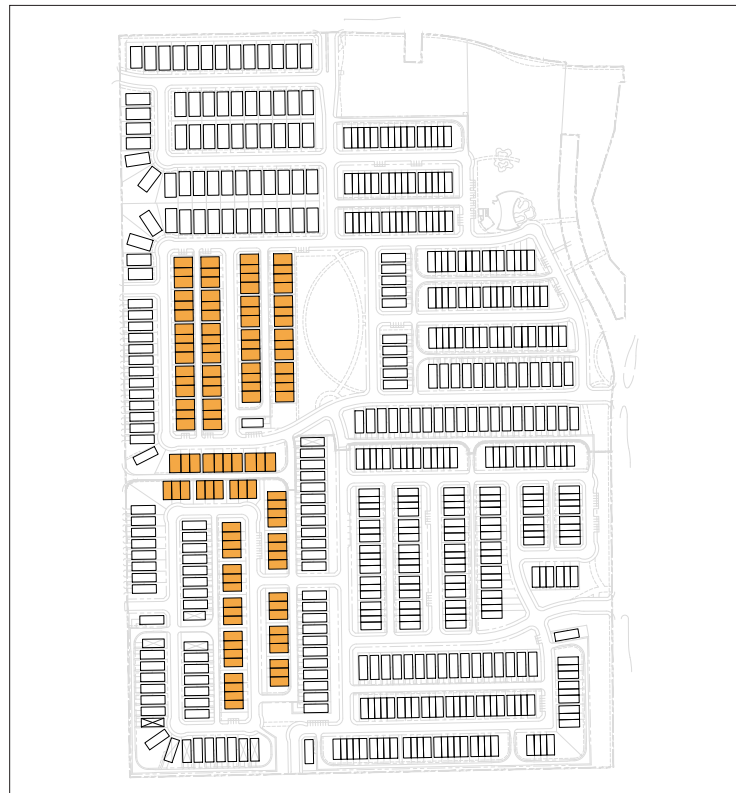


Typical Lot Dimensions

Lot Width		
Corner Lot	40' min.	A
Interior Lot	30' min.	B
Lot Depth		
	75' min.	C
Number of Attached Units	3 min.; 6 max.	D
Public Passage Width, if provided	10' min.	E
Setbacks / Build-to-Lines (BTL)		
Front Yard	10' Setback	F
Side Yard		
Along Side Street / Common Space	10' Setback	G
Along Interior Lot Line	0' Setback	H
Rear Yard	5' BTL ¹ ; or	I
	18' Setback	J

For corner lots, a Rear Yard 5' BTL is recommended where allowed; if an 18' setback is used, the rear yard should be screened up to 5' from the Alley R.O.W. with appropriate landscaping or fencing.

¹ The 5' BTL is only allowed when a lot is adjacent to an alley with a pavement width of 18' or greater.

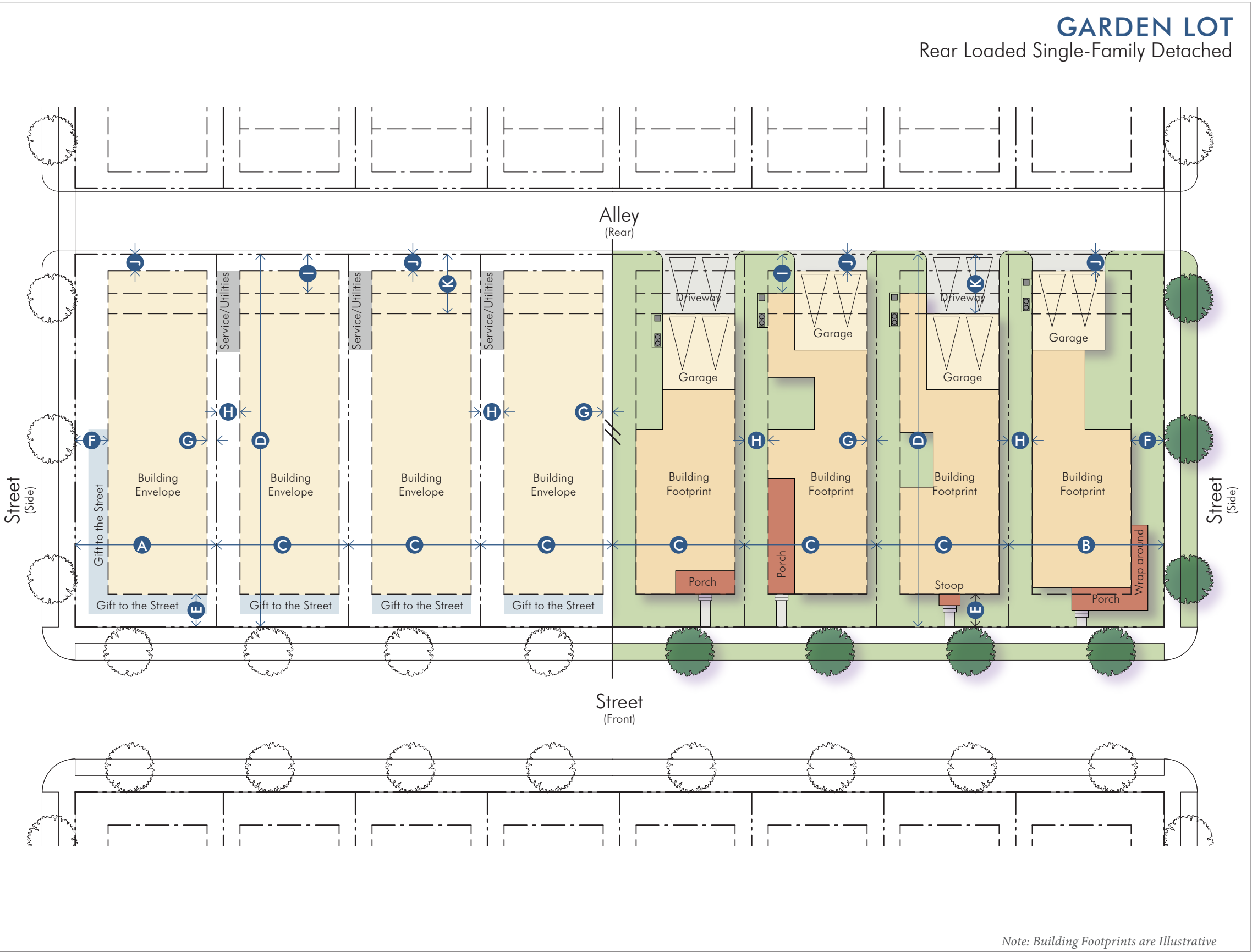
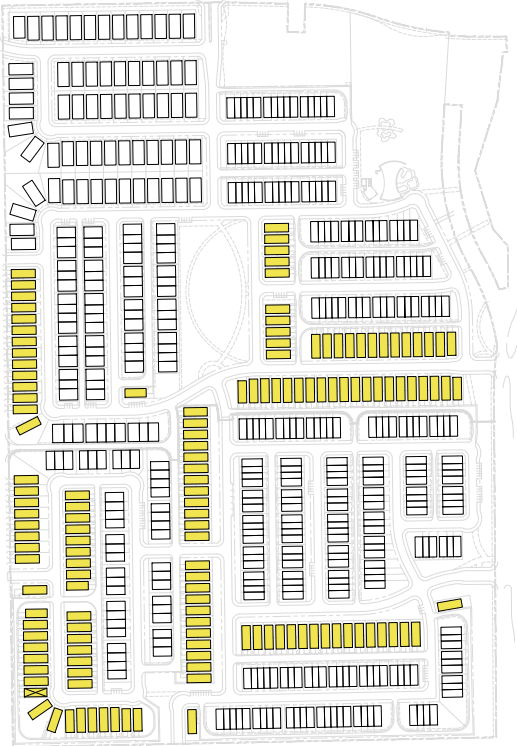


Typical Lot Dimensions		
Lot Width		
Corner Lot, 3' Interior Lot Line Setback ^{1,2}	43' min.	A
Corner Lot, 7' Interior Lot Line Setback ^{1,2}	47' min.	B
Interior Lot	40' min.	C
Lot Depth	113' min.	D
Setbacks / Build-to-Lines (BTL)		
Front Yard	10' Setback	E
Side Yard		
Along Side Street / Common Space	10' Setback	F
Along Interior Lot Line, Patio Side	3' Setback ¹	G
Along Interior Lot Line, Zero Side	7' Setback ¹	H
Rear Yard		
Main House	12' Setback	I
Garage	5' BTL ³ ; or	J
	18' Setback	K
For corner lots, a Rear Yard Garage 5' BTL is recommended where allowed; if an 18' setback is used, the rear yard should be screened up to 5' from the Alley R.O.W. with appropriate landscaping or fencing.		

¹ These dimensions may vary provided that the sum of the interior lot line setbacks on adjacent lots is 10' min.

² On corner lots, the patio elevation should always face the side street and the zero elevation should always face the interior lot line.

³ The 5' BTL is only allowed when a lot is adjacent to an alley with a pavement width of 18' or greater.



Note: Building Footprints are Illustrative

Typical Lot Dimensions

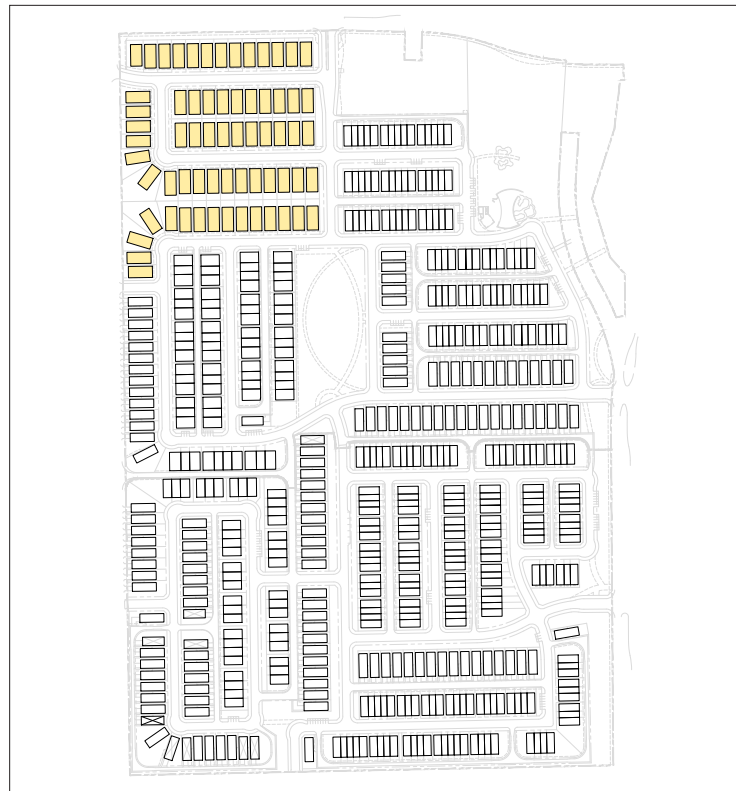
Lot Width	
Corner Lot	55' min. A
Interior Lot	50' min. B
Lot Depth	115' min. C

Setbacks / Build-to-Lines (BTL)

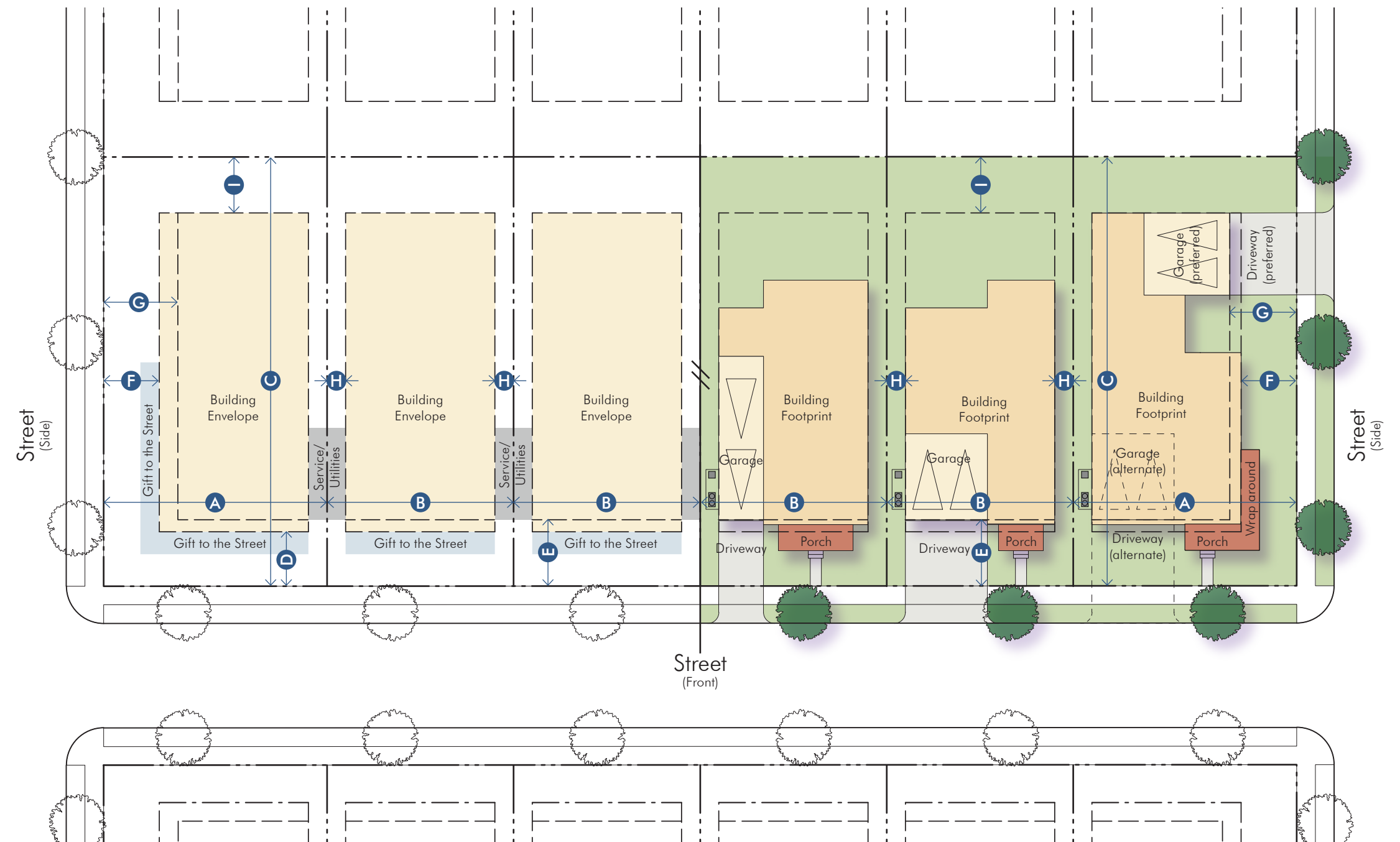
Front Yard	
Main House	15' Setback D
Garage	18' Setback ¹ E
Side Yard	
Main House Along Side Street/ Common Space	10' Setback F
Garage Facing Side Street	18' Setback ¹ G
Along Interior Lot Line	5' Setback H
Rear Yard	15' Setback ² I

¹ The garage doors on all front entry garages should be set back at least three feet behind the front facade of the house, including porches or other architectural projections.

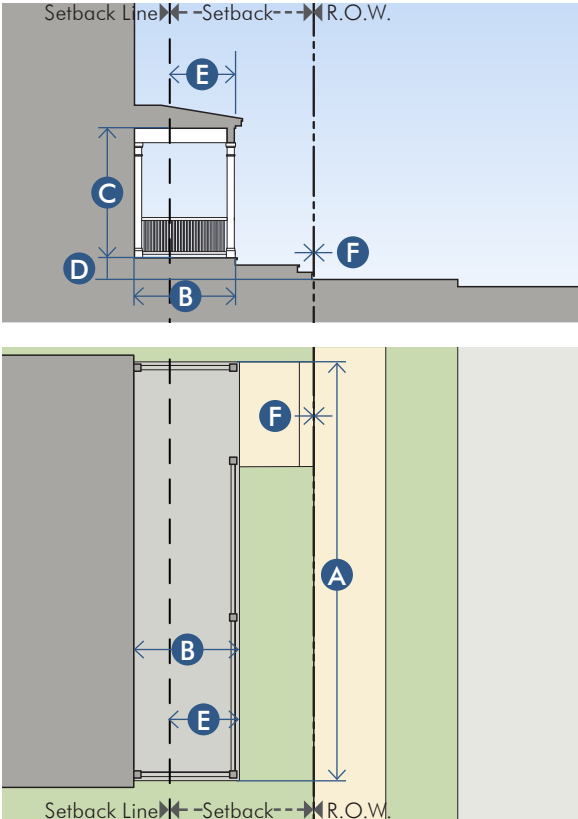
² Porches and architectural features may encroach into the rear yard setback.



MANOR LOT Front Loaded Single-Family Detached

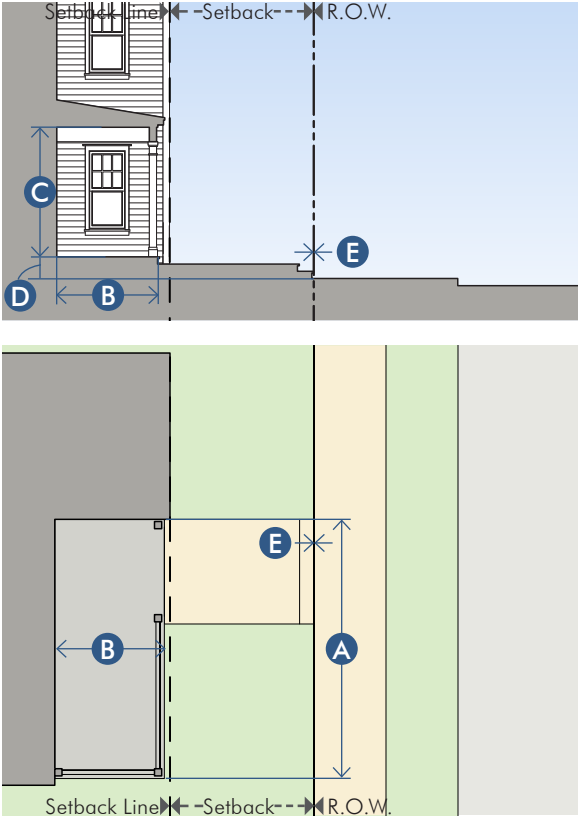


Note: Building Footprints are Illustrative



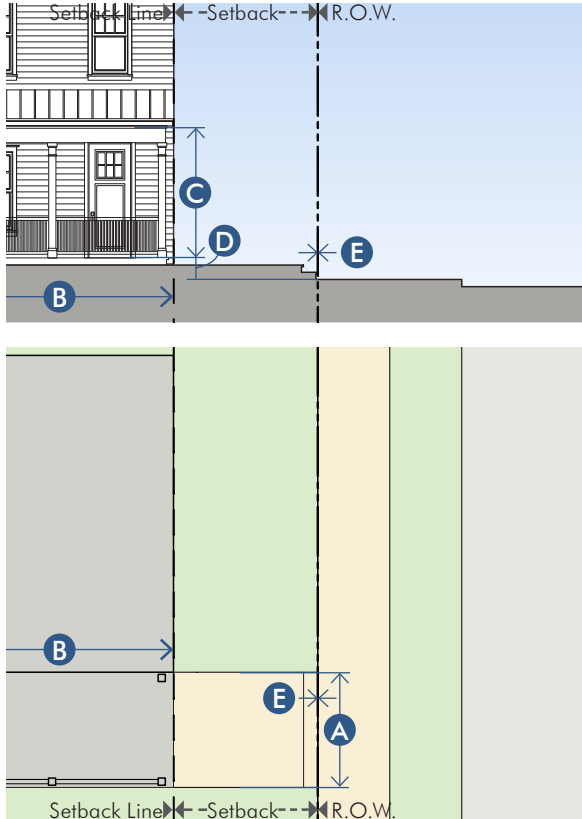
PROJECTING PORCH

Description	
The facade is setback from the R.O.W. with an attached porch that is open on three sides. A projecting porch may encroach in the Setback. All habitable space is located behind the Setback Line.	
Recommended Dimensions	
Width	12' min. A
Depth	
Along Front	7' min. B
Along Side (wrap-around)	5' min.
Height, clear	8' min. C
Finish level above sidewalk	18" min. D
Encroachments	
A projecting porch may encroach up to 5' into the setback.	E
Steps from the porch may encroach up to but not beyond the R.O.W.	F



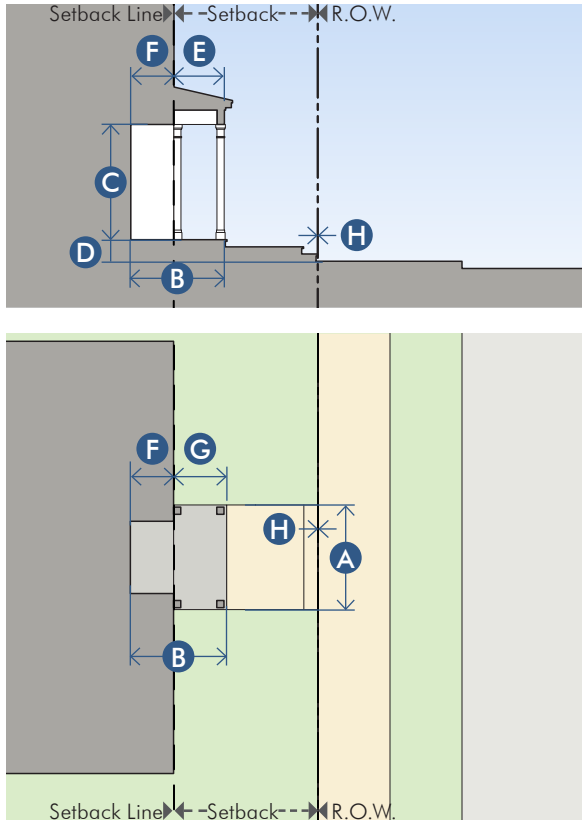
ENGAGED PORCH

Description	
The facade is setback from the R.O.W. with an attached porch that is open on two adjacent sides with the two remaining sides engaged to the building. All habitable space is located behind the Setback Line.	
Recommended Dimensions	
Width	12' min. A
Depth	7' min. B
Height, clear	8' min. C
Finish level above sidewalk	18" min. D
Encroachments	
Steps from the porch may encroach up to but not beyond the R.O.W.	E



SIDE PORCH

Description	
The facade is setback from the R.O.W. with an attached porch along one side of the building that is open on at least two adjacent sides. All habitable space is located behind the Setback Line.	
Recommended Dimensions	
Width	7' min. (A)
Depth	12' min. (B)
Height, clear	8' min. (C)
Finish level above sidewalk	18" min. (D)
Encroachments	
Steps may encroach up to but not beyond the R.O.W.	(E)



STOOP

Description	
The facade is setback from the R.O.W. with a recessed entry and/ or projecting stoop. A projecting stoop may encroach into the Setback. All habitable space is located behind the Setback Line.	
Recommended Dimensions	
Width	4' min.; 12' max. (A)
Landing depth	4' min. (B)
Height, clear	8' min. (C)
Finish level above sidewalk	18" min. (D)
Covered entry projection	5' max. (E)
Depth of recessed entries	6' max. (F)
Height	1 story max.
Encroachments	
Covered entries may encroach up to 5' into the setback.	(G)
Steps may encroach up to but not beyond the R.O.W.	(H)



GARAGE MASSING

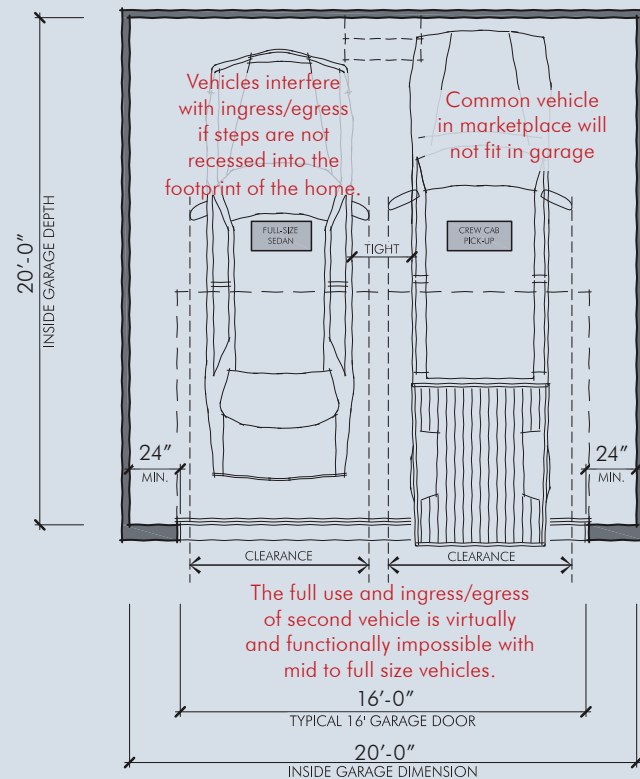
- ☐ The location, massing and scale of a garage should not compete with or overwhelm the primary body or architectural form of the house.
- ☐ Garage forms, design, materials and detailing should be similar in detail and quality to the main body of the house.
- ☐ A garage which is visible from the street or common open space should receive careful design attention and should complement the primary facade, yet be seen as a secondary element.
- ☐ Special attention should be given to the design of alley access garages so that any slope variance from the alley to the finished floor level of the garage is not excessive. Including, in some instances, drop garage floors with steps to the level of interior space.
- ☐ The garage doors on all front entry garages should be set back at least three feet behind the front facade of the house, including porches or other architectural projections.

GARAGE DOOR DESIGN

- ☐ Garage door designs should be selected to complement the architectural style and character of the home and use style appropriate decorative hardware.
- ☐ Appropriately styled and detailed "carriage style" doors are encouraged.
- ☐ Where possible, single width garage doors are encouraged.
- ☐ Garage door wall should be framed with 2x8's to provide the garage door with a recessed appearance.
- ☐ Doors with "snap in false decorative arches, etc." are not appropriate.
- ☐ Window muntins, if used, should be true or simulated divided lites appropriate to the architectural style.

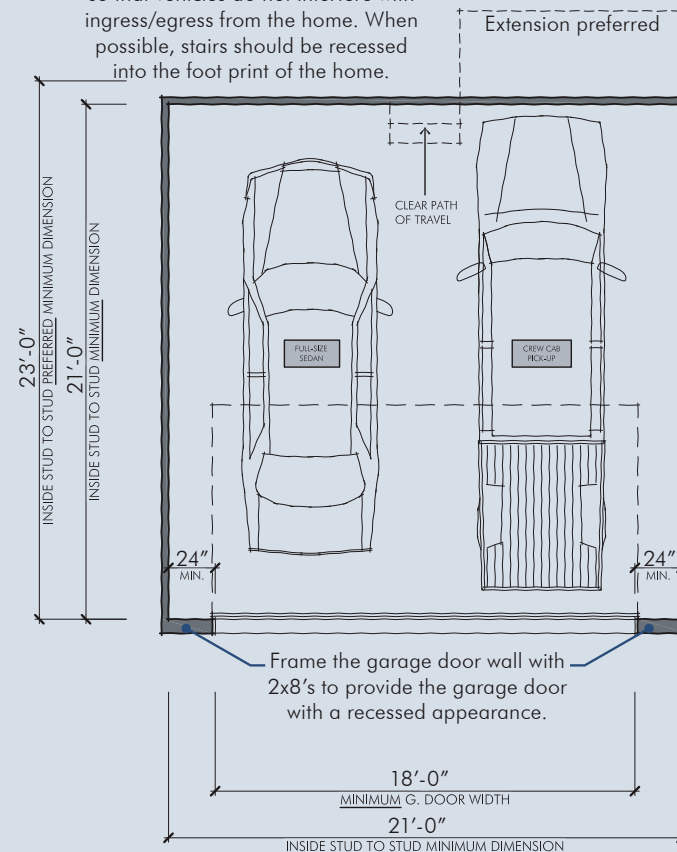
Common Undersized 20' x 20' Garage with Single 16' Wide Garage Door

This type and size of garage / garage door virtually becomes a shallow one-vehicle garage, or is only valid for two small sized/mini vehicles. This inadequate level of design creates issues for valid vehicle parking in the community and reduces values for all.



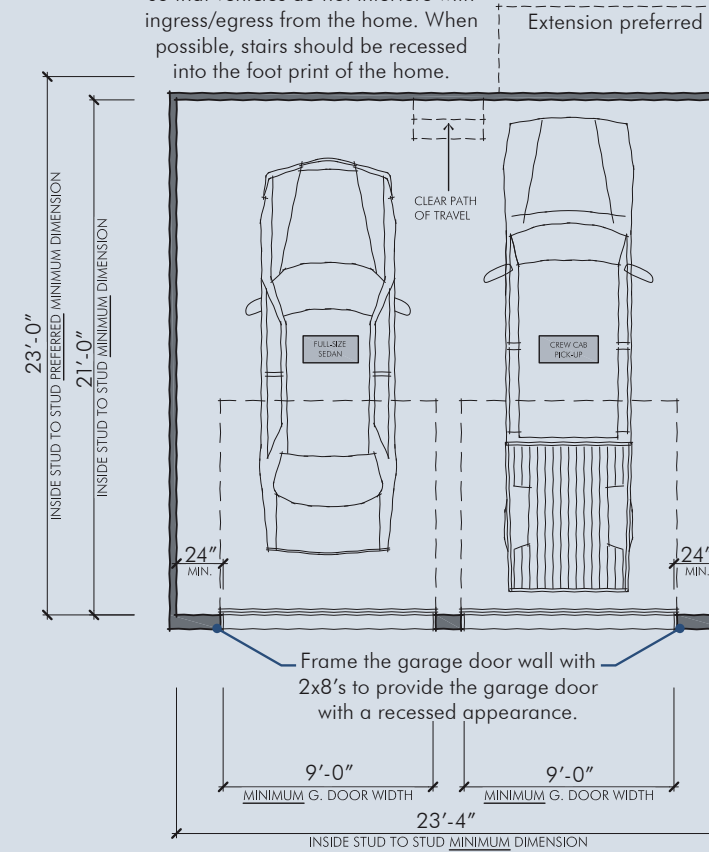
Recommended Minimum One Double Door

If required, stairs should be located so that vehicles do not interfere with ingress/egress from the home. When possible, stairs should be recessed into the foot print of the home.



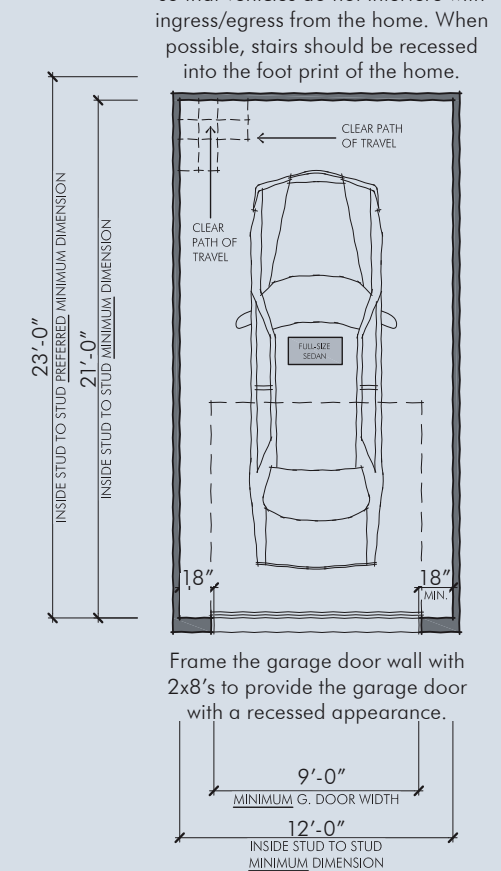
Recommended Minimum Two Single Doors

If required, stairs should be located so that vehicles do not interfere with ingress/egress from the home. When possible, stairs should be recessed into the foot print of the home.



Recommended Minimum Single Car Garage

If required, stairs should be located so that vehicles do not interfere with ingress/egress from the home. When possible, stairs should be recessed into the foot print of the home.



Narrow two car garage effectively becomes a single car garage.



Inability to park two cars in garage results in on-street parking being utilized by residents to store one of their vehicles.

RECOMMENDED MINIMUM DIMENSIONS

Interior Clear Space

Clear Width	21' min.
Clear Depth	21' min.

If required, stairs should be located so that vehicles do not interfere with ingress/egress from the home. When possible, stairs should be recessed into the foot print of the home.

Garage Doors

Height	7' min.; 8' recommended
Width	
Single Door	9' min.; 10' recommended
Double Door	18' min.

Where a 3-vehicle garage is necessary, separate single bay garage doors are preferred, but 1 double door and 1 single door is recommended. If front loaded, one door should be perpendicular from the others.

ARCHITECTURAL GUIDELINES

ARCHITECTURAL CHARACTER
MATERIALS & COLORS
ARCHITECTURAL DETAILS

ARCHITECTURAL CHARACTER



YES

A Craftsman cottage style home with simple yet appropriate details, entrance, and windows along with a usable porch.



YES

A simple, yet classic Colonial Revival home with correct proportions, properly detailed shutters and an ornamental entry.



YES

A classic two-story Texana Farmhouse, with raised foundation and well detailed engaged porch with metal roof, presents a timeless character.



YES

The variety of architectural styles creates a unique overall compelling streetscape character.



YES

This modern home draws inspiration from regional farmhouses. Its form complements the surrounding more traditional style homes.



YES

This modern bungalow is perfectly balanced and "feels right." The scale, materials, proportion and details work together and complement each other.



NO

The complex roof elements, the steep pitched roof at cornice returns, the over scaled bay roof, the ill-proportioned dormer and the front entry details are all inappropriate both individually and collectively.



NO

The garage door should never be the predominant element. The awkward feeling balcony with its hip/gable above and the house floor level flat on the ground are inappropriate.



NO

This example appears more like two homes joined at the hip by an over scaled entry element. Lacks a sense of order, is overly complex in form and is inappropriate.

VARIETY

- A variety of individual architectural designs with their respective appropriate details, materials and colors are encouraged to create a unique overall compelling streetscape character at the community scale.

SCALE, MASSING & FORM

- House designs should generally be composed of a primary massing with secondary massings or wings that maintain a similar character.
- The primary massing should generally be the central dominant mass of the structure with the highest roof line.
- Overly complex or contrived forms, offsets, projections and the resulting multiple roof lines/forms should not be used.
- The scale and proportion of the overall house, entries, and fenestration should be appropriate to the architectural style.
- The roof pitch, roof form and architectural embellishments such as cross-gables, dormers, belvederes, chimneys, cupolas and other similar elements should be appropriate to the architectural style of the house.

EXTERIOR MATERIALS & COLORS



GENERAL GUIDELINES

- Architectural details and exterior finish materials should be appropriate to the style.
- All elevations of the main body of the house should maintain a consistent palette of materials, finishes, and colors.
- Details and ornamentation should be appropriately scaled to create a human-scaled architectural character.
- With the exception of corner treatments and columns, changes in materials should occur at inside corners or at horizontal transition lines that relate to window sills or wall plates.
- When multiple materials are used, heavier materials should always be placed below the lighter.
- All trim boards such as corners, bases, drips, frieze, soffits, fascias, cornices and similar architectural trim elements should be sized and detailed appropriate to the architectural style.

BUILDING FACADES

- The use of high-quality exterior finish materials, such as brick or painted brick, stone, hard coat stucco, wood siding, wood shingles, man-made stone, and cementitious or composite siding and trim is encouraged. Other materials may be allowed by the ARC.
- Painted or factory finished metal should be used with great care, preferably only in dark colors with a matte finish. Large areas of exposed concrete are discouraged.
- All visible flashing should be copper, painted galvanized, or painted aluminum. Visible flashing should be kept to the minimum height required by good practice and counter flashed by the wall material where feasible.
- Brick should be standard size and have a limited range within any color blend. The use of “queen” and other non-modular brick sizes is strongly discouraged.
- Overly elaborate brick work and patterns should be avoided. Brick quoins, ornamental herringbone designs, clinker brick, and excessive brick offsets are examples of inappropriate brick work.
- Lap siding should have an exposure appropriate for the architectural style and character.
- Cementitious siding material is encouraged for long term maintenance benefits.
- Vinyl or aluminum siding, E.I.F.S. or “softcoat stucco” should not be used.
- Roll out patio covers should not be used on facades visible from streets or common open spaces.

ROOFS & EAVES

- Residential roofs should be clad as appropriate to the architectural style in composite shingles, standing seam metal, terne, slate, clay tiles, or dimensional asphalt shingles. Synthetic materials similar or superior in appearance and durability may be allowed by the ARC.
- Low-pitched porch and bay roofs are preferred to be standing seam, pre-finished metal or copper.

COLORS & TONES

- Building colors should be appropriate to the style.
- A complete product line exterior color palette must be prepared and submitted to the ARC for approval.
- Bright and primary colors are typically not approved by the ARC and should be avoided.
- Roofs should be dark earth tone in color, red or green.
- When appropriate to the design, the brick may be painted.
- MEP stacks, vents, and other wall/roof penetrations should have a matte baked on finish and the color should match the abutting wall/roof material.

INAPPROPRIATE ENTRIES & DOORS NO

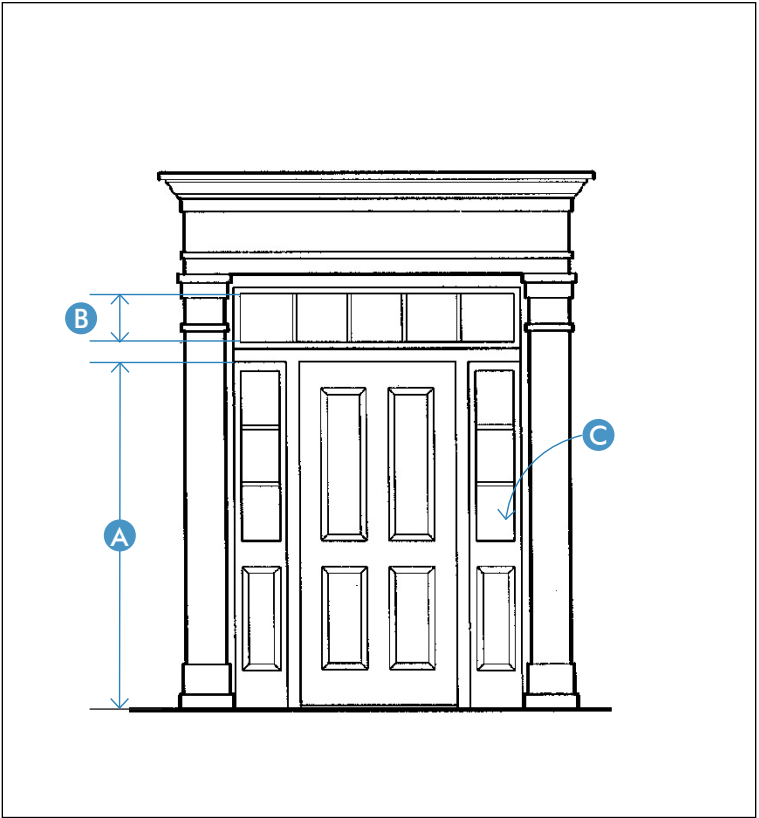


Over scaled transom is too tall in proportion to the primary entrance door.



The board and batten front door is out of character with the Texana Farmhouse style elevation.

APPROPRIATE ENTRIES & DOORS YES



ENTRIES & DOORS

Type, Style, & Size

- The primary entrance (front door) to a home should embody the character, scale, proportion and detail of the overall house and its appropriate architectural style.
- The entry should be easily identifiable from the street.
- When a porch is not provided, the entry should provide at least minimal protection from the elements.
- Over scaled, out of proportion, over bearing or deeply recessed ("dark") entries should not be used.
- Storm or security doors must be appropriate to the architectural style and approved by the ARC.
- Door types, styles, and sizes should be compatible with the building's overall design, style, and character.
- Taller doors (8'-0" in height) are generally encouraged. **A**

Materials

- Doors should be wood or have a wood-like appearance.
- Tinted or reflective glass should not be used.

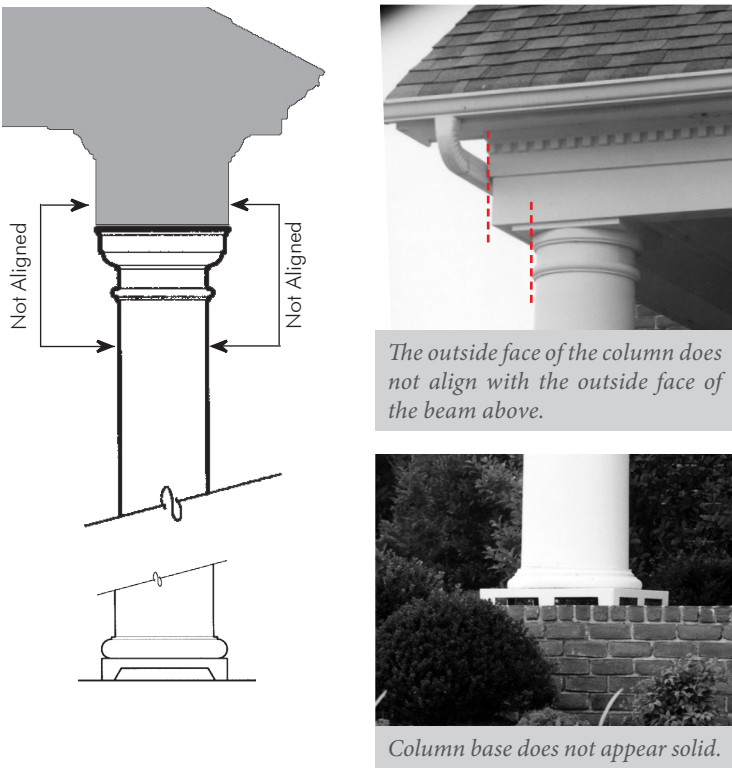
Header, Jamb, & Sill

- Door casings, trim, and mouldings should be appropriately designed and selected to be compatible with the building's overall design, style, and character.
- Openings for doors in brick or stone clad walls should use a brick mould at the head and jamb.
- Door surround trim on siding clad walls should project a minimum of 1/4" from the face of the adjacent siding.

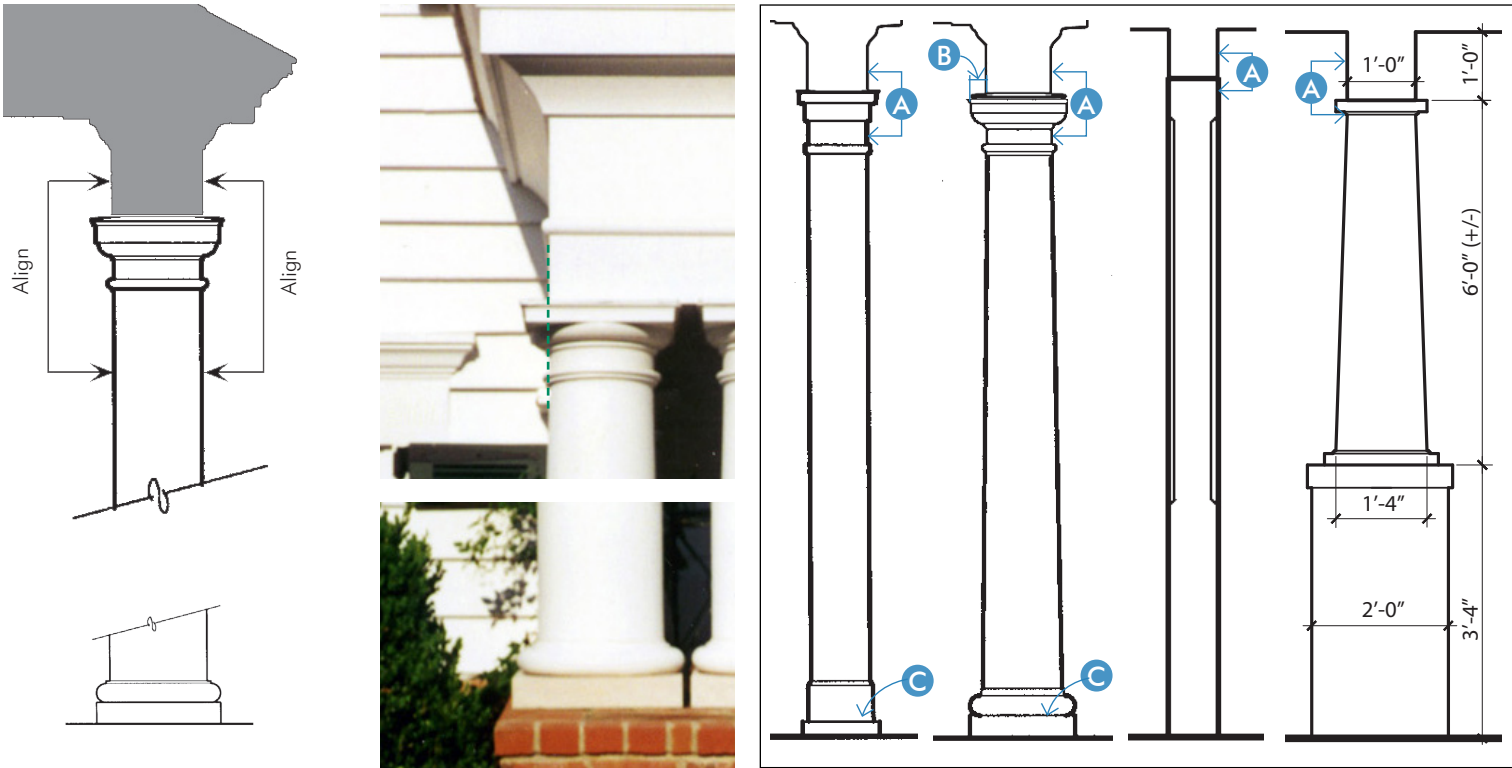
Transoms & Sidelights

- If doors shorter than 8'-0" are used, a transom should be used.
- Transoms should have a 12" min. glass height. **B**
- Transoms, sidelights, and doors should read as a unit with continuous casing trim.
- Mullions between doors, transoms, and sidelights should use trim painted to match the brick mould or trim surround.
- Masonry should not be used on mullion between doors, transoms, and sidelights.
- Over scaled or separate unit transoms should not be used.
- Sidelights should have a design similar to the entrance door. **C**

INAPPROPRIATE COLUMNS NO



APPROPRIATE COLUMNS YES



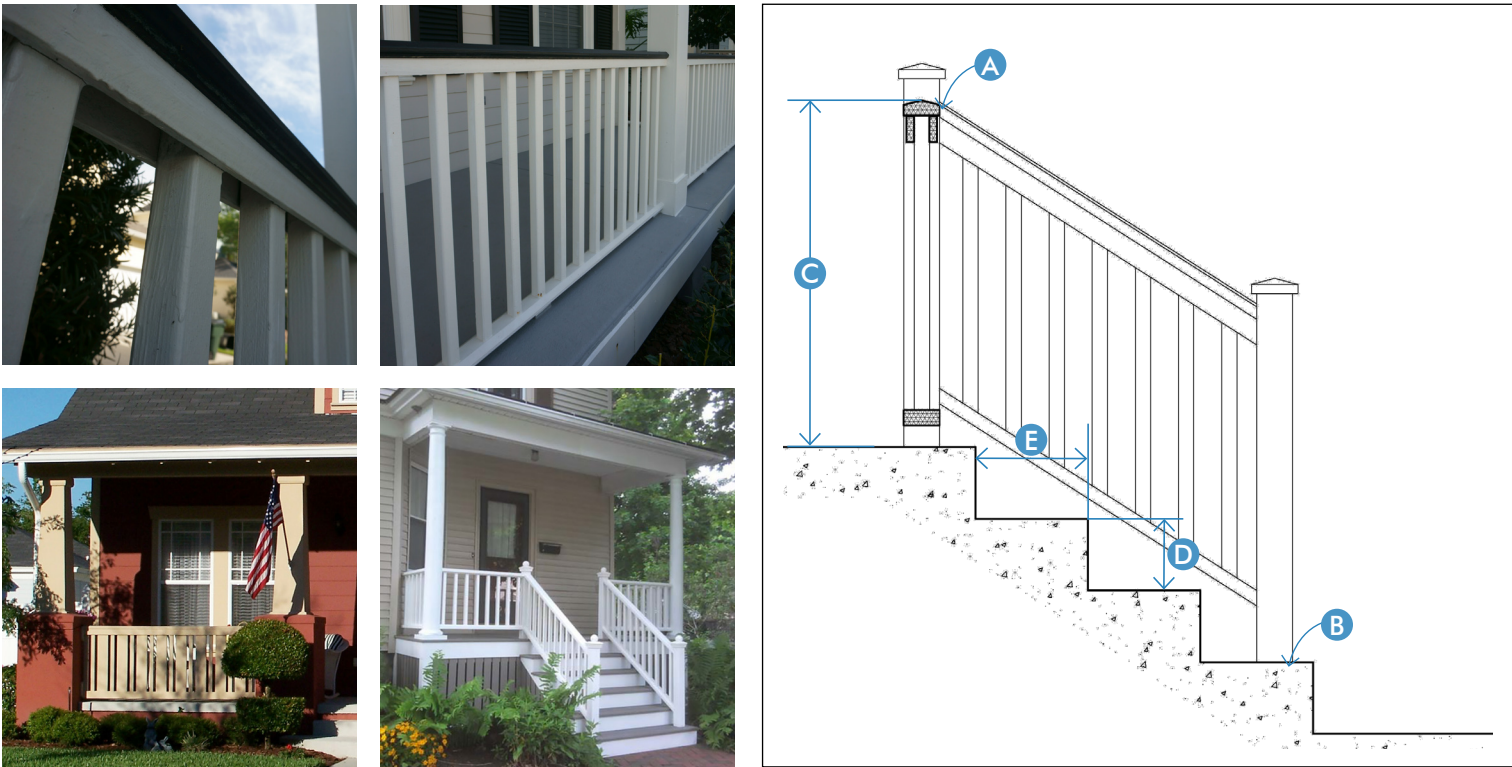
COLUMNS

- Whether job-built or manufactured, columns should adhere to 'classic' time-tested scale and proportions appropriate for the style of the building.
- Columns should be of wood, masonry, or a composite material and properly flashed.
- The face of the column shaft should align with the face of the frieze board or beam above. **A**
- The column cap should project beyond the face of the frieze board or beam. **B**
- The column base is typically larger than the cap and should be, or 'appear' as, solid stone, brick, or wood. **C**
- Visible aluminum vent blocks are inappropriate and should not be used.
- The foundation or porch edge should be extended beyond the edge of the frieze or beam above to allow proper column alignment.

INAPPROPRIATE RAILINGS NO



APPROPRIATE RAILINGS YES



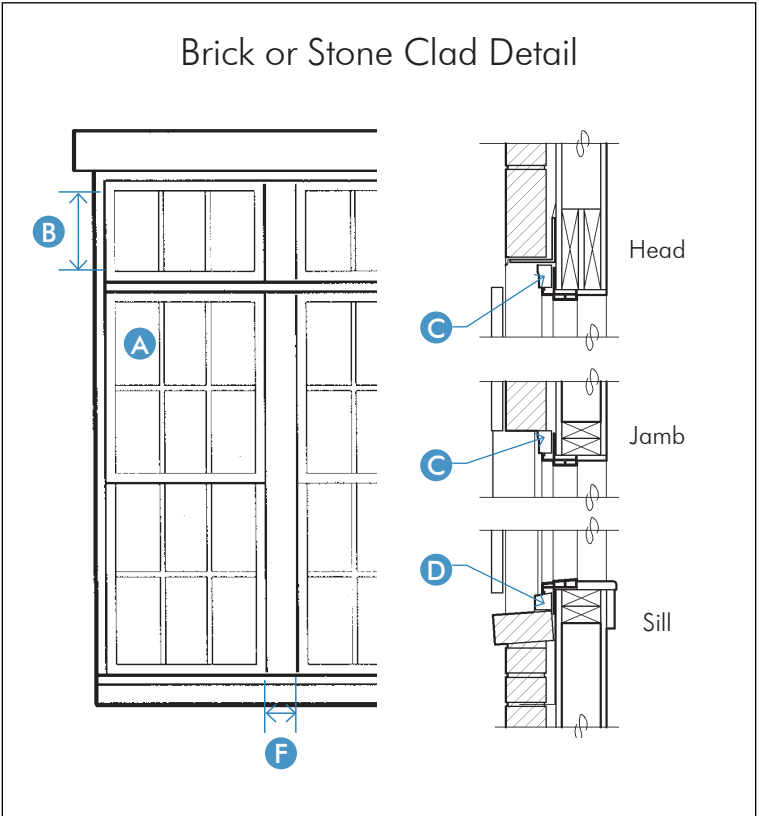
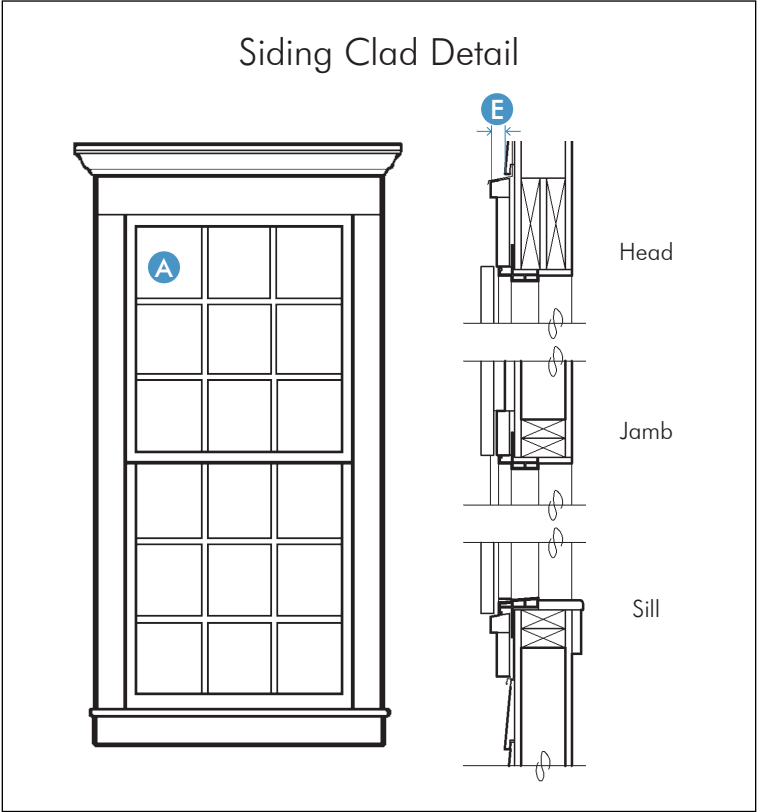
EXTERIOR RAILINGS & STAIRS

- Railings and railing materials should be appropriate to the style of the house and porch.
- All stair railings should be terminated on a vertical post or column. **A**
- Newel posts should sit on the bottom stair tread. **B**
- Railings should return to the adjacent column or wall.
- Porch railings, stair railings, and rail returns should all use matching colors and materials.
- Railings should be between 34" and 38" above the stair nosing or porch floor surface. **C**
- Riser dimensions should be 4" min. and 7" max. **D**
- Tread dimensions should be 11" min. and 17" max. **E**
- Steps should be at least 4' in width. If the space between porch columns is less than 6', the porch steps should be the full width of the bay.

INAPPROPRIATE WINDOWS NO



APPROPRIATE WINDOWS YES



WINDOWS

Type, Style, & Size

- Window types, styles, and sizes should be appropriately designed and selected to be compatible with the building's overall design, style, and character.
- Window types, styles, and sizes should generally be consistent along street and common space frontages.
- Windows that operate as sliders should not be used along street or common space frontages.
- Tab mounted windows flush or nearly flush to the exterior face of the wall should not be used.
- Window proportions should be appropriate to the architectural style.
- Window muntins, if used, should be true or simulated divided lites appropriate to the architectural style.
- Window panes should be square or vertically proportioned, unless otherwise appropriate to the style. **A**
- The minimum glass height of a transom should be 12". If above a divided lite window, the transom height should be similar to the height of a lite below. **B**
- Head heights should be in proper proportion to the scale and mass of the house.
- First floor windows should have an 8'-0" (min.) head height and should align with the front door head height or front door transom head height if a door less than 8'-0" is used.

Materials

- Tinted or reflective glass should not be used.

Header, Jamb, & Sill

- Window casings, trim, and mouldings should be appropriately designed and selected to be compatible with the building's overall design, style, and character.
- Openings for windows in brick or stone clad walls should use a brick mould at the head and jamb, but not the sill. **C**
- Openings for windows in brick or stone clad walls should use a projecting sill nose placed between the brick mould jambs and the sill. **D**
- Window surround trim on siding clad walls should project a minimum of 1/4" from the face of the adjacent siding. **E**

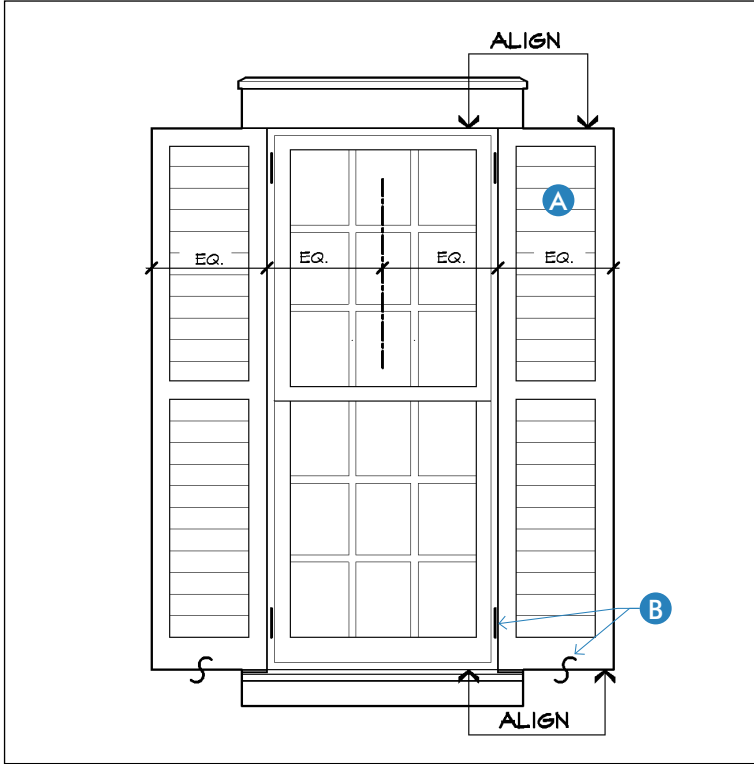
Ganged Windows

- Multiple windows should have a minimum of 4" mullion between the windows. The casing should extend the full width. **F**

 INAPPROPRIATE SHUTTERS **NO**



 APPROPRIATE SHUTTERS **YES**



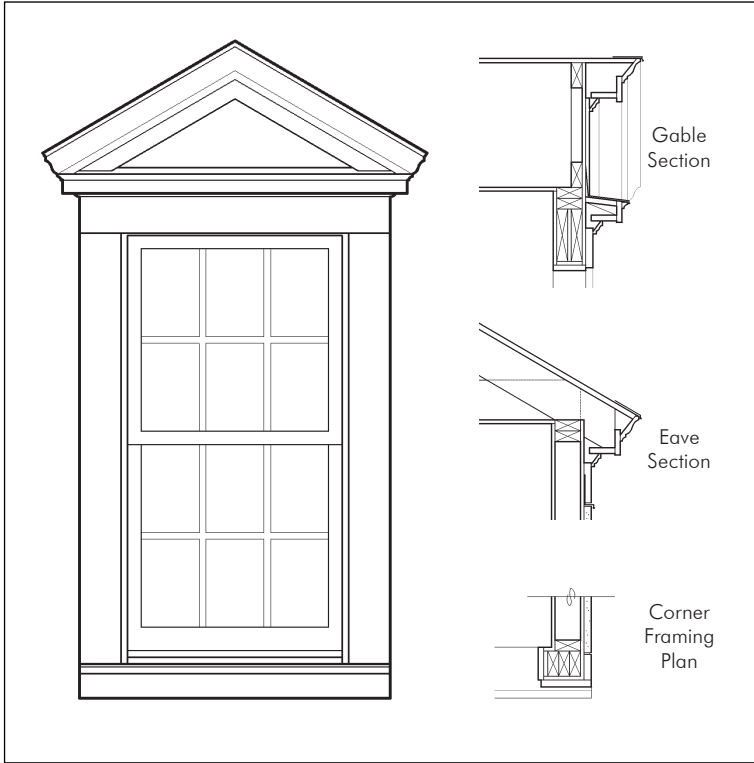
SHUTTERS

- When shutters are used they should be appropriate to the architectural design and style of the building.
- Shutters should be sized to match the actual window sizes. "False" decorative shutters mounted directly to the wall and shutters that do not approximate the height and half the width of the window opening should not be used. **A**
- Shutters are recommended to be mounted on hinges and with hold backs (shutter dogs) located at bottom rail. **B**
- Shutters for double or grouped windows should not be used unless they are sized to match the total width of the opening.

 INAPPROPRIATE DORMERS **NO**



 APPROPRIATE DORMERS **YES**



DORMERS

- Dormers should generally be composed as a secondary architectural element used in a functional or nonfunctional fashion to complement the primary form of the main structure.
- The mass and composition should be composed in an understandable and straightforward manner and should maintain the character of the design.
- Typically, dormer roofs should be hipped, gabled, shed or arched depending on the characteristics of the main structure.
- In general, dormers should be vertically scaled and proportioned and should tightly frame the window.
- Dormer window size and type should be appropriate to the architectural style.
- Dormer overhangs and rakes should be tight to the main body of the dormer.

INAPPROPRIATE BALCONIES NO



Balcony has no base making it unusable and inappropriate.



Balcony railings in front of windows are inappropriate.

APPROPRIATE BALCONIES YES



BALCONIES

- Balconies, when used should be appropriate to the overall design and style of the building.
- Covered balconies should have a clear height of 7' min.
- Balcony depth should be a minimum of 12" from the facade.
- Balconies should be accessible and should not be located in front of windows where they cannot be accessed.
- Balcony depths should generally be consistent across a building facade.
- Balconies should have visible brackets or supports consistent with the architectural design and style of the building.
- Balcony railings should be appropriate to the overall design and style of the building.

INAPPROPRIATE CORNICES NO

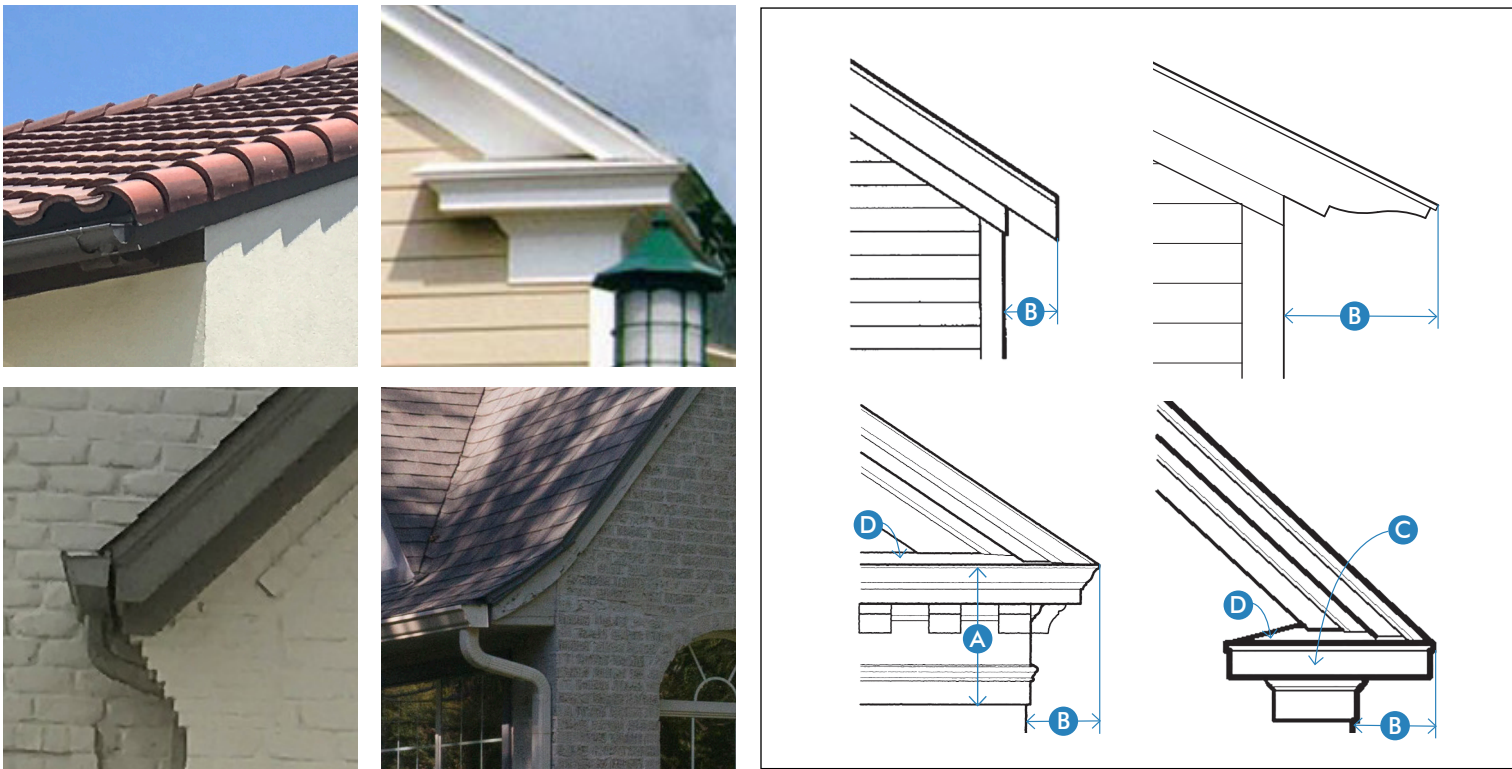


Roof pitch of cornice returns is too steep.



Deep overhangs should not terminate with an oversized "box" cornice detail or large cornice return.

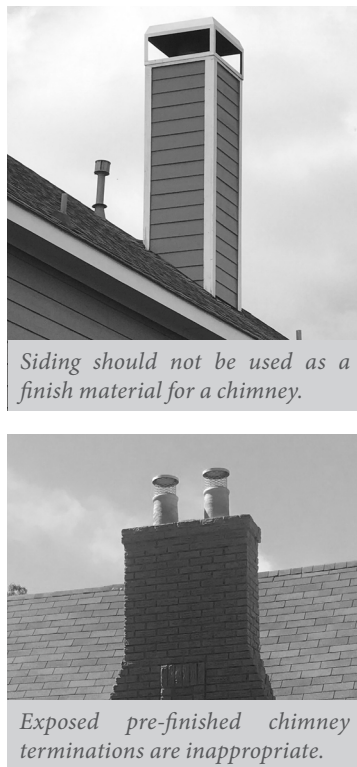
APPROPRIATE CORNICES YES



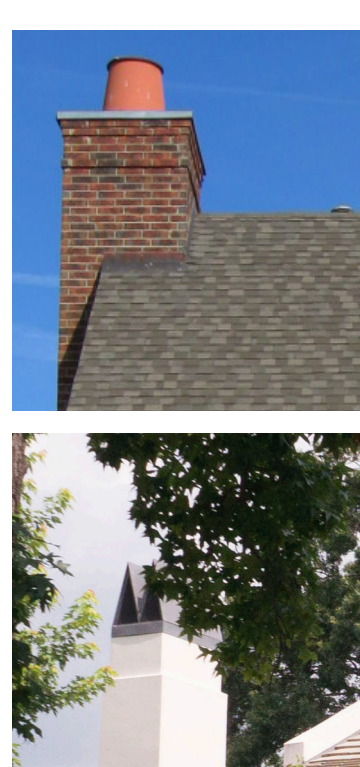
CORNICES, RAKES, & EAVES

- Cornices, rakes, and eaves should be appropriate to the architectural design and style of the building.
- A cornice should be proportioned to define the top of the building wall, but not overpower the facade elements beneath. **A**
- Cornices and eaves should project out horizontally from the vertical wall plane to create depth and shadow on the facade. **B**
- Where appropriate to the style, gable ends should have cornice returns. **C**
- Roofing or flashing material above cornices or cornice returns should not be visible at ground level. **D**
- Traditionally scaled and detailed cornices should follow time-tested scale and proportions. (NOTE: On many historically based traditional designs, the rake detail should incorporate a crown or bed mould trim at the roof edge in lieu of typical 1x2 board.)

INAPPROPRIATE CHIMNEYS NO



APPROPRIATE CHIMNEYS YES



CHIMNEYS

- Chimneys and fireplace flue enclosures, if expressed on exterior with a foundation, should be constructed to “appear” as “real” masonry chimneys. The width and depth should be defined and the height should meet or exceed the minimum per code if it were a masonry fireplace/chimney.
- Prefabricated spark arrestors should be screened with an approved appropriate decorative chimney cap.
- A direct vent exhaust should not be placed along the primary facade.
- Metal chimney pots should be used to cover the typical pre-fabricated flue terminations.
- Appropriate chimney finishes are: brick, stone, hard coat stucco, metal panel, cementitious panel, or, if extending solely from a roof, stucco board with maximum 1x2 corner trim and appropriately detailed termination.
- Siding should not be used as an exterior finish on a chimney.
- If stucco board is used, the stucco board and corner boards should be painted the same color.
- Direct vent exhausts should be painted to “blend in” and reduce their visibility on the exterior facades.

EXTERIOR LIGHTING

INAPPROPRIATE LIGHTING NO



APPROPRIATE LIGHTING YES



Character & Placement

- Any exposed fixture should be appropriate in style, material and scale for the home.
- Front or side entrance light fixtures may be ceiling-mounted, ceiling-recessed, or wall-mounted fixtures.
- Fixtures located to the side of front loaded garages and garage doors should be a wall-mounted down-light type.
- Soffit/cornice down lighting should not be used.
- Floodlights should not be used on any elevation facing the street or common space.
- Wall-mounted fixture light sources should generally be below 8'-0".
- If a ceiling fixture is not provided on a porch, the porch should be pre-wired for a ceiling fan.

Illumination & Light Levels

- Light fixtures should be designed to direct light onto the area intended to be illuminated.
- Glare shields and cutoff devices should be used to minimize throw onto adjacent properties or any public way.
- Light sources should be shielded or arranged to minimize unnecessary glare for pedestrians and cars.
- Exterior lights should be on automatic photocells or timers.
- Fixtures with visible lamps should be a maximum of 75 watt, warm white (or similar) resulting in a “warm inviting” appearance.
- Cool white and daylight color bulbs should not be used.

ARCHITECTURAL STYLES

TEXANA FARMHOUSE

AMERICAN COLONIAL

SPANISH REVIVAL

HILL COUNTRY

CRAFTSMAN

EUROPEAN ROMANTIC

MODERN

INTRODUCTION

INTENT OF STYLE GUIDELINES

These Design Guidelines are intended to create a complete integrated community of streetscapes and buildings that are based upon time-tested, regional design principles. While each building should stand on its own design merit, it is intended that each individual building should also contribute to the desired overall community character. These Design Guidelines are not intended to reproduce historical buildings, but rather result in streetscapes featuring a variety of distinct but harmonious architectural styles using timeless design principles, modern materials and current building practices.

These guidelines and the information contained herein are intended as a general and sometimes specific guide to owners, architects, and builders as to the general style, character, and level of quality required for homes and improvements within the neighborhood of Riverset. The precedent photos included in these guidelines are intended to exemplify the typical characteristics and detailing of the architectural styles that are to be adapted to the building types, lot sizes, and price points of homes in Riverset.

The guidelines are not intended to be subjective value judgments of the images and elements indicated, but instead are provided to illustrate the intended design character of the neighborhood. While the images and elements contained herein are not fully comprehensive in scope, they will be used by the Architectural Review Committee (ARC) as a standard for reviewing new homes or improvements. The ARC will have the exclusive authority to define any term or interpret the applicability of any item or component in part or whole contained in these Design Guidelines.



TEXANA FARMHOUSE

The *Texana Farmhouse* style is derived from eastern Texas and Louisiana vernacular house designs and is similar to the very simple Folk Victorian style of rural America.

Facade Composition

Symmetrical and balanced asymmetrical compositions with simple lines and little ornamentation.

Materials and color

Exterior cladding is typically smooth finished wood or cementitious 6" exposure lap siding or board and batten siding.

Brick or stone is occasionally used as exterior cladding, but is more commonly found as part of a water table detail.

Colors are typically light colors with white trim, whites with white trim and dark accents, or varied earth tones, brick, or stone with light trim.

Roof colors are typically red, brown, green, gray, or charcoal.

Porches

Porches are a prominent feature of this style and are typically a simple 1-story porch with small square, chamfered, or turned columns.

Roofs

Roofs are moderately to steeply-pitched ($\geq 8:12$)

Roof forms are typically gabled, with the main roof form typically being side gabled.

Cornices, Eaves, & Rakes

Simple eaves with eave returns on the gable end.

Brackets and rafter tails are occasionally found as ornamentation on this style.

Doors & Windows

Windows are vertically proportioned equal sash single- or double-hung windows with 2 over 2, 1 over 1, 4 over 4, or 6 over 6 pane configurations.

Doors are typically either solid with 3 or 4 raised panels; or 1/2 to 3/4 glass with panes of similar size and proportion to the windows.

Shutters

Not typical, but if used are raised panel, louvered, or board and batten

Dormers

Shed or gable



A Prominent front porch; B Bracket detail on rake; C Exposed rafter tails; D Eave returns; E Gable pediment detail; F Shed dormer; G Stone accent on chimney; H Gable vents or windows

AMERICAN COLONIAL

The American Colonial Style is the American adaptation of the Georgian style brought over to the colonies by masons and carpenters in the 1700's. The American Colonial style simplified the ornate classical details and introduced the use of clapboard siding in the addition to the more traditional brick cladding.

Facade Composition

Simple rectangular forms with a regular, repetitious composition of windows and doors, often symmetrical.

Ornamentation is typically limited to the entry, stoop, or porch details.

Materials and Color

Exterior cladding is typically smooth finished wood or cementitious 6" exposure lap siding or brick.

Colors are typically whites with white accents, light colors with white trim, or dark red brick with white trim, dark contrasting shutters.

Roof colors are typically green, gray, charcoal, or black.

Porches and Stoops

Covered entry stoop or a simple 1-story porch with small square, chamfered, or turned columns.

Roofs

Roofs are moderately pitched (6:12 to 8:12)

The main roof form is typically side-gabled, but occasionally hipped or with a cross gable

Cornices, Eaves, & Rakes

Shallow eaves with a simplified classical cornice

Doors and Windows

Windows are vertically proportioned equal sash single- or double-hung windows with 6 over 6 or 9 over 9 pane configurations.

Doors are typically either solid with 4 or 6 raised panels; or 1/2 to 3/4 glass with panes of similar size and proportion to the windows.

Elaborate door surrounds and door assemblies with transoms and sidelights are common in this style.

Gable attic windows on front facing gables are common in this style.

Shutters

Shutters are very common, except on accent windows and are typically raised panel or louvered

Dormers

Typically gabled, occasionally hipped



A Regular, repetitious composition of windows; **B** Side gable roof; **C** Ornamentation at entry stoop or porch; **D** Shallow eaves and rake with a simplified classical cornice; **E** Louvered or raised panel shutters; **F** Gabled Dormer

The Spanish Revival Style evolved out of the traditional architecture of the areas of the United States originally settled by the Spanish.

Facade Composition

Simple, typically asymmetrical forms with openings that appear to be pierced in thick masonry or monolithic exterior walls.

Typical ornamentation includes formed stucco work, stone or tile wall accents or door and window surrounds, and barrel tile gable vents.

Materials and color

Exterior cladding is typically stucco, painted brick, or light colored clay brick.

Typical colors are white, off-white, light yellow, and pale earth tones.

Regionally, this style is commonly expressed in primarily brick in yellow clay colors with or without stucco elements.

Roofs are typically clay barrel or flat tiles, or red or terra cotta colored shingles.

Porches and Stoops

Stoops and porches are often recessed in to the body of the house with thick arches and piers.

Second floor cantilevered balconies and juliette balconettes are also common in this style.

Roofs

Roofs are shallow pitched (4:12 to 6:12).

Gabled and hip roof forms are appropriate to this style and are often used in combination with each other.

Cornices, Eaves, & Rakes

Eaves are either shallow with stucco forms that project to meet the overhang, or use exposed rafter tails.

Rakes are typically tight to the face and expressed with roof tiles.

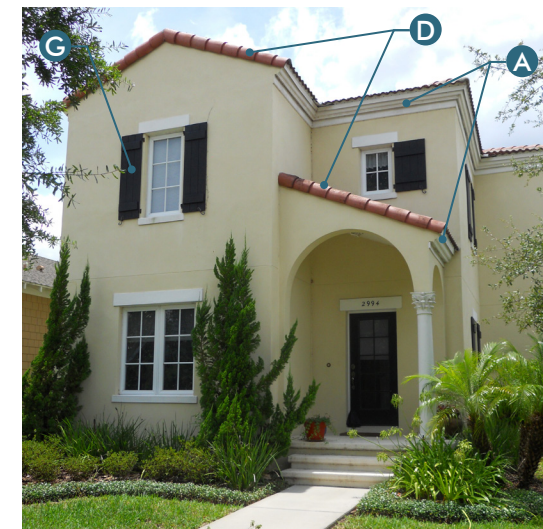
Doors & Windows

Windows are typically vertically proportioned casement windows with small vertically proportioned panes. If single- or double-hung windows are used instead of casements, they should be vertically proportioned equal sash windows with 4 over 4 or 6 over 6 pane configurations.

Doors are typically either solid board and batten, plank, or 2 panel; or 1/2 to full glass with panes of similar size and proportion to the windows. Arched top doors are common in this style.

Shutters

Not typical, but if used are board and batten or paneled.



A Shallow eave with stucco profile; B Exposed rafter tails; C Eave brackets; D Rake tile detail; E Barrel tile roof; F Barrel tile gable detail; G Board and batten shutters

The Hill Country Style is a regional adaptation of architecture brought to the Central Hills of Texas by European immigrants. The simple and authentic style is rooted in the immigrants' masonry and carpentry backgrounds and the local available stone and heavy timber cedar building materials.

Facade Composition

Simple forms with symmetrical and balanced asymmetrical compositions. There is often a dominant central massing with added secondary dependencies.

Materials & Color

Typical exterior cladding includes stone, brick, and stucco.

Rough hewn or weathered wood or monolithic stone is often used as door and window lintels and for porch columns.

Colors typically reflect the traditional natural materials with light colored stone and dark wood accents, or light colored earth tones with dark trim.

Roofs are typically metal or weathered wood, brown, or gray shingles.

Porches & Stoops

Full or partial porch with a low pitch metal roof and simple wood posts, often rough hewn.

Roofs

Roofs pitches vary greatly in this style with some homes having steeper pitches reflecting the more traditional European influence and some with more modern shallow pitches.

The main roof is typically hipped or gabled, with a prominent cross gable.

Cornices, Eaves, & Rakes

Deep eaves and rakes with exposed, often elaborate roof beams, rafter ends, and brackets.

Doors & Windows

Windows are often oversized on the first floor and sometimes replaced with french doors when opening onto a porch.

Windows have either a more traditional configuration of vertically proportioned panes in a casement or single- or double-hung window; or a more modern configuration of horizontally proportioned panes in an fixed or casement window.

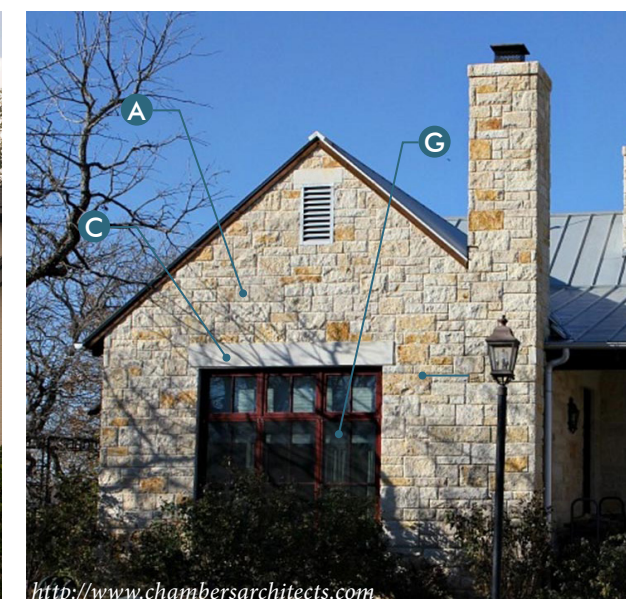
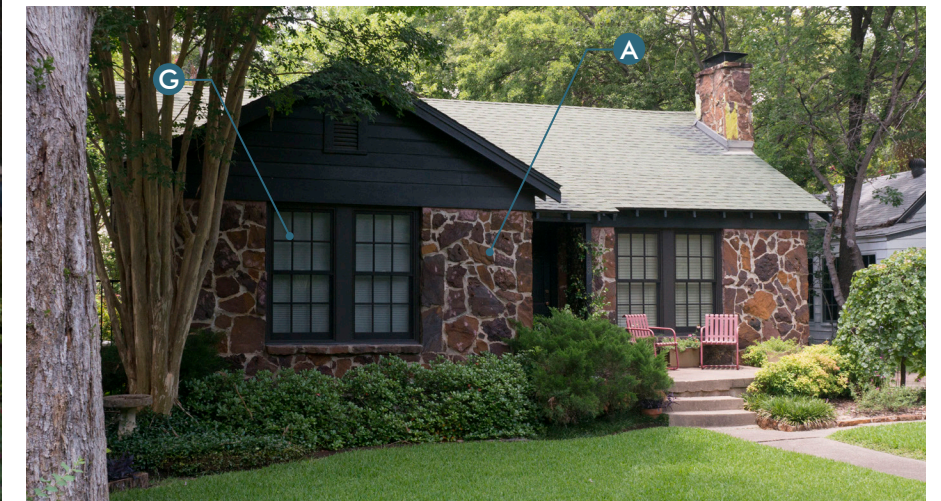
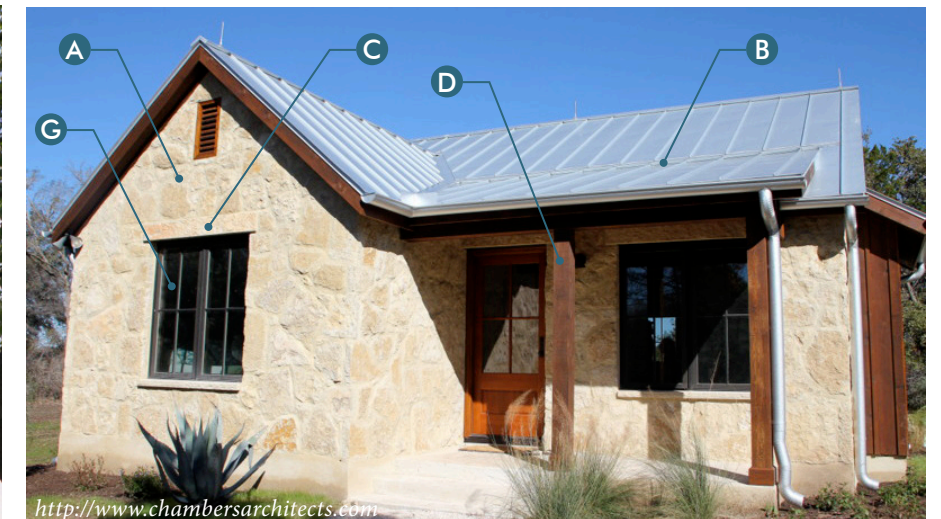
Doors are typically 1/2 to full glass with panes of similar size and proportion to the windows.

Shutters

Not typical, but if used are board and batten

Dormers

Shed or gabled



A Local stone cladding; B Standing seam metal roof; C Heavy timber or monolithic stone lintels; D Simple square porch posts; E Post brackets; F Modern horizontal window panes; G Traditional vertical window panes

The Craftsman Style is rooted in the Arts and Crafts movement that influenced much of the architecture popular in the early part of the 20th century. The Craftsman style emphasizes an expression of the house's structure in its form and detail. Craftsman homes have been easily adapted to various regions of the country both as modest cottages and as larger homes.

Facade Composition

Symmetrical and balanced asymmetrical compositions.

Materials & Color

Craftsman style houses are clad in a variety of materials based on regional construction practices.

Typical regional cladding includes smooth or rough finished wood or cementitious 6" exposure lap siding or shingles, stucco, stone or brick.

Brick or stone is often used as a base for porch columns and as watertable detail.

Colors are typically light colors with white trim, light earth tones with light trim, or dark earth tones with dark trim.

Roof colors are typically red, green, brown, or gray.

Porches & Stoops

Generous full or partial porches with tapered or straight square columns on stone, stucco, or brick base are a prominent feature of this style.

Roofs

Roofs are shallow to moderately pitched (6:12 to 8:12) with deep overhangs

Roof forms are typically front or side gabled roof. Hipped roof forms are found in the style, but are less common.

Cornices, Eaves, & Rakes

Deep eaves and rakes with exposed, often elaborate roof beams, rafter ends, and brackets.

Doors & Windows

Windows are often ganged horizontally and oversized on the first floor.

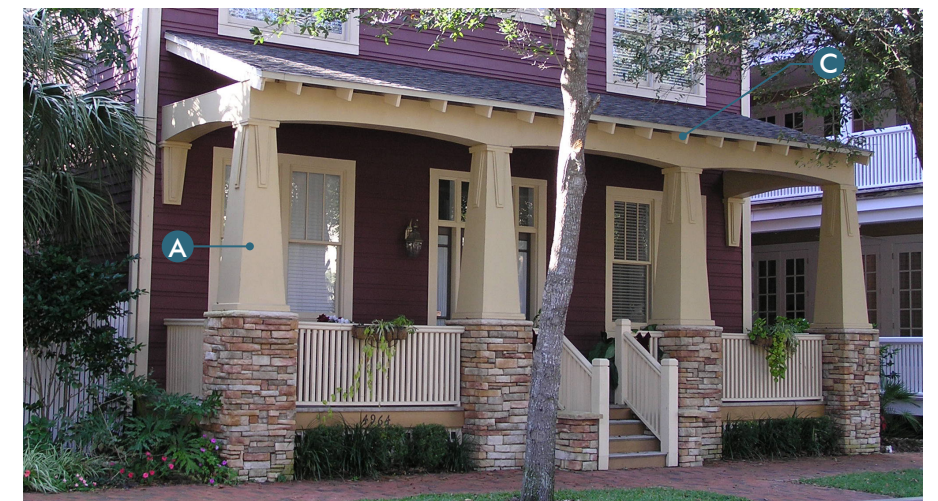
Windows are vertically proportioned equal sash single- or double-hung windows with multiple panes on the upper sash over a single pane lower sash. Small square accent windows are sometimes found in gables.

Gable attic windows are common in this style.

Doors are typically 1/3 to 2/3 glass with panes of similar size and proportion to the windows.

Dormers

Typically shed, occasionally gabled or eyebrow.



A Tapered square columns with a brick or stone base; **B** Ganged windows; **C** Deep eaves with exposed rafters or rafter tails; **D** Deep rake with decorative brackets; **E** Shed Dormer

The European Romantic style is an amalgamation of Tudor, French Country, and other picturesque European styles. The style developed as a derivative of Medieval Revival architecture and as the style evolved, it began to emulate the English Renaissance styles of the 16th and 17th centuries. The style was popularized in U.S. in the 20th Century by returning troops who served in Europe.

Facade Composition

Facades are typically asymmetrical and commonly L-shaped with a front facing gable. There is often a dominant central massing with added secondary dependencies.

Materials and color

Exterior cladding is typically brick, stone, or light colored stucco, sometimes used in combination. Decorative half-timbering is occasionally used as a gable detail. Heavy trim and wood or stone lintels are common in this style. Horizontal wood or cementitious lap siding is less common in this style.

Colors are typically brick in dark clay colors, white painted brick, or varied earth tones with varied dark trim. Roof colors are typically green, brown, or gray.

Stoops

Entries are typically recessed with a small stoop. Full or partial width porches are less common in this style.

Roofs

Roofs are steeply pitched ($\geq 12:12$). The roof form typically consists of side gable main roof form with cross gables & dormers. Gable variations common to this style include nested, asymmetrical eaves (cat slide), sweeping eaves, and clipped.

Cornices, Eaves, & Rakes

Eaves and rakes are typically tight to the facade with shallow overhangs and with decorative brick corbels in the gable.

Doors & Windows

Elevations are typically composed with multiple window sizes, ganged windows, oversized first floor windows, and small accent windows.

Windows are typically vertically proportioned casement windows with small vertically proportioned panes. If single- or double-hung windows are used instead of casements, they should be vertically proportioned equal sash windows with 4 over 4 or 6 over 6 pane configurations.

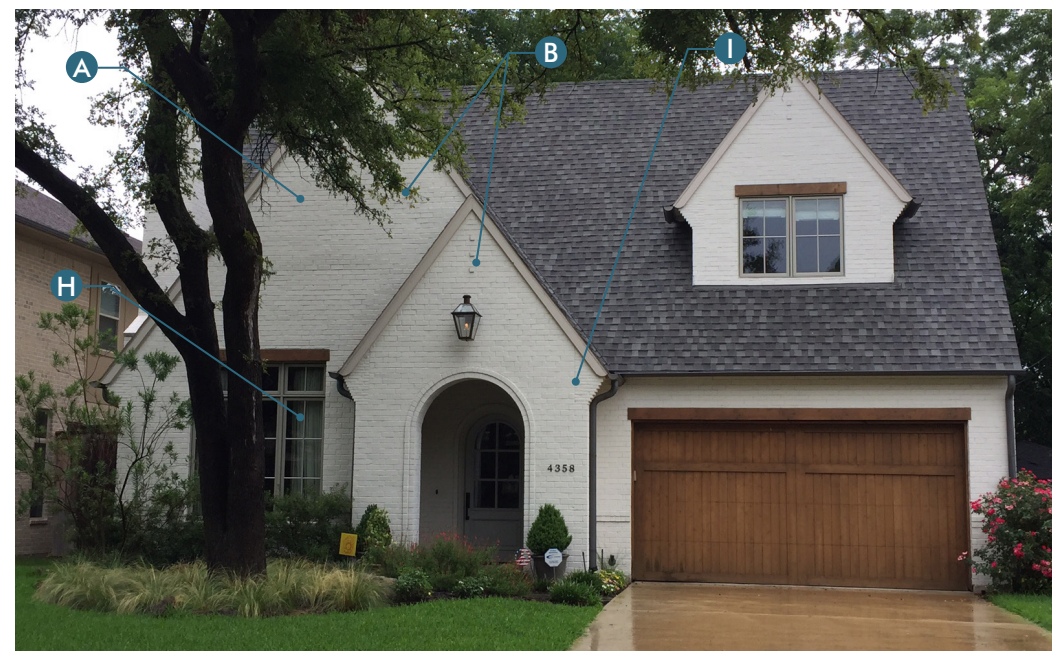
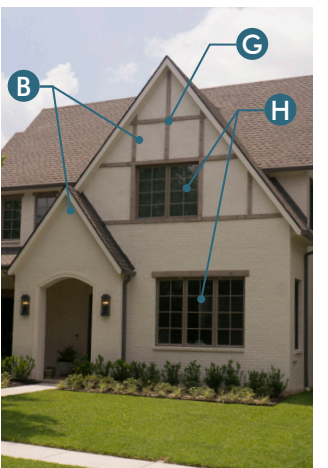
Doors are typically either solid or primarily solid board and batten, plank, or panel; often with a small glass pane or speakeasy. 1/2 to 2/3 glass doors are less common, but when used should have panes of similar size and proportion to the windows. Arched top doors are common in this style.

Shutters

Typically board and batten, occasionally raised panel.

Dormers

Typically shed or hipped, occasionally gabled or eyebrow.



A Prominent front facing cross gable; B Nested gables; C Asymmetrical eaves; D Clipped gable; E Sweeping eave; F Shed dormer; G Decorative half-timbering; H Ganged windows; I Brick corbels

Borrowing from design themes of modernist architecture of the early to mid 1900s, this style has evolved to adapt to local climates, traditions, and materials by re-interpreting traditional elements, such as balconies, deep overhangs, and cantilevered roof planes. These homes will be influenced by local architectural traditions, but offer some design variations.

Facade Composition

Balanced asymmetrical compositions of juxtaposed simple massings.

Materials and Color

Exterior cladding is typically brick, wood or cementitious siding (horizontal and vertical applications), metal and cementitious panels, board and batten.

Materials and colors are often used in combination and often used to distinguish the different massing elements. Bright colors and high contrasting hues by material are common in this style.

Porches and Stoops

Simple porch and stoop detailing with structural members and connection details that are often exposed.

Roofs

Roofs are typically shallow pitched ($\leq 6:12$)

Typical roof forms include gabled, shed, curved, and parapeted.

Cornices, Eaves, & Rakes

Deep eaves and rakes with simple detailing.

Doors & Windows

Windows are often ganged horizontally and oversized on the first floor.

Windows are typically fixed single panes or casement windows. If single- or double-hung windows are used to meet egress requirements, they should be used on side elevations where possible.

Doors are typically either full glass or with horizontally proportioned glass or solid panels.

Shutters

Traditional shutters are not typical in this style, occasionally being replaced with wood or metal window screens or grills.

Dormers

Shed or gable



A Combination of multiple cladding materials or material applications; **B** Simple exposed structural members; **C** Shallow pitched shed roof; **D** Single pane fixed window; **E** Modern interpretation of traditional form

LANDSCAPE GUIDELINES

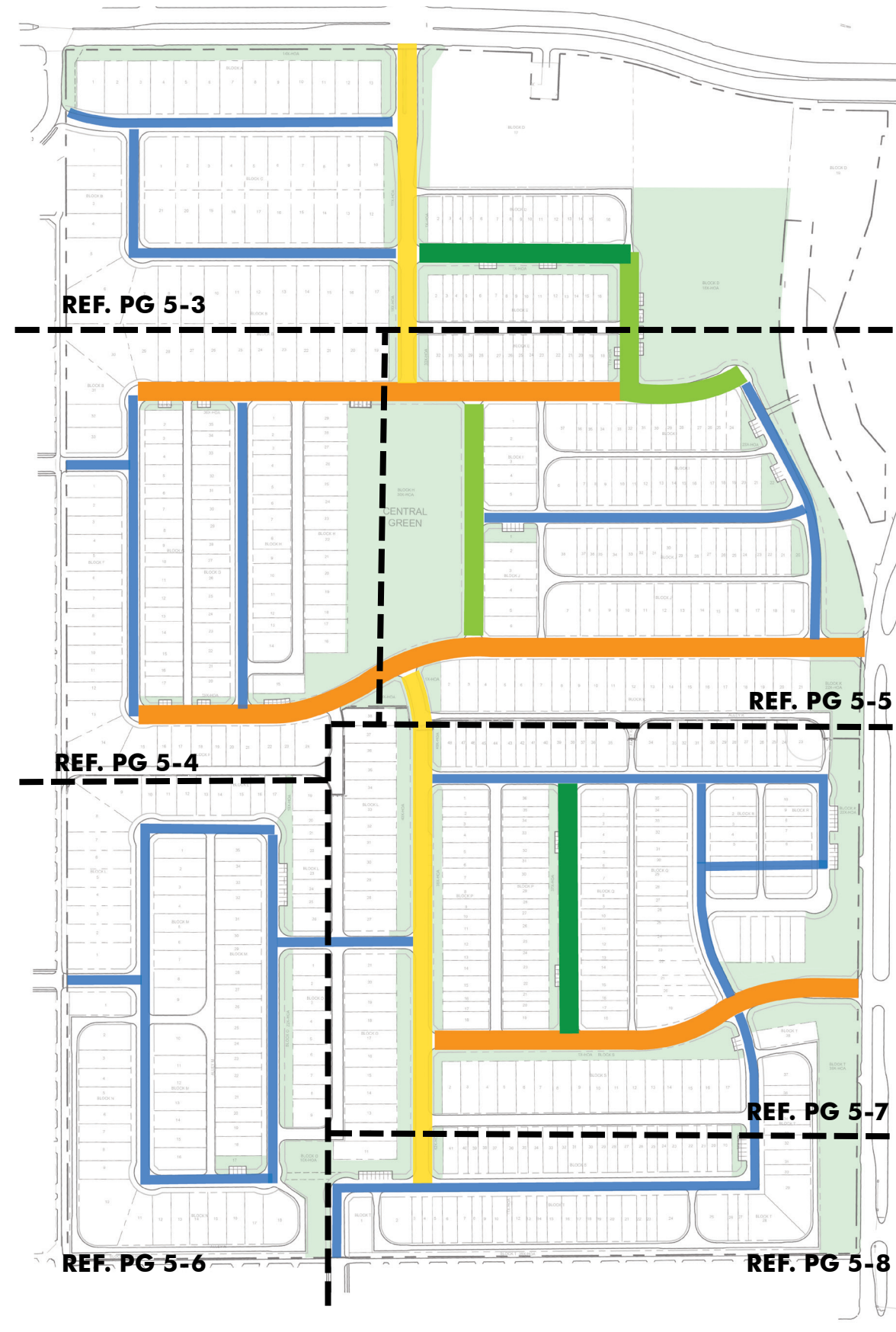
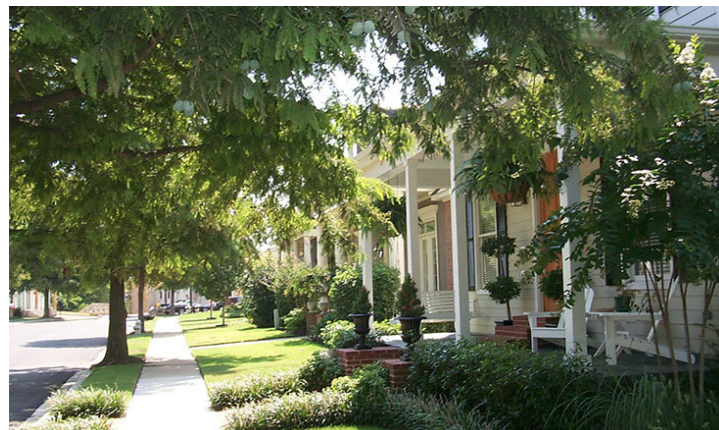
COMMUNITY STREETScape

STREET TREE LAYOUT

FENCING

LOT LANDSCAPE STANDARDS

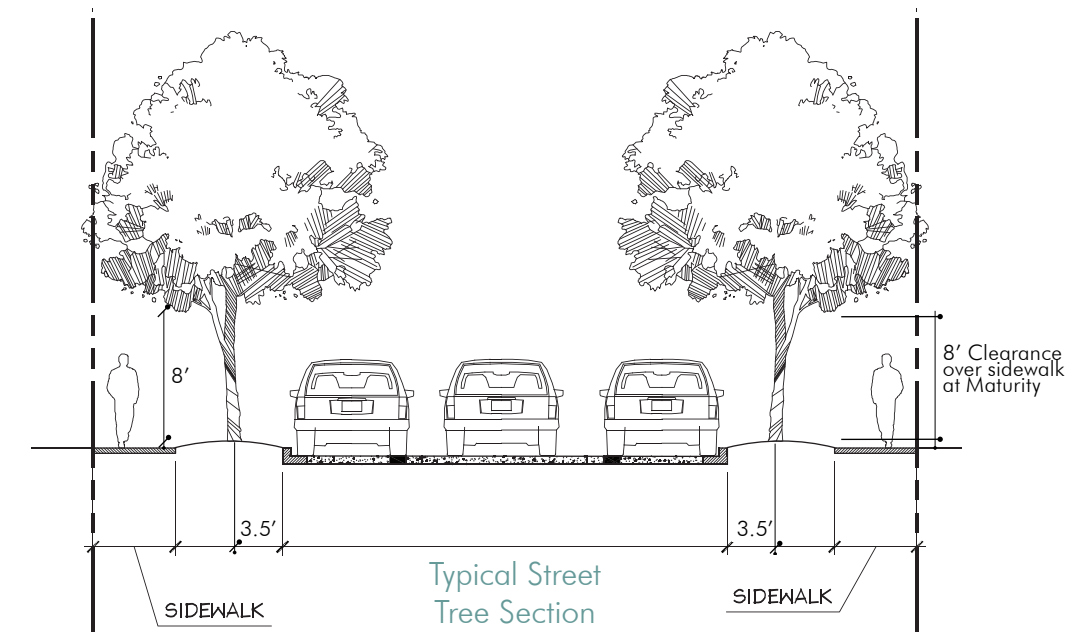
COMMUNITY PLANT PALETTE



STREET TREE MASTER PLAN

The street tree master plan is provided to direct the placement of street trees in the street parkway that front on and side open spaces. Tree type and placement are color coded and indicated on Street Tree Layout, refer to the following pages.

- All street trees to be installed by home builder, except trees in common area. Lots that front on and side open spaces may have the parkway trees installed by the developer as indicated on the plan but will be reimbursed by the builder.
- All street trees except Crape Myrtle "White" Natchez are to be spaced at approximately 40' o.c., and located 3.5 ft. from back of curb within the street parkway, and have 8' clearance over sidewalk at maturity. Ref. detail below for location within the parkway.
- Crape Myrtle "White" Natchez will be spaced at approximately 25' o.c., and located 3.5 ft. from back of curb within the street parkway, indicated on enlarged tree layout plan, and have 8' clearance over sidewalk at maturity.
- For streets designated with more than one tree species, same tree species can not be planted in groups of more than four (4) along the street parkway.
- Perimeter buffer trees to be installed by developer per detail site plan.

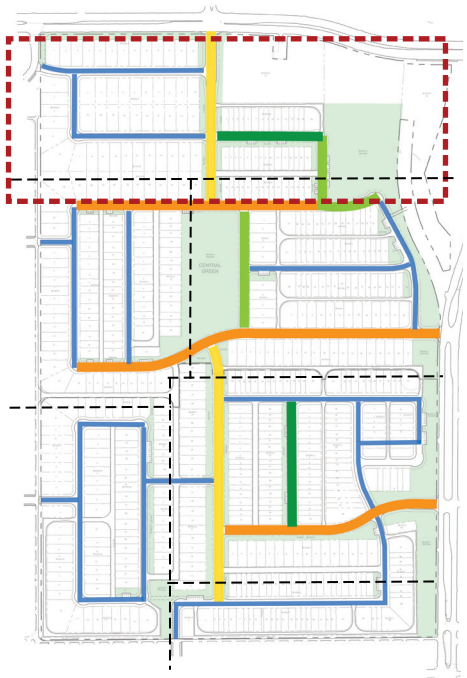


- A : Allee Elm
- B : Chinese Pistache
- C : Crape Myrtle "White" Natchez
- D : Chinquapin Oak
- E : Red Oak, Cedar Elm, Allee Elm, Thornless Honeylocust



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- For streets designated with more than one tree species, same tree species can not be planted in groups of more than four (4) along the street parkway.
- Tree locations shown are approximate.

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 - B: Chinese Pistache
 - C: Crape Myrtle "White" Natchez
 - D: Chinquapin Oak
 - E: Red Oak, Cedar Elm, Allee Elm, Thornless Honeylocust
- By Builder
 — By Developer

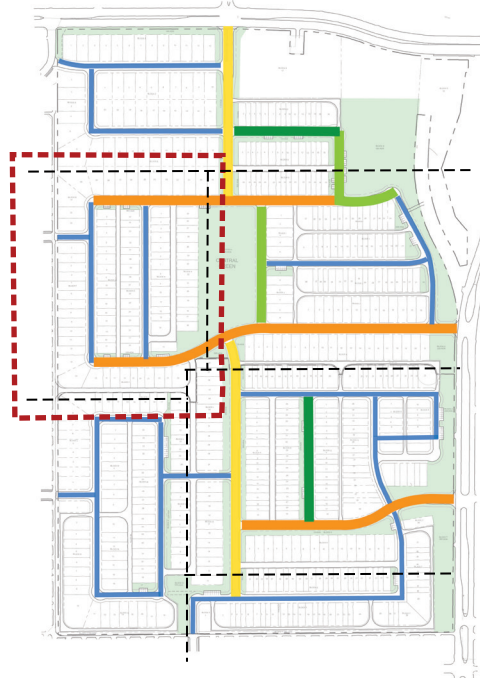


STREET TREE LAYOUT



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- Tree locations shown are approximate.

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- By Builder
 — By Developer



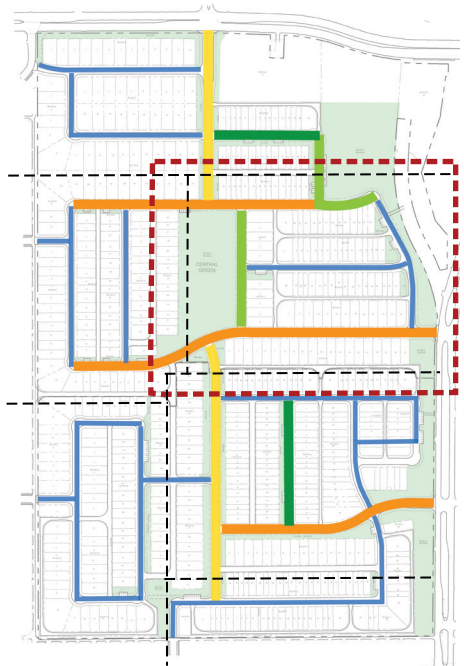
Note: Block H lot 16 - 29 Tree requirement are exempt and satisfied by the trees in the common area.

STREET TREE LAYOUT

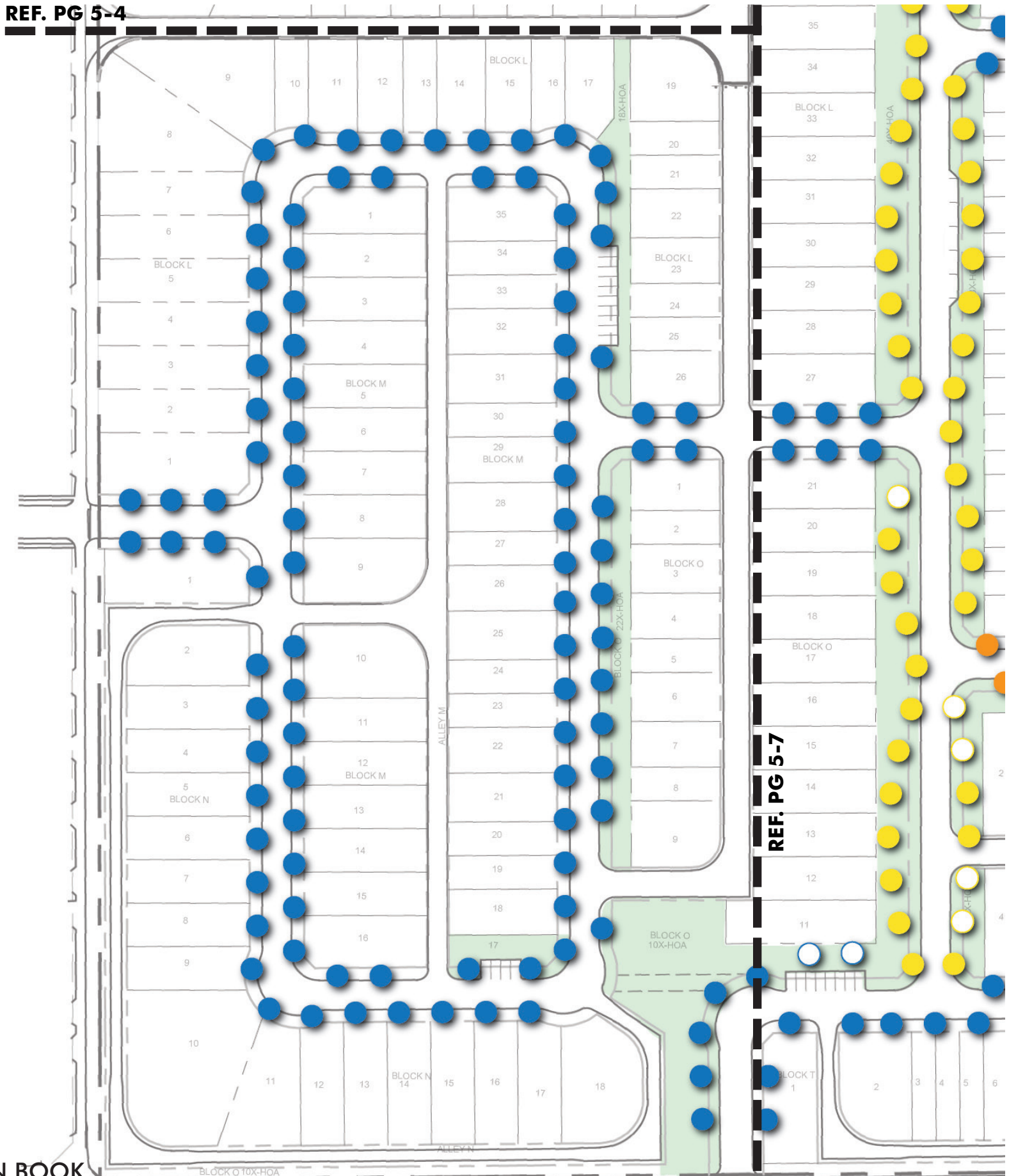


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 - B: Chinese Pistache
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 - E: Red Oak, Cedar Elm, Allee Elm, Thornless Honeylocust
- By Builder
 — By Developer

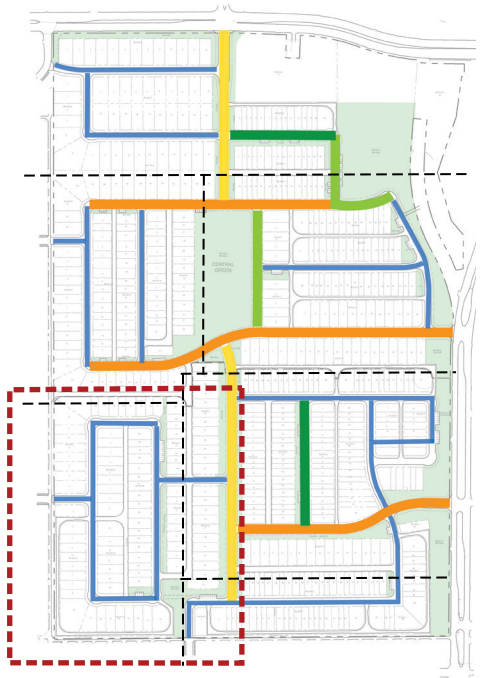


REF. PG 5-4



- All street trees to be installed by home builder, except trees in common area. Lots that front and side open spaces may have the parkway trees installed by the developer as indicated on the plan but will be reimbursed by the builder.
- All street trees except Crape Myrtle "White" Natchez are to be spaced at approximately 40' o.c., and located 3.5 ft. from back of curb within the street parkway. Ref. detail below for location within the parkway.
- Crape Myrtle "White" Natchez will be spaced at approximately 25' o.c., and located 3.5 ft. from back of curb within the street parkway, indicated on enlarged tree layout plan.
- For streets designated with more than one tree species, same tree species can not be planted in groups of more than four (4) along the street parkway.
- Tree locations shown are approximate.

- A: Allee Elm
 - B: Chinese Pistache
 - C: Crape Myrtle "White" Natchez
 - D: Chinquapin Oak
 - E: Red Oak, Cedar Elm, Allee Elm, Thornless Honeylocust
- By Builder
● By Developer

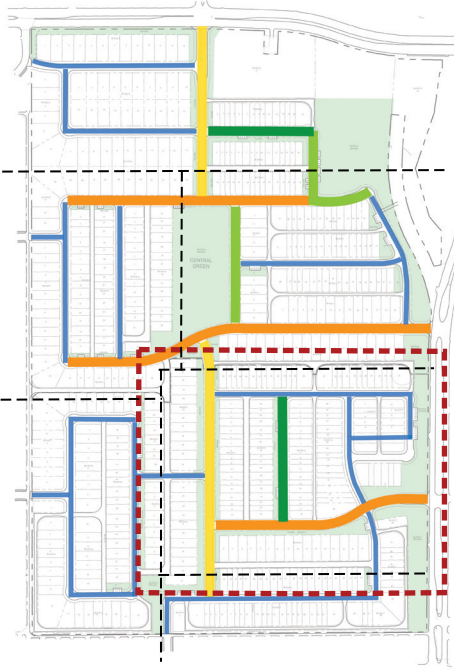


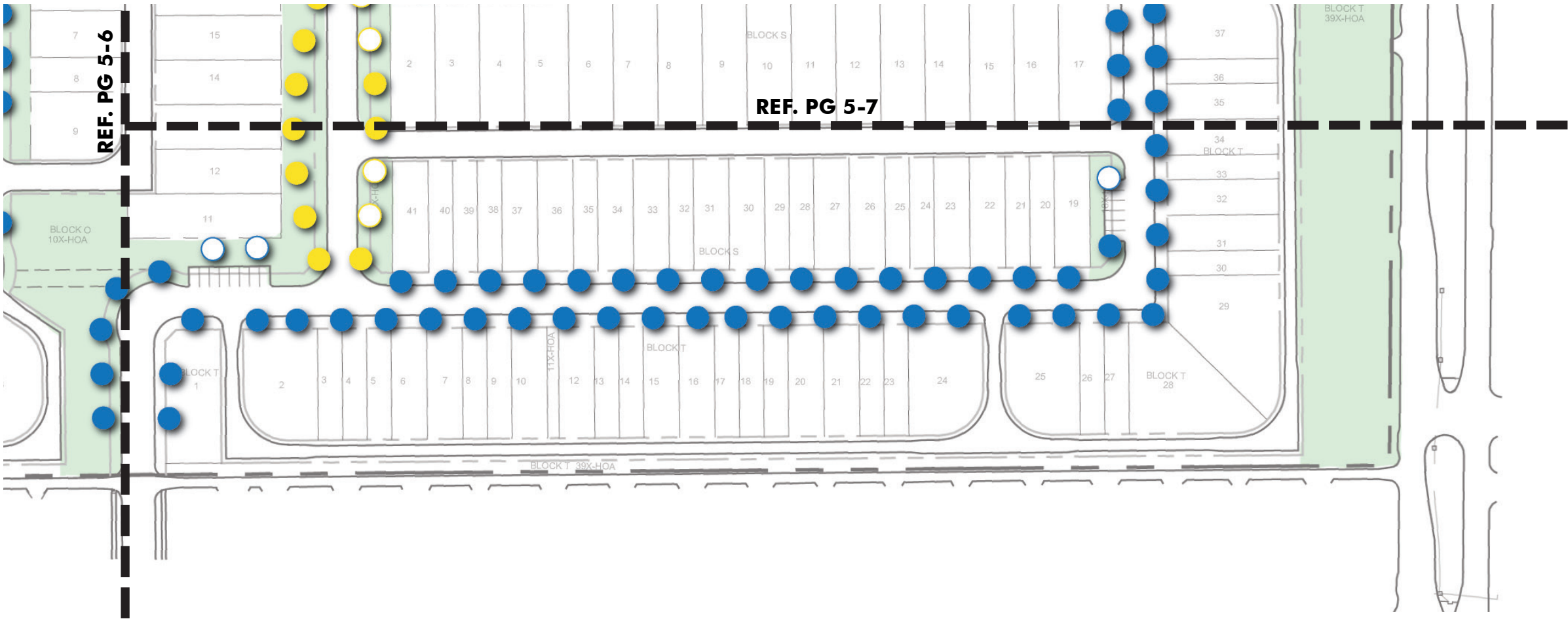
STREET TREE LAYOUT



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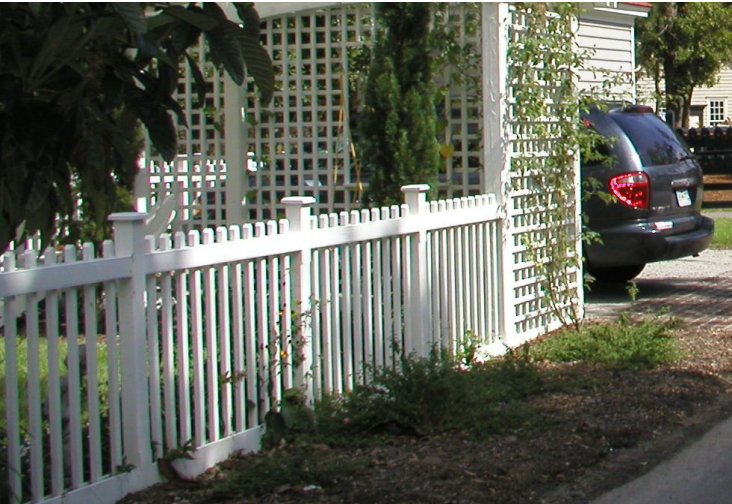
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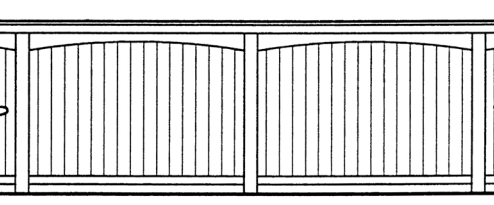
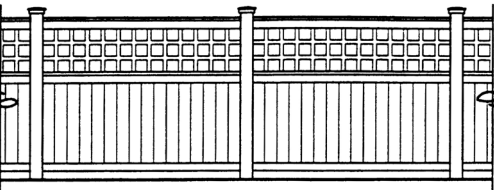
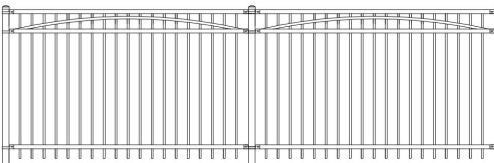
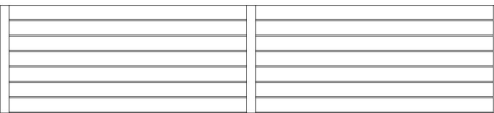
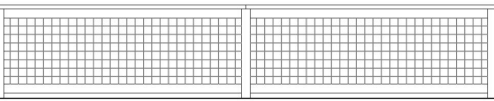
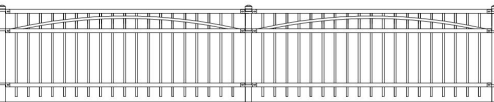
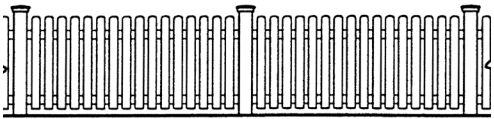


APPROPRIATE FENCES

YES



Sample of Appropriate Styles



Overview

Fences and walls should be compatible with the design, materials, and colors of the principle structure.

- ☐ Fences should be made of masonry, ornamental metal, or durable wood or some combination of the three.
- ☐ Chain link or plastic should not be used.
- ☐ All wood fences should be stained brown as specified and sealed or painted brown as specified on both sides. Colors must be approved by the ARC.
- ☐ Vinyl fences should be low-sheen and must be approved by the ARC.

Front Yard Fencing

- ☐ Front yard fencing is encouraged and anticipated to provide courtyard fencing for front yard outdoor living.
- ☐ May be solid or transparent so long as its height does not exceed 42 inches and it is located a minimum of 18 inches behind the sidewalk edge.
- ☐ Fence posts and gateways may have a maximum height of 54 inches. Taller features, such as a trellis entryway, are encouraged but will require approval from ARC.
- ☐ Fencing options are (1) Ornamental steel painted black; (2) Decorative galvanized cattle wire, 4 guage min.; (3) Picket fences; (4) Horizontal slat fence
- ☐ Pickets should be routed through rails or face-mouthed in front of rails. Bracket and receptacle type connectors to posts and rails are discouraged.

Residential Fencing Abutting Common Space

- ☐ Shall meet the standard set forth above for front yard fencing except that side yard fencing abutting common space may be up to 5 feet tall and shall maintain the style and quality of front yard fencing on the lot if it exists, or be ornamental steel painted black .

Side Yard Fencing

- ☐ Maintain the style and quality standards of the front yard fence.
- ☐ Corner lot side yard fencing should be ornamental steel painted black capped with top rail not to exceed 5 feet in height, and set back at least 18 inches from the side walk.
- ☐ Side yard fences between lots may be up to 6 feet tall and butt joint or board on board with an appropriate cap detail.

Rear Yard Fencing

- ☐ Rear yard fences shall match the style and quality of interior side yard fencing.
- ☐ May be up to 6 feet tall and butt joint or board on board with an appropriate cap detail.

TOWN HOME LOT

- ☐ Gravel/granite can be used for small pathways or as an alternate to ground cover.
- ☐ Standard Concrete walkway may be upgraded to rock salt finish.
- ☐ Porch paving may be upgraded to brick.
- ☐ Small understory tree or ornamental tree may be planted in addition to the required trees.
- ☐ Not to scale, refer to final plat and zoning for set backs.

Natural Style

The Natural Style blends the native plant palette and features free-form planting with soft edges. The meandering planting beds with ornamental grasses, annuals, perennials and shrubs soften the rigid lines of the house. This planting style mimics nature, uses diversified plant species, improves wildlife habitat, and reduces maintenance costs.

Key Characteristics

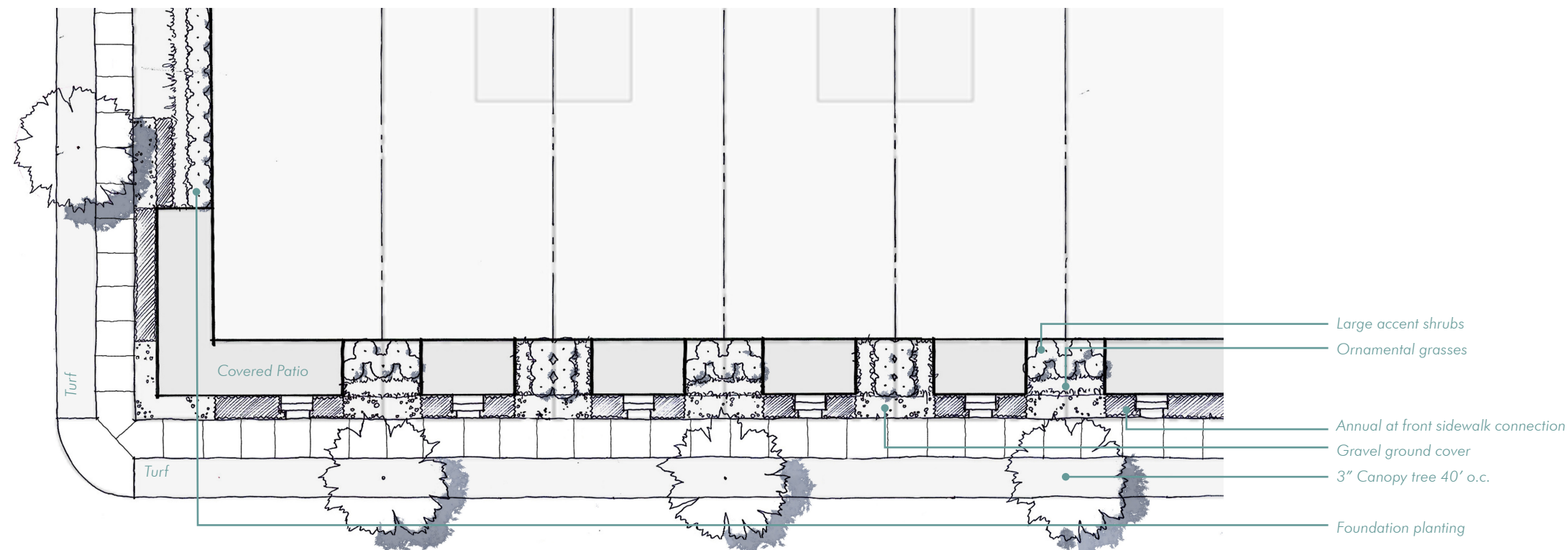
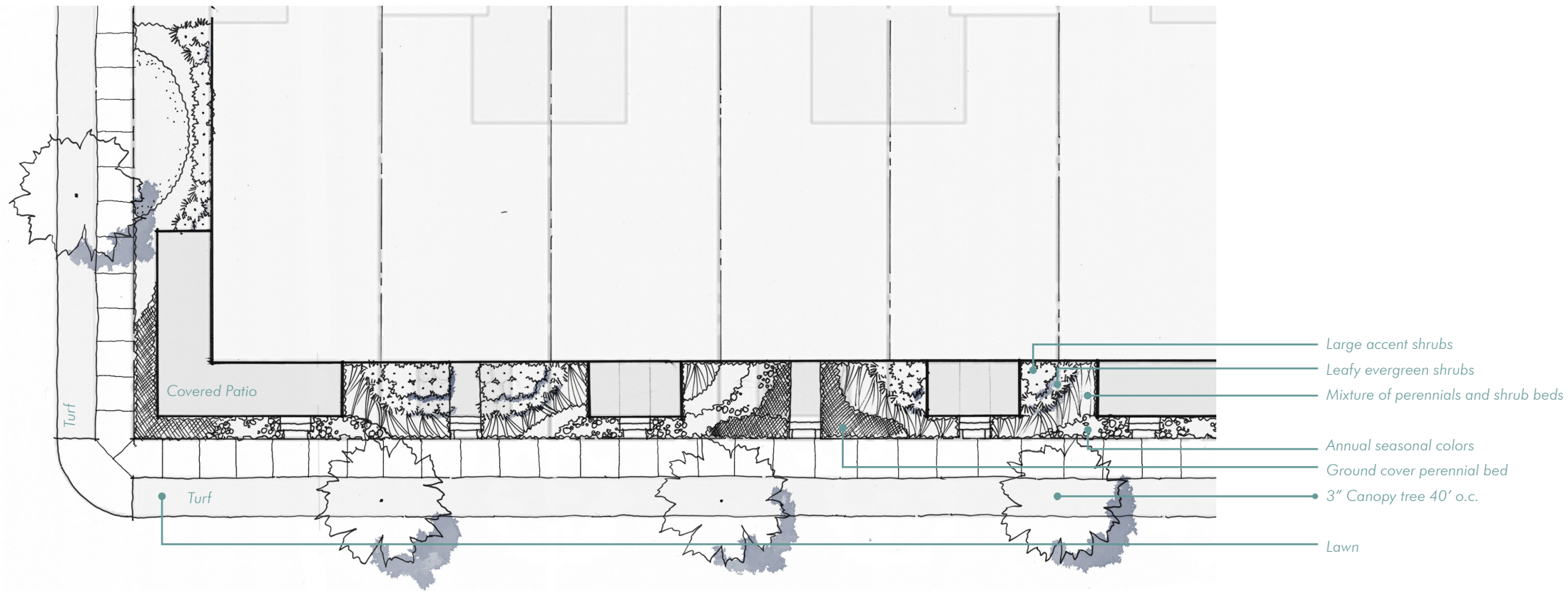
- ☐ Meandering planting bed
- ☐ Less symmetrical
- ☐ Layering high to low from foundation
- ☐ Gradual transitions to lawn
- ☐ Mixed perennial beds frequently used
- ☐ Irregular spaced plants, generally in masses

Formal Style

The Formal Style landscape is more streamlined and refined than the Natural Style, normally using a more symmetrical pattern in the landscape. The Formal Style has a manicured look that balances the architecture, mimicking the front facade portion of the architecture.

Key Characteristics

- ☐ Central axis walkway to door
- ☐ Symmetrically balanced planting bed
- ☐ Curvilinear beds are not encouraged
- ☐ Clipped or manicured shrub borders
- ☐ Equally spaced plants generally in a linear form



VILLA LOT

- ☐ Gravel/granite can be used for small pathways or as an alternate to ground cover.
- ☐ Standard concrete walkway may be upgraded to rock salt finish.
- ☐ Porch paving may be upgraded to brick.
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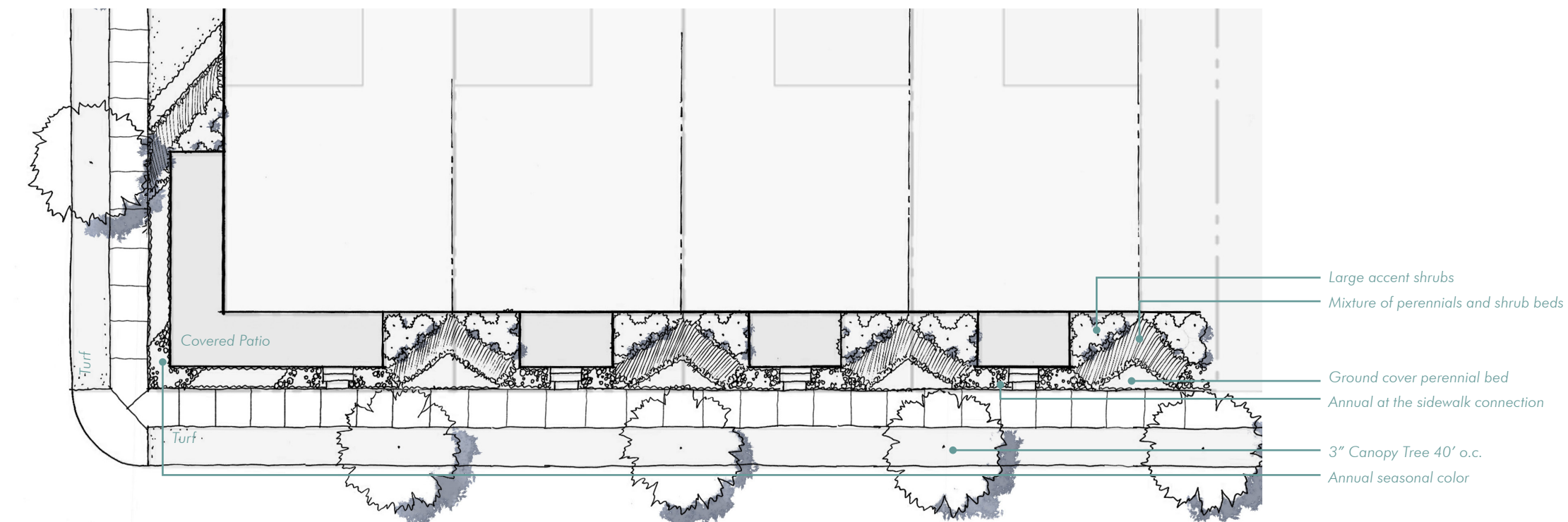
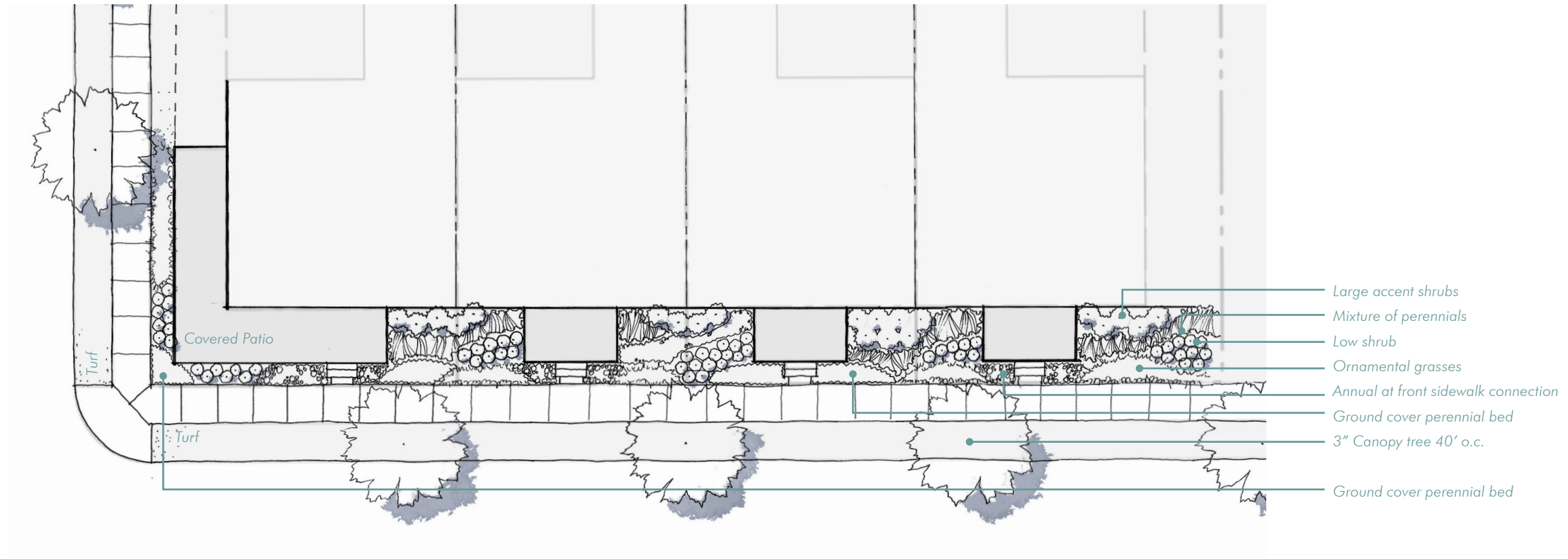
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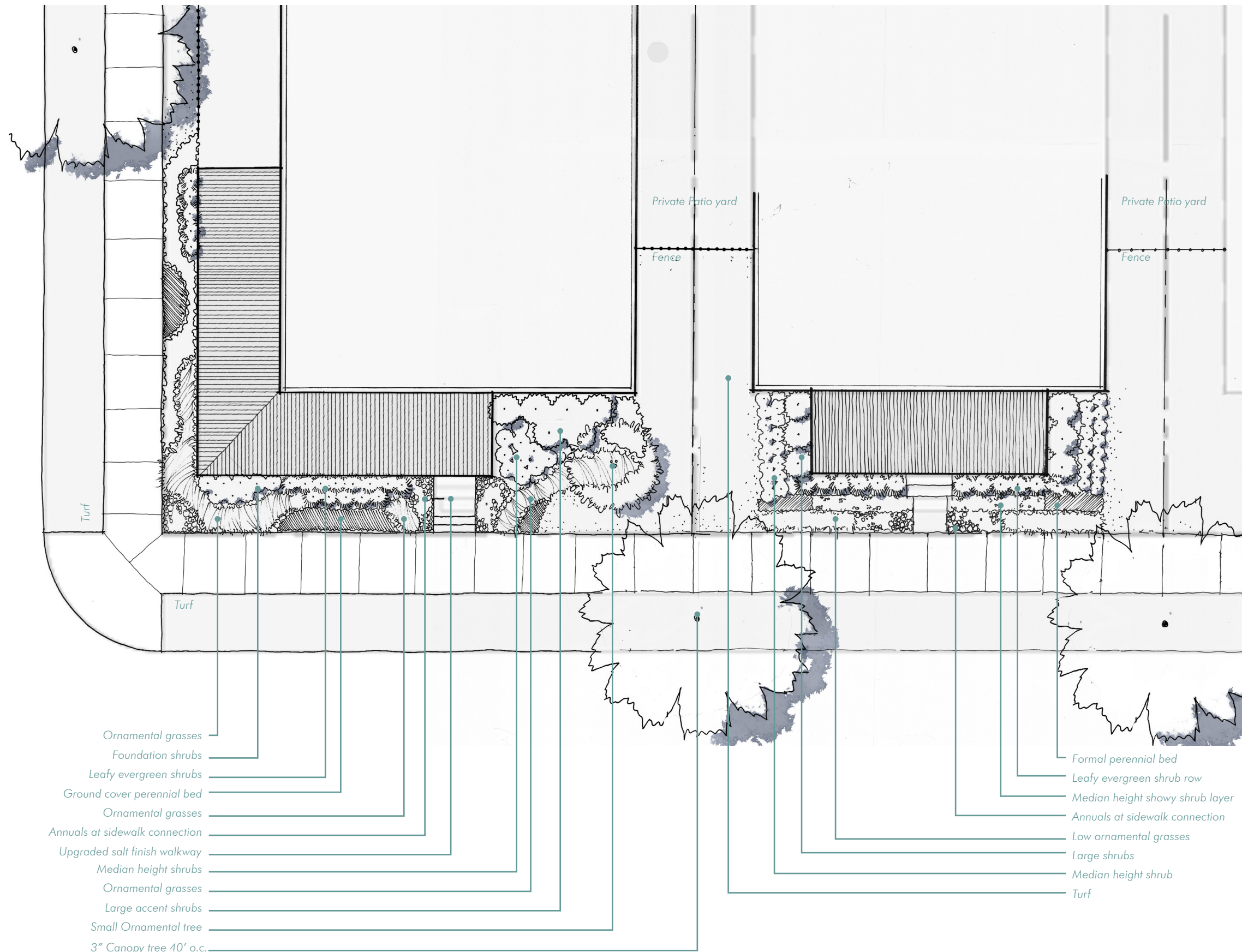
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GARDEN LOT

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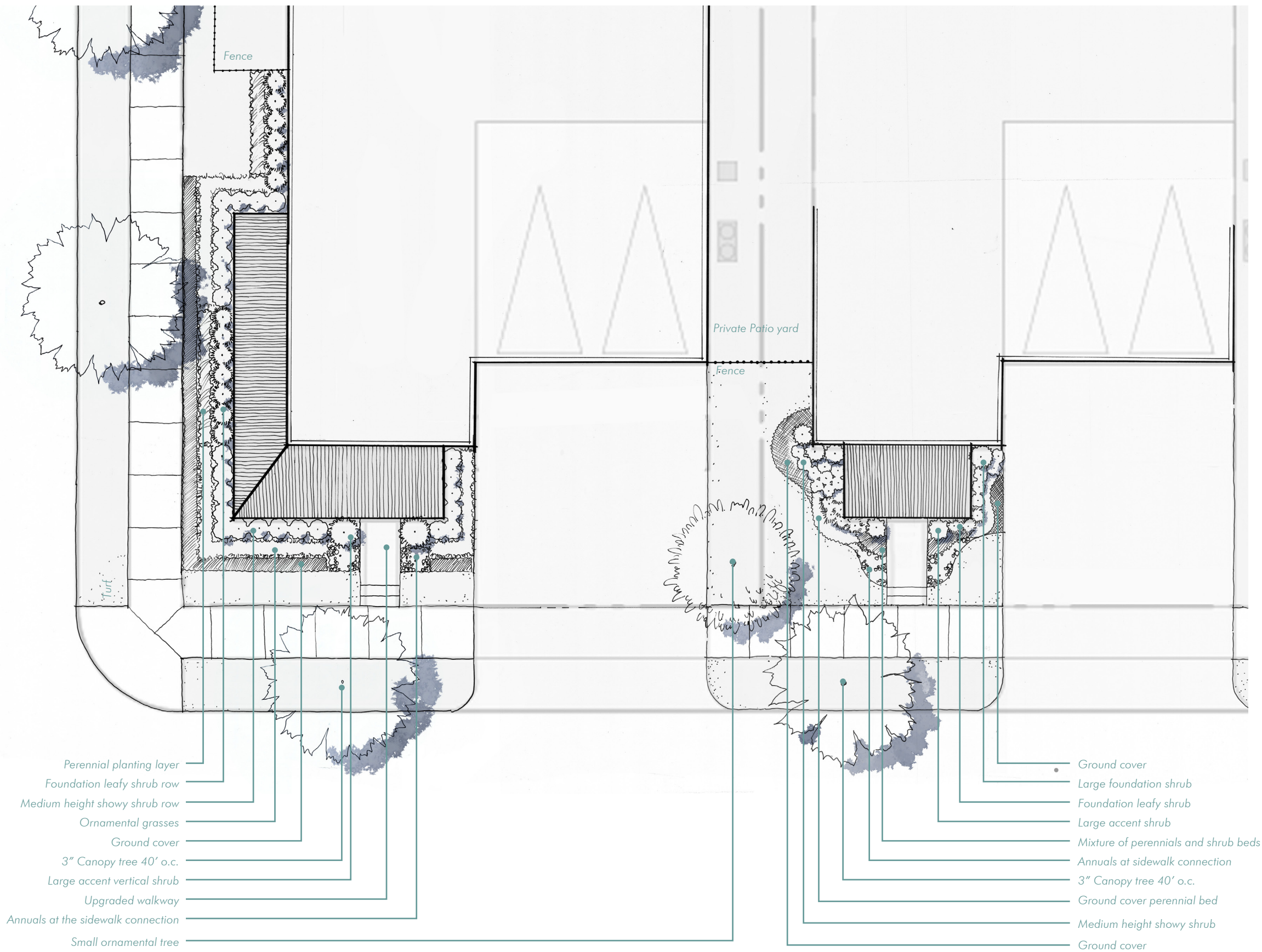
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MANOR LOT

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LOT LANDSCAPE STANDARDS



YES

This formal front yard landscape has good layering and contrast between the accent shrub and showy shrub



YES

Shady plant palettes on the appropriate side of the home create a landscape that will thrive. Pathways that utilize pavers, bricks, gravel are an acceptable material change from concrete.



YES

Natural planting style has a variety of plant species that makes the lot feel full and colorful.



YES

Upright tall shrubs off vertical elements at the front of the home, marking the way to the front door for visitors.



YES

The layered, formal approach to the landscape matches the character of the home.



YES

Rows of ornamental grasses are used to create formal look and good privacy screen for patio users.



YES

Rock and water features are acceptable use of landscape materials to provide variety to the beds. Multiple species and layered looks give a prominence to the entry of the home



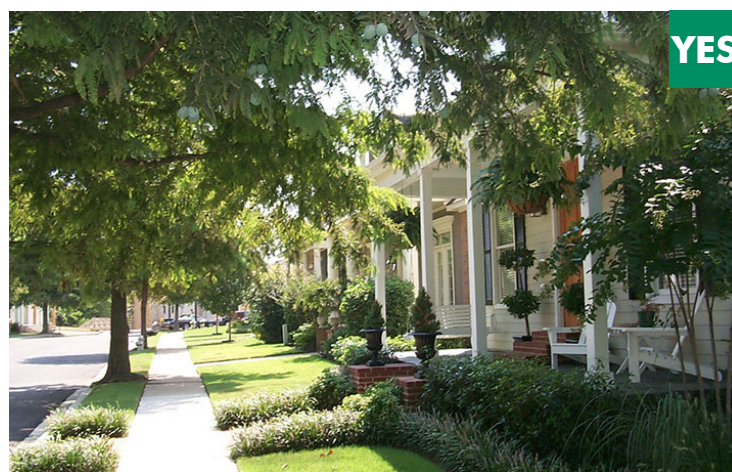
YES

Native Ornamental grasses in mass bring the airy and soft feel to the home., also offer privacy screen.



YES

Use of ground cover to cover slope of elevated lawn.



YES

Simple layered low shrub and grass row open up view for home owners to enjoy on the patio. Lower native grasses mark the walkway that's welcoming



YES

Mulch beds were used to bring contrast to lawn and reduce maintenance. Accent trees stand out among the foundation shrubs.



YES

Meandering planting beds mixed with perennials and shrubs softens the architectural edges and makes the home feels inviting.



Chinese Pistache



Allee Elm



Cedar Elm



Bald Cypress



Bur Oak



Chinquapin Oak



Crape Myrtle "White" Natchez



Red Oak



Vitex



Mexican plum



Possumhaw Holly



Russian Sage



Texas Sage



Soft leaf yucca

ACCEPTABLE LANDSCAPE SPECIES

Plant Selection

At Riverset, residents should plant with a palette consisting mainly of native and adaptive plants. “Native” refers to plants having existed within the North Texas region prior to the arrival of European settlers. Thanks to their long-term development and adaptation to the region, native plants have several advantages over introduced flora including winter hardiness, pest resistance, and low maintenance needs. Native plants also create valuable habitat and food sources for regional wildlife which support overall health and beauty of the surrounding streams, prairies and woodlands. Plants should be purchased full and lush, at a size to produce significant visual impact; minimum 3” caliper trees, 2” caliper ornamental trees and understory trees, 5 gal. shrubs, and 4” pots for ground covers. All plants should be full and thriving at the time of planting.

Landscaping Guidelines

The following is a native and adaptive plant guide for landscaping in Riverset. Native plants not identified in this list may be used with additional submission of material showing “native plant” status to be approved by ARC. Use of non-native or adaptive plants should be limited to species and varieties of plants that are non-invasive. Use of plant not listed needs to be approved by ARC.

Trees - Large Canopy

Acer grandidentatum	Maple, Bigtooth	Adapted
Acer saccharum 'Caddo'	Maple, Caddo	Adapted, Drought
Fraxinus americana	Ash, White	Native, Drought
Fraxinus texensis	Ash, Texas	Native, Drought
Gleditsia triacanthos 'inermis'	Honey Locust	Adapted, Drought
Magnolia grandiflora	Magnolia Southern	Adapted
Pistacia chinensis	Pistache, Chinese	Adapted
Platanus occidentalis	Sycamore, Mexican	Adapted
Quercus macrocarpa	Oak, Bur	Native, Drought
Quercus muehlenbergii	Oak, Chinquapin	Native, Drought
Quercus shumardii	Oak, Schumard Red	Native, Drought
Quercus virginiana	Oak, Live	
Taxodium distichum	Bald Cypress	Adapted
Ulmus americana	Elm, American	Native, Drought
Ulmus crassifolia	Elm, Cedar	Native, Drought
Ulmus parvifolia	Elm, Lacebark	
Ulmus parvifolia 'Elmer II'	Elm, Allee Lacebark	Adapted
Ulmus parvifolia 'Upmtfi'	Elm, Bosque Lacebark	Adapted
Ulmus parvifolia var. Allee	Elm, Allee	

Trees - Small Ornamental

Cercis Canadensis var 'texensis'	Texas Redbud	Native, Drought
Chliopsis lineais	Desert Willow	
Cotinus obovatus	American Smoketree	
Diospyros texana	Persimmon, Texas	Adapted, Drought
Ilex decidua	Holly, Possumhaw	Native, Drought
Ilex vomitoria	Holly, Yaupon	Native, Drought
Juniperus chinensis	Blue Point Juniper	
Koelreuteria paniculata	Golden Raintree	Adapted
Lagerstroemia indica	Crape Myrtle	Adapted, Drought
Magnolia grandiflora var. Little Gem	Little Gem Magnolia	
Magnolia stellata	Star Magnolia	
Prunus mexicana	Mexican Plum	Native, Drought
Rhus copallina	Shining Sumac	Adapted, Drought
Sophora affinis	Eve's Necklace	Adapted, Drought
Virburnum rufidulum	Rusty Blackhaw	Native, Drought
Vitex agnus-castus	Chaste Tree	Adapted, Drought

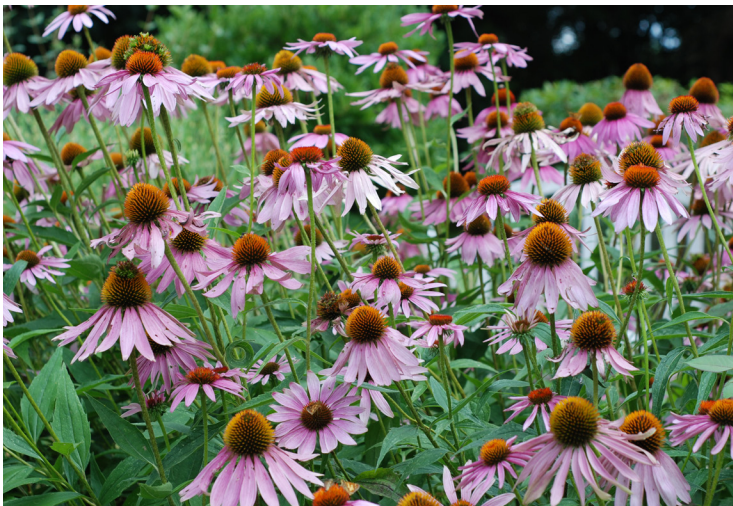
Trees & Shrubs - High Level Screening

Cupressocyparis leylandii	Leyland Cypress	Adapted
Ilex cornuta 'Burfordii'	Burford Holly	Adapted
Ilex cornuta 'Nellie R. Stevens'	Holly, Nellie R. Stevens	Adapted, Drought
Ilex x 'Mary Nell'	Mary Nell Holly	Adapted
Ilex x attenuata 'Foster'	Holly, Foster	Adapted
Juniperus virginiana	Eastern Red Cedar	Native, Drought
Ligustrum japonicum	Waxleaf Ligustrum	Adapted
Ligustrum lucidum	Glossy Ligustrum	Adapted
Magnolia grandiflora 'Little Gem'	Magnolia, 'Little Gem'	Adapted
Myrica cerifera	Wax Myrtle	Native, Drought
Photinia serrulata (not P. fraseri)	Chinese Photinia	Adapted
Pinus eldarica	Pine, Mondell/Eldarica	Adapted, Drought
Prunus caroliniana	Cherry Laurel	Adapted

COMMUNITY PLANT PALETTE



Texas Lantana



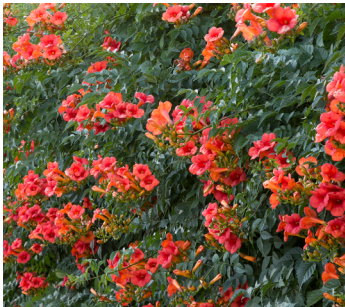
Purple Cone Flower



Red Yucca



Pink Skullcap



Trumpet Vine



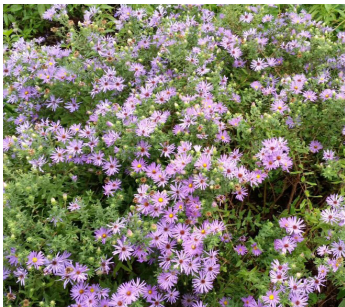
Turk's Cap



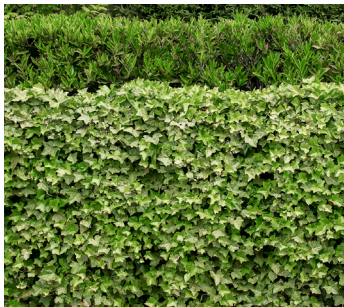
Thornless Prickly Pear Cactus



Color Guard Yucca



Fall Aster



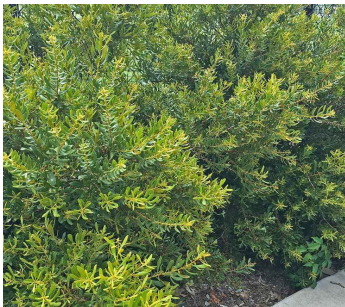
English Ivy



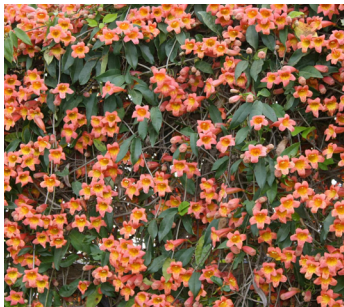
Maiden grass



Coral honey suckle



Dwarf wax myrtle



Cross Vine

Shrubs

Abelia var. Rose Creek	Rose Creek Abelia	
Agave spp.	Agave	
Berberis thunbergii 'Rose Glow'	Red Barberry 'Rose Glow'	Adapted, Drought
Callicarpa americana	American Beautyberry	Native, Drought
Cotoneaster glaucophyllus	Gray Cotoneaster	
Hesperaloe funifera	Giant Red, Yucca	
Hesperaloe parvifolia	Red, Yucca	Adapted, Drought
Hydrangea quercifolia	Oakleaf Hydrangea	
Leucophyllum spp.	Texas Sage	Adapted, Drought
Malvaviscus drummondii	Turk's Cap	
Miscanthus sinensis 'gracillimus'	'Morning Light' Miscanthus	Adapted, Drought
Optunia ellisiana	Spineless Prickly Pear	
Yucca spp.	Color Guard, Yucca	
Yucca recurvifolia	Soft-leaf, Yucca	Adapted, Drought

Ground Cover and Turf Grasses

Buchloe dactyloides	Buffalo Grass	Native, Drought
Cynodon dactylon	Bermuda Grass	Adapted, Drought
Euonymus fortunei	Wintercreeper	Adapted, Drought
Hedera helix	English Ivy	Adapted, Drought
Juniperus spp.	Trailing Juniper	Adapted, Drought
Liriope muscari (not L. spicata)	Liriope	Adapted, Drought
Ophiopogon japonica	Monkey/Mondo Grass	Adapted, Drought
Stenotaphrum secundatum	St. Augustine Grass	Adapted
Trachaelospermum asiaticum	Asian Jasmine	Adapted, Drought
Vinca minor (not V. major)	Vinca	Adapted, Drought

Vines for Screening Walls

Bignonia capreolata	Crossvine	Adapted, Drought
Campsis radicans	Trumpet Vine	Adapted
Lonicera sempervirens	Coral Honeysuckle	Adapted, Drought

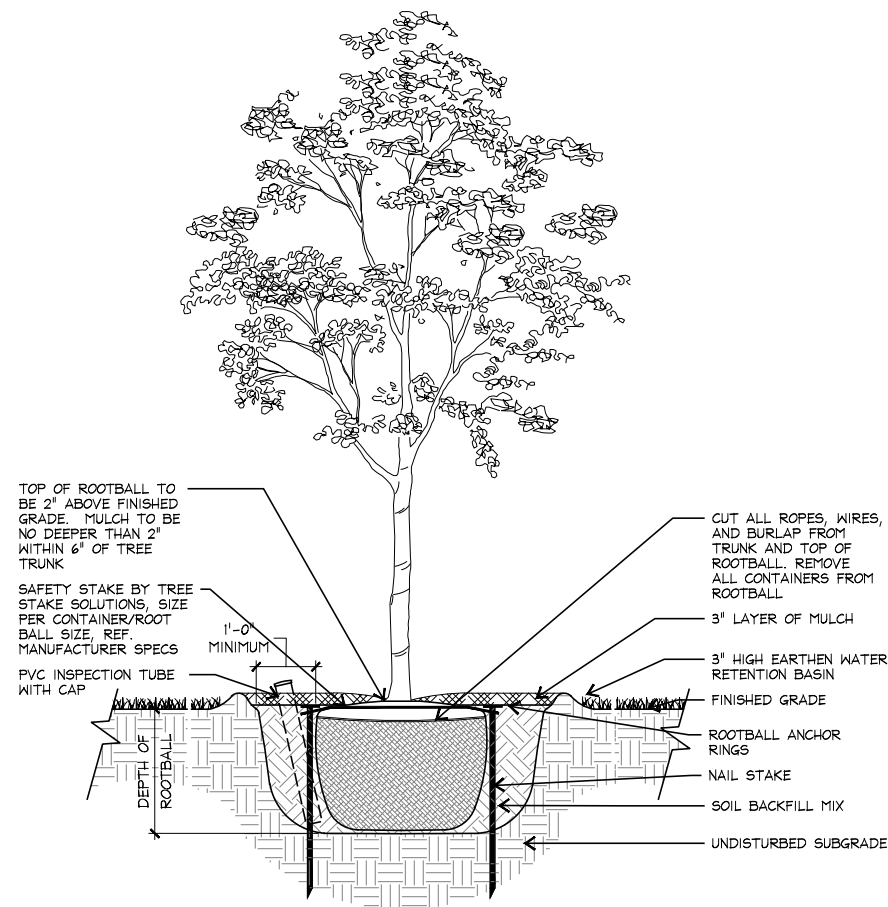
Perennials and Ornamental Grasses

Aster longifolia	Fall Aster	Native, Drought
Aster Oblongifolius	Fall Aster	
Calypocarpus vialis	Horse Herb	
Carex spp.	Red Rooster Sedge	
Chasmanthium latifolium	Inland Sea Oats	
Coreopsis lanceolata	Lanceleaf Coreopsis	
Echinacea purpurea	Purple Coneflower	Adapted, Drought
Eragrostis curvula	Weeping Lovegrass	
Eupatorium greegli	Greg's Mist Flower	
Guara lindheimeri	Pink Gaura	
Hibiscus coccinea	Texas Star Hibiscus	Adapted, Drought
Lantana horrida	Texas Lantana	
Malvaviscus drummondii	Turk's Cap	Adapted, Drought
Melampodium leucanthum	Blackfoot Daisy	Native, Drought
Miscanthus spp.	Maidengrass	Adapted, Drought
Muhlenbergia spp.	Gulf Coast Muhly	
Perovskia atriplicifolia	Russian Sage	
Rosmarinus officinalis var. Prostratus	Prostrate Rosemary	
Rudbeckia fulgida	Black-Eyed Susan	
Rudbeckia hirta	Blackeyed Susan	Native, Drought
Salvia greggii	Sage, Autumn	Adapted, Drought
Salvia penstemonoides	Sage, Big Red	Adapted, Drought
Santolina chamaecyparissus	Gray Santolina	
Scutellaria suffrutescens	Pink Skullcap	Adapted, Drought
Stachys byzantine	Lamb's Ear	
Stipa tenuissima	Mexican Feathergrass	
Thelypteris kunthii	Southern Wood Fern	

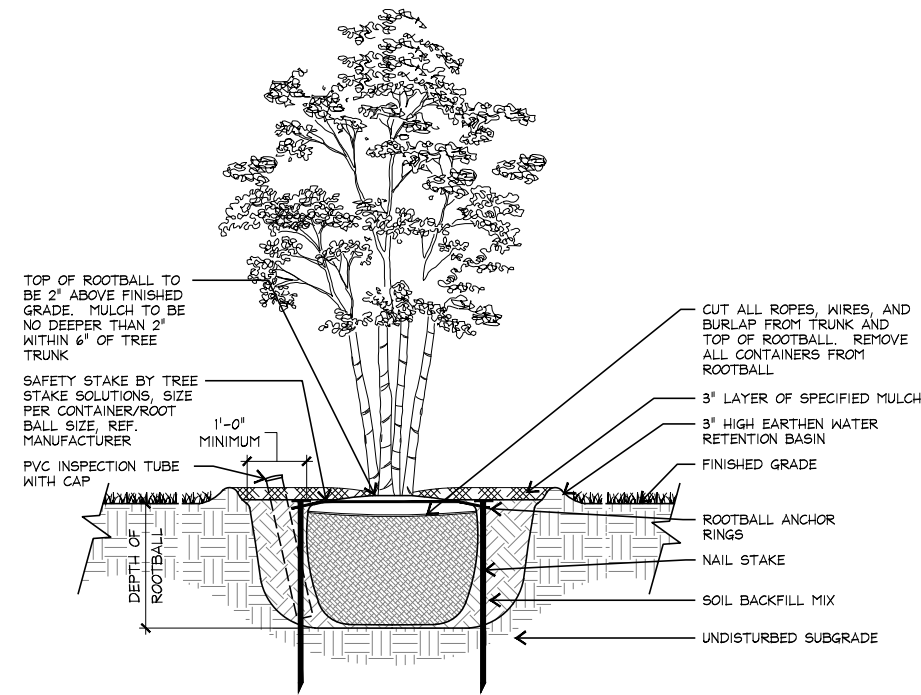
ACCEPTABLE PLANTING DETAILS

All planting shall be done in accordance to the City of Garland requirements and these documents.

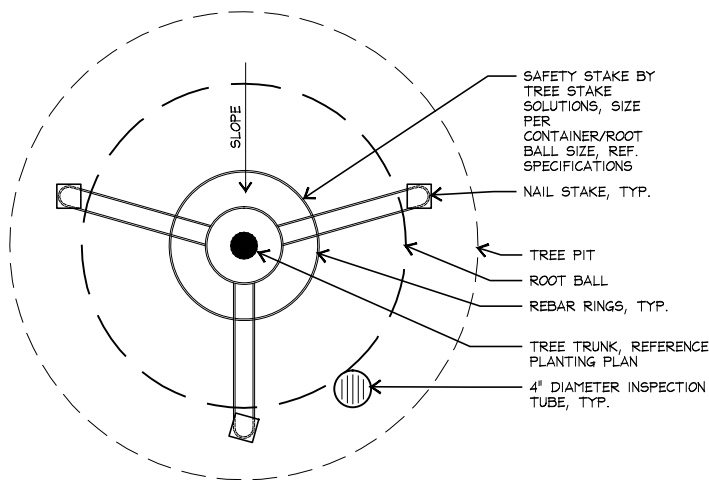
- All lawn areas will be sod, no seed applications are acceptable for lot landscaping.
- All landscape areas required to have a full, working irrigation system equipped with controller and rain/freeze sensor. Irrigation should be zoned appropriately for plant water requirements to ensure all plants thrive.



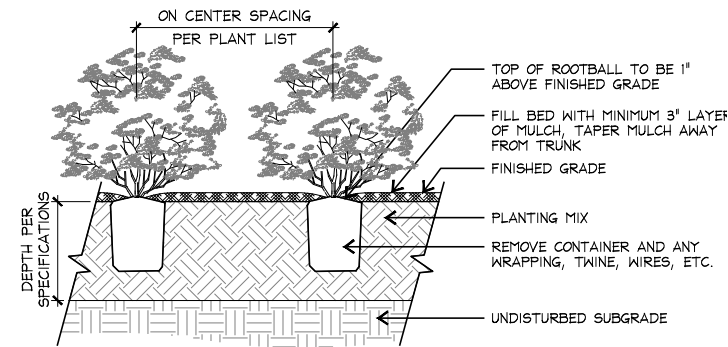
Canopy Tree Planting Detail



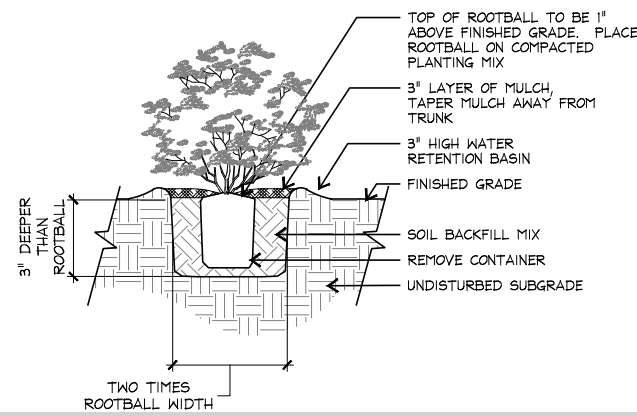
Ornamental Tree Planting Detail



Canopy Tree Staking Detail (Plan)



Shrub Bed Planting Detail



Shrub Bed Planting Detail

Z 21-38



View of the subject property from Buckingham Road.



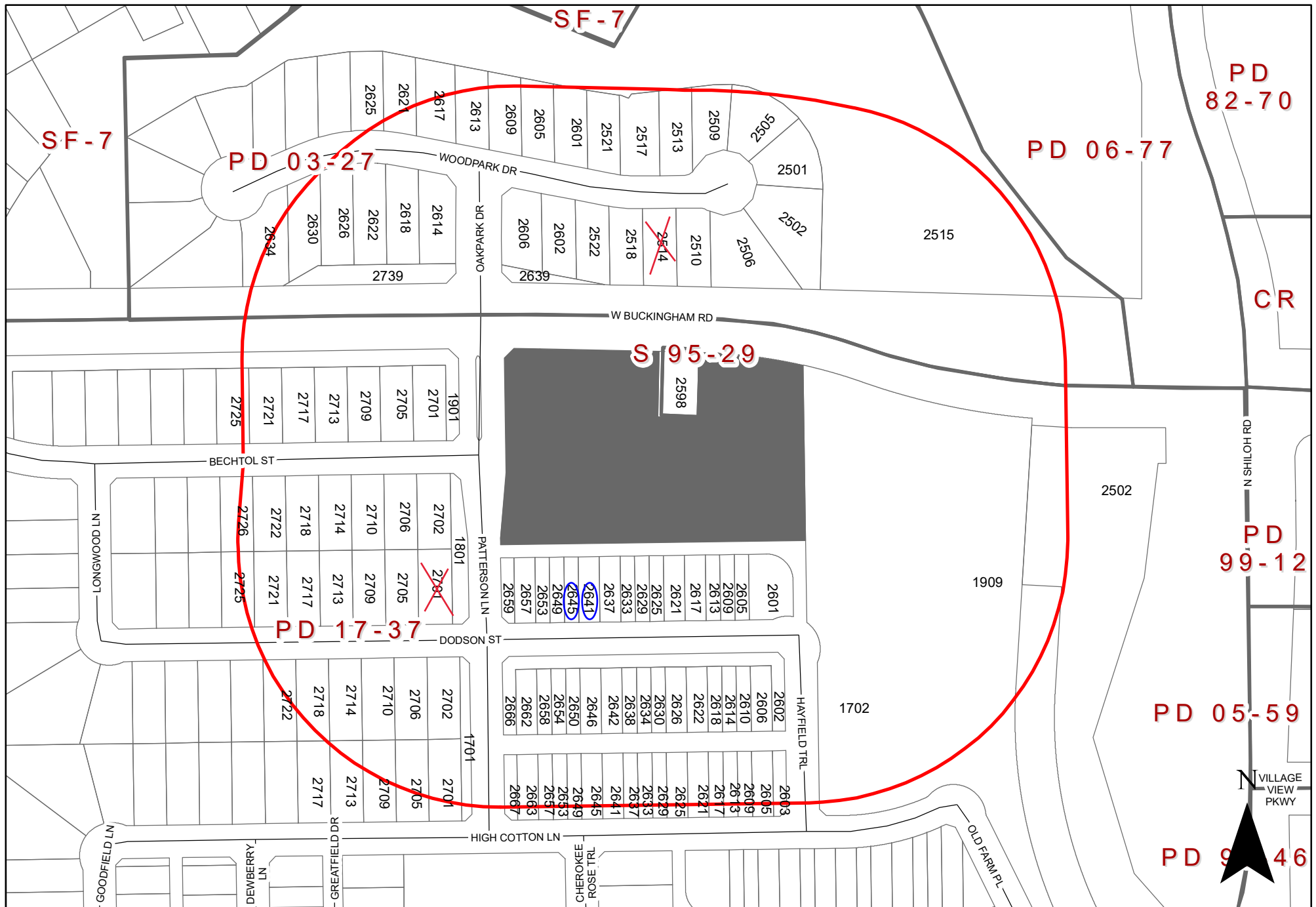
View of the property to the north.



View of the property to the east across Shiloh Rd.



View of the property to the south.



Zoning Map Z 21-38 **1902 Patterson Lane**

Comment Form

Case Z 21-38

Kimley-Horn proposes to allow 13 additional Single-Family Detached Homes at Riverset. This site is located at 1902 Patterson Lane. (District 6)

Kimley-Horn propone permitir 13 viviendas unifamiliares adicionales en Riverset. Este sitio está ubicado en 1902 Patterson Lane. (Distrito 6)

Kimley-Horn đề xuất cho phép thêm 13 Ngôi nhà Biệt lập Một Gia đình tại Riverset. Trang web này nằm ở 1902 Patterson Lane. (Quận 6)

Please Check One Below / Marque uno a continuación / Vui lòng kiểm tra một bên dưới



For / A Favor / Đúng



Against / En Contra / Không

Please complete the following information and email the form to Planning@garlandtx.gov; deliver to the Planning Department at 800 Main Street Garland, TX; or mail to City of Garland, Planning Department, P.O. Box 469002 Garland, TX 75406-9002. / Por favor Complete la siguiente información y envíe el formulario por correo electrónico a Planning@garlandtx.gov; entregar al Departamento de Planificación en 800 Main Street Garland, TX; o envíelo por correo a City of Garland, Planning Department, P.O. Box 469002 Garland, TX 75406-9002. / Vui lòng điền đầy đủ thông tin sau và gửi biểu mẫu qua email tới Planning@garlandtx.gov; giao cho Phòng Kế hoạch tại 800 Main Street Garland, TX; hoặc gửi thư đến Thành phố Garland, Sở Kế hoạch, P.O. Hộp 469002 Garland, TX 75406-9002.

Israel Ramos, Property Owner

Printed Name & Title / Nombre Impreso y Título / Tên in và Tiêu đề

(Property Owner, Business Owner, Tenant, etc.) / (Dueño de la propiedad, Dueño de la empresa, Inquilino, etc.) / (Chủ sở hữu bất động sản, Chủ doanh nghiệp, Người thuê, v.v.)

2645 Dodson Street

Your Property Address / La dirección de su propiedad / địa chỉ tài sản

Garland, TX

City, State / Estado de la Ciudad / Thành bang

75042

Zip Code / Código postal / Mã B u Chính

Signature / Firma / Chữ ký

11/1/2021
Date / Fecha / Ngày

(Providing email address and phone number is optional. / La dirección de correo electrónico y el número de teléfono son opcionales. / Địa chỉ email và số điện thoại là tùy chọn.)

Comment Form

Case Z 21-38

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Against / En Contra / Không

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Weston Myers ~~Lauren Karmann~~ & Lauren Karmann

Printed Name & Title / Nombre Impreso y Título / Tên in và Tiêu đề

(Property Owner, Business Owner, Tenant, etc.) / (Dueño de la propiedad, Dueño de la empresa, Inquilino, etc.) / (Chủ sở hữu bất động sản, Chủ doanh nghiệp, Người thuê, v.v.)

2641 DODSON ST

Your Property Address / La dirección de su propiedad / địa chỉ tài sản

GARLAND, TX

City, State / Estado de la Ciudad / Thành bang

75042

Zip Code / Código postal / Mã Bưu Chính



Signature / Firma / Chữ ký

10/30/21

Date / Fecha / Ngày

(Providing email address and phone number is optional. / La dirección de correo electrónico y el número de teléfono son opcionales. / Địa chỉ email và số điện thoại là tùy chọn.)

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Comment Form

Case Z 21-38

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Please Check One Below / Marque uno a continuación / Vui lòng kiểm tra một bên dưới

☐

For / A Favor / Đúng

☒

Against / En Contra / Không

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Miguel Garcia

Printed Name & Title / Nombre Impreso y Título / Tên in và Tiêu đề

(Property Owner, Business Owner, Tenant, etc.) / (Dueño de la propiedad, Dueño de la empresa, Inquilino, etc.) / (Chủ sở hữu bất động sản, Chủ doanh nghiệp, Người thuê, v.v.)

2514 Woodpark Drive

Your Property Address / La dirección de su propiedad / địa chỉ tài sản

Garland, TX ~~75044~~

City, State / Estado de la Ciudad / Thành bang

75044

Zip Code / Código postal / Mã B u Chính

Miguel Garcia

Signature / Firma / Ch ữ ký

11/2/2021

Date / Fecha / Ngày

(Providing email address and phone number is optional. / La dirección de correo electrónico y el número de teléfono son opcionales. / Địa chỉ email và số điện thoại là tùy chọn.)

Zoning Response Case Comments

Case Number	PC Hearing Date	CC Hearing Date	Planner Name
Z 21-38	November 11, 2021	December 7, 2021	Kimberly Hopkins

Kimley-Horn proposes to allow 13 additional Single-Family Detached Homes at Riverset. This site is located at 1902 Patterson Lane. (District 6)

Son Nguyen

against

10/31/2021
7:53:52 PM

2701 Dodson St

Raynguyen75@yahoo.com

Garland

Texas

United States

75042

Son Nguyen

against

10/31/2021
7:53:51 PM

2701 Dodson St

Raynguyen75@yahoo.com

Garland

Texas

United States

75042



GARLAND

Plan Commission

3. a.

Meeting Date: 11/11/2021

Item Title: Roadway and Water Impact Fee Study

Summary:

Consideration and possible recommendation to re-adopt the 2016 Water and Roadway Impact Fee Study: Land Use Assumptions, Roadway and Water Impact Fee CIP, and Maximum Fee.

Attachments

Roadway and Water Impact Fee Study Policy Report

Garland Water IF Final Draft

Garland Roadway IF Final Draft

Roadway and Water Impact Fee Study Comparison Charts



Planning Report

ROADWAY AND WATER IMPACT FEE STUDY

REQUEST

Consider approval of Land Use Assumptions, Roadway and Water Impact Fee Capital Improvement Plan, and a Maximum Roadway and Water Impact Fee.

STAFF RECOMMENDATION

Staff recommends re-adoption of the Land Use Assumptions, Roadway and Water Impact Fee Capital Improvement Plan, and a Maximum Roadway and Water Impact Fee. The study and subsequent impact fees remain valid for another five (5) years.

BACKGROUND

Section 395.052 of the Texas Local Government Code mandates updates every five years to the land use assumptions and capital improvements plan for a political subdivision imposing an impact fee. The City may re-adopt previous impact fee studies that are still deemed valid.

In December 2016 (with a March 1, 2017 effective date), the Garland City Council adopted the Land Use Assumptions, Land Use Assumptions, Roadway and Water Impact Fee Capital Improvement Plan, and a Maximum Roadway and Water Impact Fee, as drafted by consultant Kimley-Horn. Since it is approaching five years since adoption, consideration of this item is being brought forward.

CONSIDERATIONS

1. Impact fees are a one-time fee assessed to recover infrastructure costs required to serve new development. The City of Garland currently assesses impact fees for roadways and water. The purpose of an impact fee study is, per the Texas Local Government Code, to provide an analysis which formulates land use assumptions from which to base any needed impact fee changes, and to recommend a maximum water and roadway impact fee to the Capital Improvements Advisory Committee (CIAC) and the City Council.

2. Chapter 395 of the Texas Local Government Code requires a Capital Improvements Advisory Committee (CIAC) be appointed to provide comments on proposed amendments to the impact fees, land use assumptions and capital improvements plan upon which calculation of the impact fee is based. Per the current impact fee ordinance, the Plan Commission serves as the Capital Improvements Advisory Committee (CIAC). It is common for municipalities to appoint their Planning Commissions as the acting CIAC.
3. Staff determines that the impact fee study is still valid for another five (5) years. As bond projects and other capital projects are completed, an updated study will be likely needed in another five years.
4. A City may charge impact fees up to the maximum fee identified per the study. The City of Garland collects the maximum rate for water impact fees. Meanwhile, the City collects 45% of the maximum roadway impact fee for commercial / retail / institutional development, 60% for residential development, and 15% for industrial development. Attached are impact fee comparison charts, comparing Garland's impact fee rates with other cities in the Dallas/Fort Worth region.
5. Attached are the Water Impact Fee Study and Roadway Impact Fee Study, as well as the impact fee comparisons for the Commission's consideration. A public hearing will be scheduled for the City Council to formally consider re-adoption of the impact fee study items.

ATTACHMENTS

Water Impact Fee Study
Roadway Impact Fee Study
Fee Comparison Charts

Submitted By:

Will Guerin, AICP
Director of Planning & Development

Date: November 2, 2021

CITY OF GARLAND, TEXAS WATER IMPACT FEE STUDY FINAL DRAFT



GARLAND

TEXAS MADE HERE

October
2016

Prepared for the City of Garland

Prepared by:

Kimley-Horn and Associates, Inc.

12750 Merit Drive, Suite 1000

Dallas, TX 75251

Phone 972-770-1300

TBPE Firm Registration Number: F-928

Project Number: 063551021

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- Appendix A: Finance and Capacity Calculations
 A1: Additional Service Unit & Capacity Calculations

EXECUTIVE SUMMARY

This study was performed to update the City of Garland's (City) water system impact fees. The implementation of an impact fee is a way to shift a portion of the burden of paying for new facilities onto new development.

Capital Improvements to elements of the water system, including storage facilities, pumping facilities, and the distribution network itself, were provided by the City. Population and land use projections were developed by Freese and Nichols, Inc.

Generally, new water infrastructure is designed beyond the 10-year requirements of the Impact Fee; however, Texas' impact fee law (Chapter 395 of the *Local Government Code*) only allows recovery of costs to serve the 10-year planning period. A portion of the remaining costs past the 10-year window may be recovered as a result of impact fee updates in the future.

The impact fee law defines a service unit as "a standardized measure of consumption, use, generation, or discharge attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards and based on historical data and trends applicable to the political subdivision in which the individual unit of development is located during the previous 10 years". For the purpose of this report, the City defines a service unit as a unit of development that consumes the amount of water requiring a standard 5/8" x 3/4" meter. For developments that require a different size meter, a service unit equivalent has been determined as a multiplier of the 5/8" x 3/4" meter based on its required operating capacity. These service unit equivalency factors and associated maximum assessable impact fees are shown in Table 1.

After analysis of the City's 10-year growth projections and the associated demand values, 3,270 additional service units will need water by the year 2026. Based on these additional service units and recoverable costs calculated from the City's Capital Improvements Plan, the City may assess a maximum of \$593 per service unit. Support and calculations for these results are included in the following report.

Table 1: Maximum Assessable Water Impact Fee for Commonly Used Meters

Meter Size*	Maximum Continuous Operating Capacity (GPM)**	Service Unit Equivalent	Maximum Assessable Fee (\$)
5/8"x 3/4" PD	10	1	593
3/4" PD	15	1.5	890
1" PD	25	2.5	1,483
1 1/2" PD	50	5	2,965
2" PD	80	8	4,744
2" Compound	80	8	4,744
2" Turbine	160	16	9,488
3" Compound	175	17.5	10,378
3" Turbine	350	35	20,755
4" Compound	300	30	17,790
4" Turbine	650	65	38,545
6" Compound	675	67.5	40,028
6" Turbine	1,400	140	83,020
8" Compound	900	90	53,370
8" Turbine	2,400	240	142,320
10" Turbine	3,500	350	207,550

* PD = Positive Displacement Meter (Typical Residential Meter)

** Operating capacities obtained from American Water Works (AWWA) C-700, C-701 & C-702

Introduction

The City contracted Kimley-Horn and Associates, Inc. (Kimley-Horn) to update the existing water impact fee. The most recent water impact fee update was completed by Water Resources Management, LP in November, 2003. The purpose of the report is to satisfy the requirements of the law and provide the City with an updated impact fee capital improvements plan and associated impact fees.

For convenience and reference, the following is excerpted from Chapter 395 of the Local Government Code.

(a) The political subdivision shall use qualified professionals to prepare the capital improvements plan and to calculate the impact fee. The capital improvements plan must contain specific enumeration of the following items:

(1) a description of the existing capital improvements within the service area and the costs to upgrade, update, improve, expand, or replace the improvements to meet existing needs and usage and stricter safety, efficiency, environmental, or regulatory standards, which shall be prepared by a qualified professional engineer licensed to perform the professional engineering services in this state;



- (2) *an analysis of the total capacity, the level of current usage, and commitments for usage of capacity of the existing capital improvements, which shall be prepared by a qualified professional engineer licensed to perform the professional engineering services in this state;*
- (3) *a description of all or the parts of the capital improvements or facility expansions and their costs necessitated by and attributable to new development in the service area based on the approved land use assumptions, which shall be prepared by a qualified professional engineer licensed to perform the professional engineering services in this state;*
- (4) *a definitive table establishing the specific level or quantity of use, consumption, generation, or discharge of a service unit for each category of capital improvements or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial, and industrial;*
- (5) *the total number of projected service units necessitated by and attributable to new development within the service area based on the approved land use assumptions and calculated in accordance with generally accepted engineering or planning criteria;*
- (6) *the projected demand for capital improvements or facility expansions required by new service units projected over a reasonable period of time, not to exceed 10 years; and*
- (7) *a plan for awarding:*
 - (A) *a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or*
 - (B) *in the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan.*

The impact fees are based on recommended capital improvements and the population growth projections provided by the City.

The study process involved the following two tasks:

1. IMPACT FEE CAPITAL IMPROVEMENTS PLAN

This task involved developing cost projections for the capital improvement projects that the City has identified to be built in the 10-year planning window. It also involved estimating the utilized capacity of the existing and proposed capital improvement projects to determine their 10-year recoverable cost.

2. IMPACT FEE ANALYSIS AND REPORT

This task included calculating the additional service units and service unit equivalents. These values were then used to determine the impact fee per service unit and the maximum assessable impact fee by meter size.

Water Service Area

The build-out service area boundary for the City's water system is shown on the enclosed Water System Service Area Map (Exhibit 1). This area encompasses almost all the land within the City's limits and includes approximately 35,900 acres.

Water System Definitions

The following terms are used throughout this report.

Capital Improvements Plan (CIP)

Recommended improvement to the water distribution system based on growth and water demand projections.

Demand (Consumption)

Volume of water used for a given time period, typically measured in million gallons per day (mgd) or gallons per minute (gpm).

EST

Elevated Storage Tank

gpd

Gallons per day

GST

Ground Storage Tank

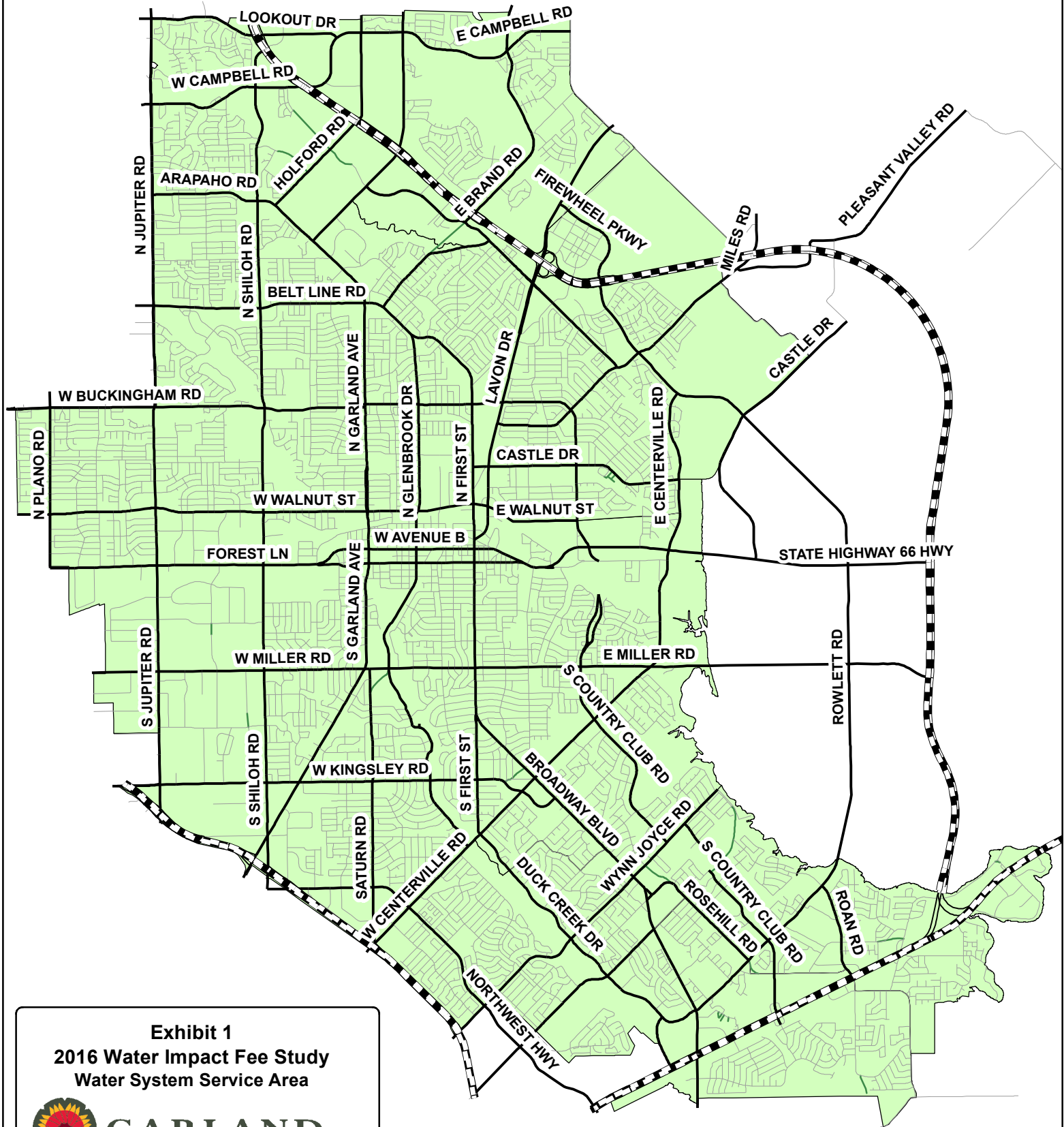


Exhibit 1
2016 Water Impact Fee Study
Water System Service Area



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0 0.5 1 2
 Miles



Kimley»Horn

October 2016

Legend

 Water system Service Area

EXISTING WATER DISTRIBUTION SYSTEM

Infrastructure Eligible for Impact Fees

There is some existing City water system infrastructure which has additional capacity to serve future growth within the City's service area. A portion of the cost of this infrastructure is eligible for recoverable cost in the updated impact fee. Table 2 shows the recoverable cost of the projects that were determined to be eligible for impact fee consideration. These projects are also illustrated in Exhibit 2. The recoverable cost is calculated by multiplying the 2026-2016 capacity utilization percentage by the total project cost.

Table 2: Project Costs for Existing Infrastructure Eligible for Impact Fees

Project No.	Existing Improvement Description	2016 Capacity (% Utilization)	2026 Capacity (% Utilization)	2026 - 2016 Capacity (% Utilization)	Total Project Cost*	2026 Projected Recoverable Cost*
1	Water Line - Firewheel Mall (190 to Lavon)	81%	85%	4%	\$ 542,360	\$ 21,694
2	Pump Station - Broadway Improvements	81%	85%	4%	\$ 5,429,318	\$ 217,173
3	Water Line - Centerville to Pleasant Valley	81%	85%	4%	\$ 4,596,873	\$ 183,875
4	Water Line - Commerce Water Tower to Centerville	81%	85%	4%	\$ 623,561	\$ 24,942
5	Water Lines - Along Naaman Forest & Along Bunker Hill	81%	85%	4%	\$ 1,397,000	\$ 55,880
6	Water Line - Wynn Joyce to Wendell Way	81%	85%	4%	\$ 500,000	\$ 20,000
7	Water Lines - Along Commerce & Along Eastgate Dr	81%	85%	4%	\$ 1,500,000	\$ 60,000
8	Elevated Tank - Commerce Water Tower	81%	85%	4%	\$ 4,978,939	\$ 199,158
9	Water Line - Lawler to Forest along Yale	81%	85%	4%	\$ 814,373	\$ 32,575
10	Water Line - Fifth to under RR tracks along Austin St	81%	85%	4%	\$ 513,000	\$ 20,520
11	Water Lines - Along Fifth St & State St	81%	85%	4%	\$ 1,613,000	\$ 64,520
12	Pump Station - Apollo Northside Improvements	81%	85%	4%	\$ 6,555,322	\$ 262,213
13	Water Line - Centerville to La Prada along Northwest Hwy	81%	85%	4%	\$ 1,760,000	\$ 70,400
14	Water Line - Wendell Way to Rowlett Road	81%	85%	4%	\$ 2,800,000	\$ 112,000
15	Elevated Tank - Southwest Garland Water Tower	81%	85%	4%	\$ 21,376,000	\$ 855,040
16	Water Line - Firewheel to Miles Rd along Pleasant Valley	81%	85%	4%	\$ 700,000	\$ 28,000
TOTAL					\$ 55,699,746	\$ 2,227,990

* Does not include financing costs.

WATER IMPACT FEE CAPITAL IMPROVEMENTS PLAN

The City of Garland identified a list of projects that will be required to supply water to the City's customers in the future. Eight (8) projects are determined eligible for recoverable cost through impact fee over the next 10 years. These impact fee capital improvement projects are summarized in Table 3 and illustrated in Exhibit 2.

Exhibit 2 2016 Water Impact Fee Study Impact Fee CIP Projects



GARLAND
TEXAS MADE HERE

0 0.5 1 2 Miles

Kimley»Horn

October 2016

Legend

- Water Service Area
- FEMA Floodplain

Water Pipes

- Existing
- Proposed

Water Tanks

- Existing
- Proposed

Pump Stations

- Existing
- Proposed

Impact Fee CIP Projects

1. Water Line - Firewheel Mall (190 to Lavon)
2. Pump Station - Broadway Improvements
3. Water Line - Centerville to Pleasant Valley
4. Water Line - Commerce Water Tower to Centerville
5. Water Lines - Along Naaman Forest & Along Bunker Hill
6. Water Line - Wynn Joyce to Wendell Way
7. Water Lines - Along Commerce & Along Eastgate Dr
8. Elevated Tank - Commerce Water Tower
9. Water Line - Lawler to Forest along Yale
10. Water Line - Fifth to under RR tracks along Austin St
11. Water Lines - Along Fifth St & State St
12. Pump Station - Apollo Northside Improvements
13. Water Line - Centerville to La Prada along Northwest Hwy
14. Water Line - Wendell Way to Rowlett Road
15. Elevated Tank - Southwest Garland Water Tower
16. Water Line - Firewheel to Miles Rd along Pleasant Valley
17. Water Line - 635 to Kingsley along Shiloh Rd
18. Water Line - Rosehill to I-30 along Bobtown
19. Water Line - 190 to Muirfield along Brand
20. Water Line - Rowlett Rd to Bobtown along Country Club
21. Water Line - Campbell along 190 along Naaman Forest
22. Elevated Tank - East Zone Water Tower
23. Pump Station - Firewheel Pump Station Expansion

Table 3: Estimated Project Costs for
Proposed Capital Improvement Projects

Project No.	Proposed Improvement Description	2016 Capacity (% Utilization)	2026 Capacity (% Utilization)	2026 - 2016 Capacity (% Utilization)	Estimated Total Project	2026 Projected Recoverable Cost
17	Water Line - 635 to Kingsley along Shiloh Rd	81%	85%	4%	\$1,000,000	\$ 40,000
18	Water Line - Rosehill to I-30 along Bobtown	81%	85%	4%	\$1,200,000	\$ 48,000
19	Water Line - 190 to Muirfield along Brand	81%	85%	4%	\$500,000	\$ 20,000
20	Water Line - Rowlett Rd to Bobtown along Country Club	81%	85%	4%	\$1,000,000	\$ 40,000
21	Water Line - Campbell along 190 along Naaman Forest	81%	85%	4%	\$130,000	\$ 5,200
22	Elevated Tank - East Zone Water Tower	81%	85%	4%	\$7,000,000	\$ 280,000
23	Pump Station - Firewheel PS Expansion	81%	85%	4%	\$8,000,000	\$ 320,000
24	Water Master Plan Update	0%	100%	100%	\$550,000	\$ 550,000
Total Project Cost					\$19,380,000	\$ 1,303,200
*Financing Cost					\$ 10,852,800	\$ 729,792
TOTAL					\$30,232,800	\$ 2,032,992

*Includes 20-year simple interest loan @ 4.7% APR

WATER IMPACT FEE CALCULATION

In accordance with Chapter 395 of the *Local Government Code*, the City defines a service unit based on historical water usage over the last 10 years as compared to the estimated residential units. The residential unit is the development type that typically uses a 5/8" x 3/4" meter. The measure of the consumption per service unit is based on a 5/8" x 3/4" meter and the data shown in Table 4.

Table 4: Service Unit Consumption Calculation

Year	Population	Service Units (3.08 persons/unit)	Water Usage Average Day Demand (MGD)	Consumption per Service Unit (GPD)
2006	222,432	72,218	36.18	501
2007	224,988	73,048	30.69	420
2008	226,144	73,423	35.76	486
2009	225,865	73,333	31.57	430
2010	226,876	73,661	35.72	485
2011	231,596	75,194	36.67	488
2012	233,623	75,852	31.97	420
2013	234,694	76,199	29.06	381
2014	235,597	76,493	26.17	342
2015	236,897	76,915	27.24	354
10-Year Average Consumption per Service Unit:				431

* Water Usage Source: City of Garland

* Population Source: Freese and Nichols

Additional Service Unit and Water Impact Fee Calculation

According to the City's 10-year growth projections and corresponding water demand projections, water service will be required for an additional 3,270 service units. The calculation is summarized below:

- A service unit, which is a unit of development that consumes approximately 431 GPD, is a typical residential connection that uses a 5/8" x 3/4" meter. Table 5 details the future water demand projections and how it effects the service units projected for the next 10 years.

Table 5: 10-Year Additional Service Units Calculation

Year	Average Day Demand (MGD)	Service Unit Demand (GPD)	Service Units
2016	27.24	431	63,234
2026	28.65	431	66,504
10-Year Additional Service Units			3,270

Impact fee law allows for a credit calculation to credit back the development community based on the utility revenues or ad valorem taxes that are allocated for paying a portion of future capital improvements. The intent of this credit is to prevent the City from double-charging development for future capital improvements via impact fees and utility rates. If the City chooses not to do a financial analysis to determine the credit value, law requires them to reduce the recoverable cost by 50 percent. The City has decided to forgo the financial analysis and reduce the recoverable cost by 50 percent. The maximum recoverable cost for impact fee is shown in Table 6.

Table 6: Recoverable Cost Breakdown

Water System Facility	Total Project Cost	2026 Recoverable Cost
Existing Bond Projects	\$ 55,699,746	\$ 2,227,990
Proposed Capital Improvement Projects	\$ 30,232,800	\$ 2,032,992
Planning Expenses - Water Impact Fee	\$ 36,594	\$ 36,594
Existing Water Impact Fee Fund Balance	\$ (414,123)	\$ (414,123)
Totals	\$ 85,555,017	\$ 3,883,452

The impact fee per service unit is calculated as follows:

- Assessable Cost = 50% of Recoverable Cost = \$1,941,726
- Impact fee per service unit = $\frac{\text{Assessable Cost}}{\text{Additional service units}}$

- Impact fee per service unit = $\frac{\$1,941,726}{3,270} = \593

Therefore, the maximum assessable impact fee per service unit is \$593.

For developments that require a different size meter, a service unit equivalent has been determined as a multiplier of the 5/8" x 3/4" meter based on its required operating capacity. The maximum impact fee that could be assessed for other meter sizes is based on the values shown in Table 7.

Table 7: Service Unit Equivalency Table for Commonly Used Meters

Meter Size*	Maximum Continuous Operating Capacity (GPM)**	Service Unit Equivalent	Maximum Assessable Fee (\$)
5/8"x 3/4" PD	10	1	593
3/4" PD	15	1.5	890
1" PD	25	2.5	1,483
1 1/2" PD	50	5	2,965
2" PD	80	8	4,744
2" Compound	80	8	4,744
2" Turbine	160	16	9,488
3" Compound	175	17.5	10,378
3" Turbine	350	35	20,755
4" Compound	300	30	17,790
4" Turbine	650	65	38,545
6" Compound	675	67.5	40,028
6" Turbine	1,400	140	83,020
8" Compound	900	90	53,370
8" Turbine	2,400	240	142,320
10" Turbine	3,500	350	207,550

* PD = Positive Displacement Meter (Typical Residential Meter)

** Operating capacities obtained from American Water Works (AWWA) C-700, C-701 & C-702

Appendix A – Capacity Calculations

Table A1: Additional Service Unit & Capacity Calculations

10-Year Additional Service Units Calculation

Year	Average Day Demand (MGD)	Service Unit Demand (GPD)	Service Units	Capacity
2016	27.24	431	63,234	81%
2026	28.65	431	66,504	85%
Buildout	33.55	431	77,878	100%
10-Year Additional Service Units			3,270	

CITY OF GARLAND, TEXAS ROADWAY IMPACT FEE STUDY FINAL DRAFT



GARLAND

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October
2016

Prepared for the City of Garland

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EXECUTIVE SUMMARY

Introduction

Impact Fees are a mechanism for funding the public infrastructure necessitated by new development. Across the country, they are used to fund police and fire facilities, parks, schools, roads and utilities. In Texas, the legislature has allowed their use for water, wastewater, roadway and drainage facilities. Historically, they have been used to fund public water, wastewater, and roadway improvements in the City of Garland. The focus of this study is on roadway impact fees.

In the most basic terms, impact fees are meant to recover the incremental cost of the impact of each new unit of development creating new infrastructure needs. In the case of roadway impact fees, the infrastructure need is the increased capacity on arterial and collector roadways that serve the overall transportation system. The purpose of the 2016 Roadway Impact Fee Study is to identify the fee per unit of new development necessary to fund these improvements in accordance with the enabling legislation, Chapter 395 of the Texas Local Government Code.

Impact Fee Basics

Roadway Impact Fees are determined by several key variables, each described below in greater detail.

Impact Fee Study

The primary purpose of the 2016 Roadway Impact Fee Study is to determine the maximum impact fee per unit of new development chargeable as allowed by the state law. This determination is not a recommendation; the actual fee amount ultimately assessed is at the discretion of the Garland City Council, so long as it does not exceed the maximum assessable allowed by law. The study looks at a period of 10 years to project new growth and corresponding capacity needs, as required by state law. The study (and corresponding maximum fees) must be restudied at least every five years. However, the study can be updated at any time to accommodate significant changes in any of the key variables of the impact fee equation.

Service Areas

A Service Area is a geographic area within which a unique maximum impact fee is determined. All fees collected within the Service Area must be spent on eligible improvements within the same Service Area. For Roadway Impact Fees, the Service Area may not exceed 6 miles. From 2003-2016, there were 18 existing service areas. As a result of this study, these 18 service areas were aggregated into 4 larger service areas following the 6-mile limit. A map of the Service Areas can be found on Page 6.

In defining the Service Area boundaries, the project team considered the corporate boundary, required size limit, adjacent land uses, and topography. Since each Service Area has a unique maximum impact fee, the per-unit maximum fee for an identical land use will vary from one Service Area to the next. For this reason, the team contained areas of uniform land use within the same Service Area boundary where possible.

Land Use Assumptions

The maximum Roadway Impact Fee determination is required to be based on the projected growth and corresponding capacity needs in a ten year window. This study considers the years 2016-2026.

To project future development in the ten year window, growth assumptions were made based on the demographic projections developed for the ongoing Garland Water and Wastewater Master Plan. Research of historical building permits was performed to compare the projected ten year growth against historical data.

Roadway Impact Fee Capital Improvement Plan (CIP)

The Roadway Impact Fee CIP is distinct and separate from the City's traditional Capital Improvements Plan. The Roadway Impact Fee CIP is simply the list of projects eligible for funding through impact fees. Only those capacity improvements included in the City's adopted Thoroughfare Plan are included in the Roadway Impact Fee CIP. Capacity improvements may include the addition of lanes, intersection improvements, or the extension of a new road. Resurfacing or other maintenance activities do not qualify as capacity improvements under impact fee law in Texas.

Only the projects listed in the Roadway Impact Fee CIP are eligible to utilize impact fee funds. In order to optimize future flexibility, all capacity improvement projects included in the Master Thoroughfare Plan are included in the Roadway Impact Fee CIP and will be eligible to utilize impact fee funds. Only the costs associated with providing the additional capacity necessitated by 10-years of growth can be used to calculate the maximum impact fee.

In order to calculate the maximum impact fee, the total cost of the Roadway Impact Fee CIP at build-out was reduced to account for:

- The portion of new capacity that will address existing needs, and
- The portion of new capacity that will not be necessitated until beyond the 10-year growth window.

A ratio that compares 10 years' demand for capacity to the net supply of capacity (total new capacity in the Roadway Impact Fee CIP minus existing needs) can be calculated. This ratio, which may not exceed 100%, is then applied to the cost of the net capacity supplied. The result is a determination of the costs attributable to the next 10 years' growth, which is then used to calculate the maximum impact fee in accordance with state law. The result is known as the cost of the Roadway Impact Fee CIP Attributable to Growth (i.e. recoverable portion of the Roadway Impact Fee CIP):

Service Areas	A	B	C	D
Cost of Roadway Impact Fee CIP Attributable to Growth and Financing	\$ 32,090,045	\$ 24,781,968	\$ 28,927,845	\$ 21,141,890

Service Units

The impact fee law defines a service unit as follows: "Service Unit means a standardized measure of consumption attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards and based on historical data and trends applicable to the political subdivision in which the individual unit of development is located during the previous 10 years."

The 2016 Roadway Impact Fee Study defines a *service unit* as the number of vehicle-miles. Based on the City's 10-year growth projections the associated demand (consumption) values for each service area are as follows in terms of vehicle-miles:



Service Areas	A	B	C	D
Total Growth (2016 - 2026) in Vehicle-Miles	30,833	11,872	10,840	14,170

Impact Fee Calculation

The maximum impact fee allowable in each of the five service areas is then calculated by dividing the Roadway Impact Fee CIP Attributable to Growth by the number of vehicle-miles in the corresponding Service Area in the above table. This calculation is performed for each service area individually; each service area has a stand-alone Roadway Impact Fee CIP and 10-year growth projection.

Below is the listing of the 2016 Roadway Impact Fee Study's Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile):

Service Areas	A	B	C	D
2016 Roadway Impact Fee Study Maximum Assessable Fee Per Vehicle-Mile	\$ 1,032	\$ 2,081	\$ 2,661	\$ 1,486

Chapter 395 Required Adoption Process

Chapter 395 of the Texas Local Government Code stipulates a specific process for the adoption of Roadway Impact Fees. A Capital Improvement Advisory Committee (CIAC) is required to review the Land Use Assumptions and Roadway Impact Fees CIP used in calculating the maximum fee, and to provide the Committee's findings for consideration by the City Council. This CIAC also reviews the Roadway Impact Fee ordinance and provides its findings to the City Council. The composition of the CIAC is required to adequately represent the building and development communities. For this study, the Plan Commission serves as the CIAC. The City Council then conducts a first public hearing on the Land Use Assumptions and Roadway Impact Fee CIP and a second public hearing on the Roadway Impact Fee Ordinance.

Following policy adoption, the CIAC is tasked with advising the City Council of the need to update the Land Use Assumptions or the Roadway Impact Fee CIP at any time within five years of adoption. Finally, the CIAC oversees the proper administration of the Impact Fee, once in place, and advises the Council as necessary.

Collection and Use of Transportation Impact Fees

Roadway Impact fees are assessed when a final plat is recorded. The assessment defines the impact of each unit at the time of platting, according to land use, and may not exceed the maximum impact fee allowed by law. Roadway Impact Fees are collected when a building permit is issued.

Therefore, funds are not collected until development-impacts are introduced to the transportation system. Funds collected within a service area can be used only within the same service area. Finally, fees must be utilized within 10 years of collection, or must be refunded with interest.

I. INTRODUCTION

Chapter 395 of the Texas Local Government Code describes the procedure political subdivisions must follow in order to create and implement impact fees. Senate Bill 243 (SB 243) amended Chapter 395 in 2001 to define an Impact Fee as “a charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development.”

The City retained Kimley-Horn and Associates, Inc. to provide professional transportation engineering services for the 2016 Roadway Impact Fee Study. This report includes details of the Roadway Impact Fee calculation methodology in accordance with Chapter 395, the applicable Land Use Assumptions, development of the Roadway Impact Fee Capital Improvements Plan, and the Land Use Equivalency Table.

This report references two of the basic inputs to the Roadway Impact Fee:

- 1) **Land Use Assumptions** (Pg. 3)
- 2) **Roadway Impact Fee Capital Improvements Plan (CIP)** (Pg. 8)

Information from these Land Use Assumptions and Roadway Impact Fee CIP is used extensively throughout the remainder of the report.

There is a detailed discussion of the methodology for the computation of impact fees. This discussion is broken into two components:

- 1) **Computation Method for Roadway Impact Fees** (Pg. 17)
- 2) **Roadway Impact Fee Calculation** (Pg. 33)

The components of the **Computation Method for Roadway Impact Fee** include development of:

- Service Areas (Pg. 17)
- Service Units (Pg. 17)
- Cost Per Service Unit (Pg. 19)
- Roadway Impact Fee CIP Costing Methodology (Pg. 19)
- Summary of Roadway Impact Fee CIP Costs (Pg. 23)
- Service Unit Calculation (Pg. 28)

The Roadway Impact Fee is then calculated as:

- Maximum Assessable Impact Fee Per Service Unit (Pg. 33)
- Service Unit Demand Per Unit of Development (Pg. 37)

This report also includes a section concerning the **Plan for Financing and the Ad Valorem Tax Credit**. This plan details the maximum assessable impact fee per service unit the City of Garland may apply under Chapter 395 of the Texas Local Government Code.

The final section of the report is the **Conclusion**, which presents the findings of the update analysis and summarizes the report.

II. LAND USE ASSUMPTIONS

A. Purpose and Overview

In order to assess an impact fee, Land Use Assumptions must be developed to provide the basis for residential and employment growth projections within a political subdivision. As defined by Chapter 395 of the Texas Local Government Code, these assumptions include a description of changes in land uses, densities, and development in the service area. The land use assumptions are then used in determining the need and timing of transportation improvements to serve future development.

Information from the following sources was compiled to complete the land use assumptions:

- Dallas County Appraisal District (DCAD)
- Envision Garland Future Land Use Plan and Map
- Envision Garland 2030 Comprehensive Plan
- Ongoing Water and Wastewater Master Plan Update
- Centerville Marketplace Revitalization Strategy – Final Report
- Forest-Jupiter Transit-Oriented Redevelopment Plan
- City of Garland staff
- Historic Building Permit Data

The Land Use Assumptions include the following components:

- **Land Use Assumptions Methodology** – An overview of the general methodology used to generate the land use assumptions.
- **Roadway Impact Fee Service Areas** – Explanation of the division of Garland into service areas for transportation facilities.
- **Residential and Employment**– Data on residential and employment growth within the service area over the next ten years (2016 – 2026).
- **Land Use Assumptions Summary** – A synopsis of the land use assumptions.

The residential and employment estimates and projections were compiled in accordance with the following categories:

Units: Number of dwelling units, both single and multi-family.

Employment: Square feet of building area based on three (3) different classifications. Each classification has unique trip making characteristics.

Retail: Land use activities which provide for the retail sale of goods which primarily serve households and whose location choice is oriented toward the household sector, such as grocery stores and restaurants.

Service: Land use activities which provide personal and professional services, such as government and other professional offices.

Basic: Land use activities that produce goods and services such as those which are exported outside of the local economy, such as manufacturing, construction, transportation, wholesale, trade, warehousing, and other industrial uses.

These broader categories are used in the development of the assumptions for impact fees; however, expanded classifications used in the assessment of impact fees are found in the Land Use / Vehicle-Mile Equivalency Table (Pg. 39).

B. Land Use Assumptions Methodology

The residential and non-residential growth projections formulated in this report were performed using reasonable and generally accepted planning principles. The following factors were considered in developing these projections:

- Character, type, density, and quantity of existing development;
- Current zoning;
- Growth trends;
- Location of vacant land;
- Physical restrictions (i.e. flood plains, railroads); and
- Physical development capacity of Garland.

Existing residential and employment estimates were obtained using DCAD parcel data and an aerial survey of existing development.

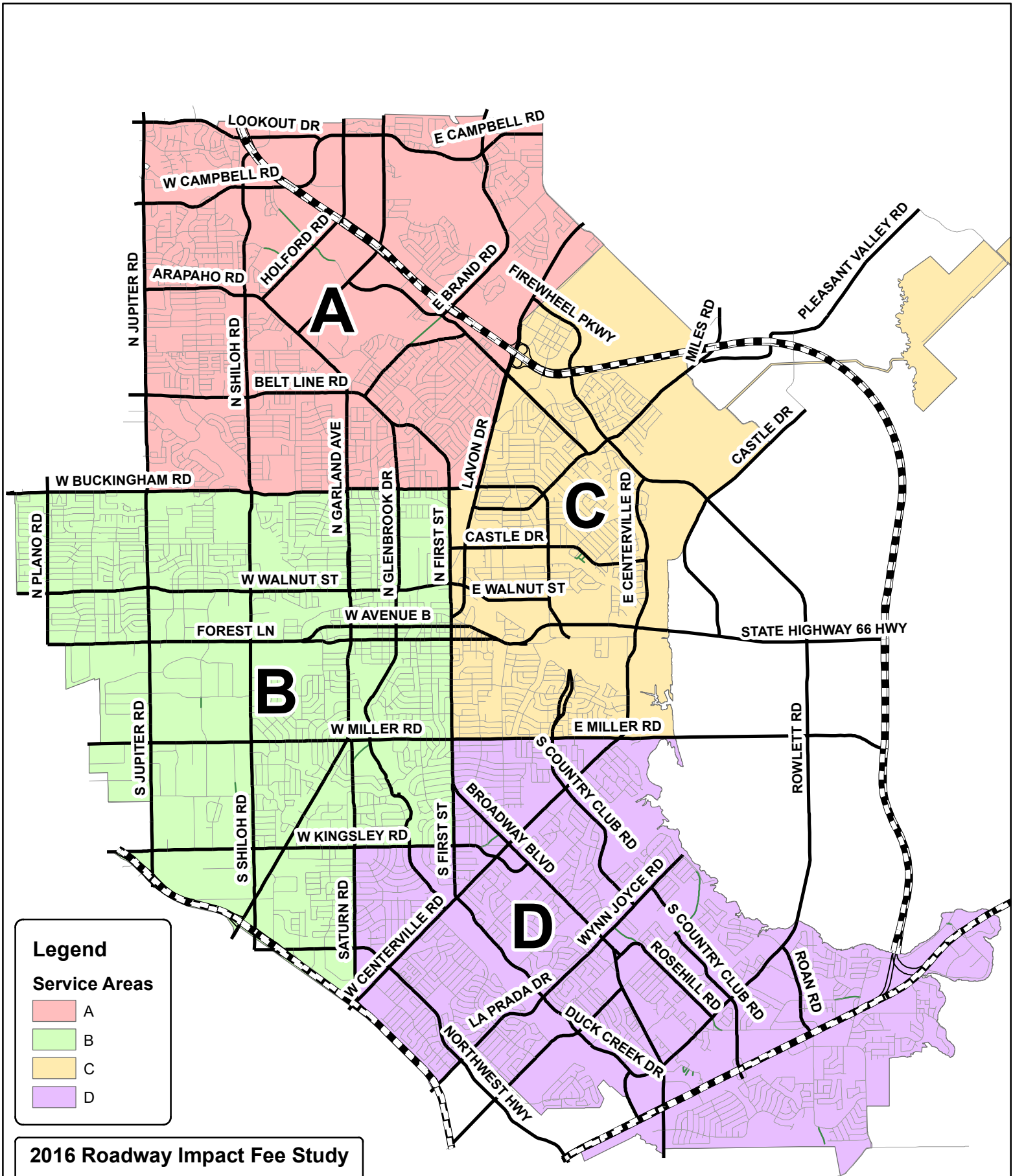
For the remaining undeveloped areas, assumptions based upon the City's Future Land Use Plan were used to estimate the ultimate buildout of residential and employment development. To project future development in the ten-year window, the known developing areas identified in the City's adopted planning documents and projections in the ongoing Water and Wastewater Master Plan were used as a basis to estimate the residential and employment development expected to occur by the year 2026.

Research of historical building permits was performed to compare the projected growth of these known developments with previous growth trends in the City of Garland over the last ten years. During the last ten years, approximately 3,107 residential units and 7 million square feet of employment were developed. It is projected that the next ten years of development will be reasonably close to these estimates.

C. Roadway Impact Fee Service Areas

The geographic boundary of the proposed impact fee service areas for transportation facilities is shown in **Exhibit 1**. The City of Garland is currently divided into 18 service areas. As part of this study, it is proposed to group the existing 18 service areas into four (4) larger service areas, each based upon the six (6) mile limit, as required in Chapter 395 (explained on Pg. 17). For roadway facilities, the service areas as required by state law are limited to areas within the current corporate limits. Therefore, areas within the extraterritorial jurisdiction (ETJ) are excluded from this study.

It should be noted that at locations where service area boundaries follow a City thoroughfare facility, the proposed boundary is intended to follow the centerline of the roadway, unless otherwise noted. In cases where a service area boundary follows the City Limits, only those portions of the transportation facility within the City Limits are included in the service area.



D. Residential and Employment

Residential and Employment estimates for the base year (2016) were performed based upon a survey of the existing land uses and aerial verification. Ten-year growth projections were prepared based upon the City's adopted planning documents, coordination with City staff, and the ongoing Water and Wastewater Master Plan.

E. Land Use Assumptions Summary

Table 1 summarizes the residential and employment 10-year growth projections. The growth is shown by service area and displays the groupings of the existing service areas into the proposed service areas. The projected growth over the next ten years is reasonable compared to the historical growth over the previous ten years, as described in the Land Use Assumptions Methodology (Pg. 4).

Table 1. Residential and Employment 10-Year Growth Projections

Proposed Service Area	Previous Service Areas	Single Family	Multi-Family	Basic	Service	Retail
		Dwelling Units	Dwelling Units	Sq. Ft.	Sq. Ft.	Sq. Ft.
A	1, 2, 4, 5	896	523	412,000	1,613,000	1,172,000
B	7, 8, 10, 11, 13	281	467	513,000	489,000	251,000
C	3, 6, 9	518	298	152,000	378,000	457,000
D	12, 14, 15, 16, 17, 18	689	310	185,000	437,000	710,000
Subtotal		2,384	1,598	1,262,000	2,917,000	2,590,000
Total		3,982		6,769,000		

III. ROADWAY IMPACT FEE CAPITAL IMPROVEMENTS PLAN

Development of a 10-year Roadway Impact Fee Capital Improvement Plan is required per Chapter 395 of the Texas local Government Code. The current Garland Master Thoroughfare Plan was used as the basis for this Roadway Impact Fee CIP, in addition to the ongoing Bottleneck Study. The Roadway Impact Fee CIP includes arterial and collector class roadway facilities that serve the overall transportation system, as well as major intersection improvements. All of the facilities identified are included in the current mobility plan map.

The proposed Roadway Impact Fee CIP is listed in **Tables 2.A – 2.D** and mapped in **Exhibits 2.A – 2.D**. The tables show the length of each project as well as the facility's Thoroughfare Plan classification. The Roadway Impact Fee CIP was developed in conjunction with input from City of Garland staff and represents those projects that will be needed to accommodate the growth projected in the Land Use Assumptions section of this report.

Table 2.A. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area A

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
A-1	B (1/3)	Arapaho Rd (1)	Elm Ridge Ln to Shiloh Rd	0.77	100%
A-2	B (1/3)	Arapaho Rd (2)	Shiloh Rd to N. Garland Ave	0.68	100%
A-3	C1	Brand Rd (1)	Bellaire Rd to Belt Line Rd	0.64	100%
A-4	C1	Brand Rd (2)	Naaman Forest Blvd to West Brand Rd	0.47	100%
A-5	C1	Brand Rd (3)	Murfield Rd to PGBT N Frontage Rd	0.56	100%
A-6	B (1/3)	Campbell Rd (1)	N. Jupiter Rd to Shiloh Rd	1.06	100%
A-7	B (1/3)	Campbell Rd (2)	Shiloh Rd to PGBT S Frontage Rd	0.41	100%
A-8	B (1/3)	Campbell Rd (3)	Lookout Dr to PGBT N Frontage Rd	0.59	100%
A-9	B (1/3)	Campbell Rd (4)	Lookout Dr to N. Garland Ave	0.64	100%
A-10	B (1/3)	Campbell Rd (5)	N. Garland Ave to Water Oak Dr	0.52	100%
A-11	B	Campbell Rd (6)	Water Oak Dr to Murphy Rd	1.24	100%
A-12	D1	Ferris Rd	Campbell Rd to Holford Rd	0.36	100%
A-13	A	Firewheel Parkway (1)	Lavon Dr to 530' E of Lavon Dr	0.10	100%
A-14	D1	Holford Rd (1)	Naaman Forest (Future) to Arapaho Rd	0.75	100%
A-15	C2	Holford Rd (2)	PGBT S Frontage Rd to Naaman Forest (Future)	0.33	100%
A-16	C2	Holford Rd (3)	N City Limits to PGBT N Frontage Rd	0.99	100%
A-17	B (1/3)	Lookout Dr (1)	Courtside Dr to Spring Dr	0.11	50%
A-18	B (1/3)	Lookout Dr (2)	Spring Dr to PGBT S Frontage Rd	0.80	50%
A-19	B (1/3)	Lookout Dr (3)	PGBT N Frontage Rd to Campbell Rd	0.72	100%
A-20	F	Mapleridge (1)	Shiloh Rd to Mapleridge Dr	0.09	100%
A-21	F	Mapleridge (2)	Mapleridge Dr (Existing) to Holford Rd	0.36	100%
A-22	B (1/3)	Garland Ave (1)	N City Limits to PGBT N Frontage Rd	1.29	100%
A-23	B (1/3)	Garland Ave (2)	Arapaho Rd to PGBT S Frontage Rd	1.14	100%
A-24	B-S (1/3)	Garland Ave (3)	Arapaho Rd to Belt Line Rd	0.79	100%
A-25	B (1/3)	Garland Ave (4)	Belt Line Rd to Buckingham Rd	0.97	100%
A-26	B (1/3)	Shiloh Rd (1)	PGBT S Frontage Rd to Campbell Rd	0.37	100%
A-27	B (1/3)	Shiloh Rd (2)	Campbell Rd to north bridge end	0.41	100%
A-28	B (1/3)	Shiloh Rd (3)	Collins Blvd to Arapaho Rd	0.59	100%
A-29	B (1/3)	Shiloh Rd (4)	Arapaho Rd to Belt Line Rd	1.03	100%
A-30	B (1/3)	Shiloh Rd (5)	Belt Line Rd to Buckingham Rd	0.96	100%
A-31	D1	Naaman Forest Blvd	W. Naaman Forest Blvd. to E. Naaman Forest Blvd.	0.33	100%
A-32	D1	Naaman School Rd	Brand Rd to Lavon Dr	0.88	100%
A-33	D1	Naaman Forest Blvd	Ranger to Brand Rd	0.26	100%
I-1		Shiloh Rd and Campbell Rd	Extend WB RT lane		100%
I-2		Arapaho Rd and Shiloh Rd	Add NB and SB RT lanes		100%
I-3		Apollo Rd and Garland Ave	Add EB RT Lane		100%
I-4		Wagon Wheel Rd and Garland Ave	WB RT Lane		100%
I-5		Belt Line Rd and Garland Ave	WB RT Lane		100%
I-6		Belt Line Rd and Shiloh Rd	EB RT Lane		100%
I-7		Buckingham Rd and Plano Rd	NB RT Lane, EB and WB Dual LT Lanes		100%
I-8		Shiloh Rd and Buckingham Rd	Add dual lefts WB, NB, and SB		50%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

Projects starting with "I-" are intersection improvements as identified by the ongoing Bottleneck Study

Table 2.B. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area B

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
B-1	E	Kings Rd	Marquis Dr to Kings Rd (Existing)	0.10	100%
B-2	E	Leon Rd (1)	Shiloh Rd to S. Garland Ave	0.18	100%
B-3	E	Leon Rd (2)	Leon Rd (Existing) to Millay Blvd (Future)	0.04	100%
B-4	E	Marketplace ext (1)	Towngate Blvd to Northwest Hwy	0.26	100%
B-5	E	Marketplace ext (2)	Pendleton Dr to Marketplace Dr	0.13	100%
B-6	E	Millay Blvd (Future)	Leon Rd to Millay Blvd (Existing)	0.22	100%
B-7	B (1/3)	Shiloh Rd (6)	Buckingham Rd to W Walnut St	1.00	100%
B-8	B	Shiloh Rd (7)	W Walnut St to Forest Ln	0.50	100%
B-9	B	Shiloh Rd (8)	Forest Ln to Miller Rd	1.01	100%
B-10	B	Shiloh Rd (9)	Miller Rd to Kingsley Rd	1.07	100%
B-11	B	Shiloh Rd (10)	Kingsley Rd to McCree Rd	0.50	100%
B-12	B	Shiloh Rd (11)	Garland Ave to IH-635 WBFR	0.29	100%
B-13	F	New road east of Industrial Ln	Kingsley Rd to McCree Rd	0.50	100%
B-14	D2	Saturn Rd	Saturn Rd (Existing) to Miller Rd	0.31	100%
B-15	E	Sherwin	Sherwin St (Existing) to Wood Dr	0.13	100%
I-9		Plano Rd and Walnut St	NB an SB RT Lane		100%
I-10		Forest Ln and Jupiter Rd	EB and NB RT Lane, NB Dual LT Lanes		100%
I-11		Forest Ln and Shiloh Rd	SB and NB RT Lanes, Dual NB LT Lanes		100%
I-12		Avenue B (SH 78) and First St	SB RT Lane		100%
I-13		Avenue D and First St	EB RT Lane, EB Dual LT Lanes		100%
I-15		Jupiter Rd and Miller Rd	SB RT Lane		100%
I-16		Miller Rd and Shiloh Rd	SB RT Lane		100%
I-17		Garland Ave and Miller Rd	SB, EB, and WB RT Lanes		100%
I-18		Glenbrook Dr and Miller Rd	EB and WB LT Lanes		100%
I-19		First St and Miller Rd	Add EB RT & NB, SB Dual Lefts		33%
I-20		Broadway Blvd and First St	Triple LT from NB First St		50%
I-21		Jupiter Rd and Kingsley Rd	WB RT Lane		100%
I-22		Garland Ave and Kingsley Rd	NB RT Lane		100%
I-24		Garland Ave and McCree Rd / Shiloh Rd	SWB Dual LT Lanes		100%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

Projects starting with "I-" are intersection improvements as identified by the ongoing Bottleneck Study

Table 2.C. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area C

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
C-1	D1	Castle Dr (1)	N. First St to Lavon Dr	0.15	100%
C-2	D1	Castle Dr (2)	Lavon Dr to Mars Dr	0.38	100%
C-3	E	Castle Dr (3)	Mars Dr to Country Club Rd	0.46	100%
C-4	E	Castle Dr (4)	Country Club Rd to Centerville Rd	1.05	100%
C-5	E	Castle Dr (5)	2660' south of Firewheel Pkwy to Firewheel Pkwy	0.50	50%
C-6	E	Castle Dr (6)	Firewheel Pkwy to Miles Rd	0.84	50%
C-7	D2	Crist Rd	Lavon Dr to Naaman School Rd	0.62	100%
C-8	A	Firewheel Parkway (2)	530' E of Lavon Dr to 310' S of Town Center Blvd	0.77	100%
C-9	C1	Pleasant Valley Rd (1)	Creek Meadow Ln to Miles Rd	0.50	100%
C-10,D-5	B (1/3)	E. Miller Rd	Centerville Rd to 2,815' E of Centerville Rd	0.53	50%
C-11	C1	Pleasant Valley Rd (2)	Firewheel Pkwy to Creek Meadow Ln	0.58	100%
C-12,D-21	B	Miller Rd Bridge	2,815' E of Centerville Rd to East City Limits	0.04	50%
I-14		Centerville Rd and SH 66	Add dual LT lanes NB and WB		100%
I-19		First St and Miller Rd	Add EB RT & NB, SB Dual Lefts		33%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

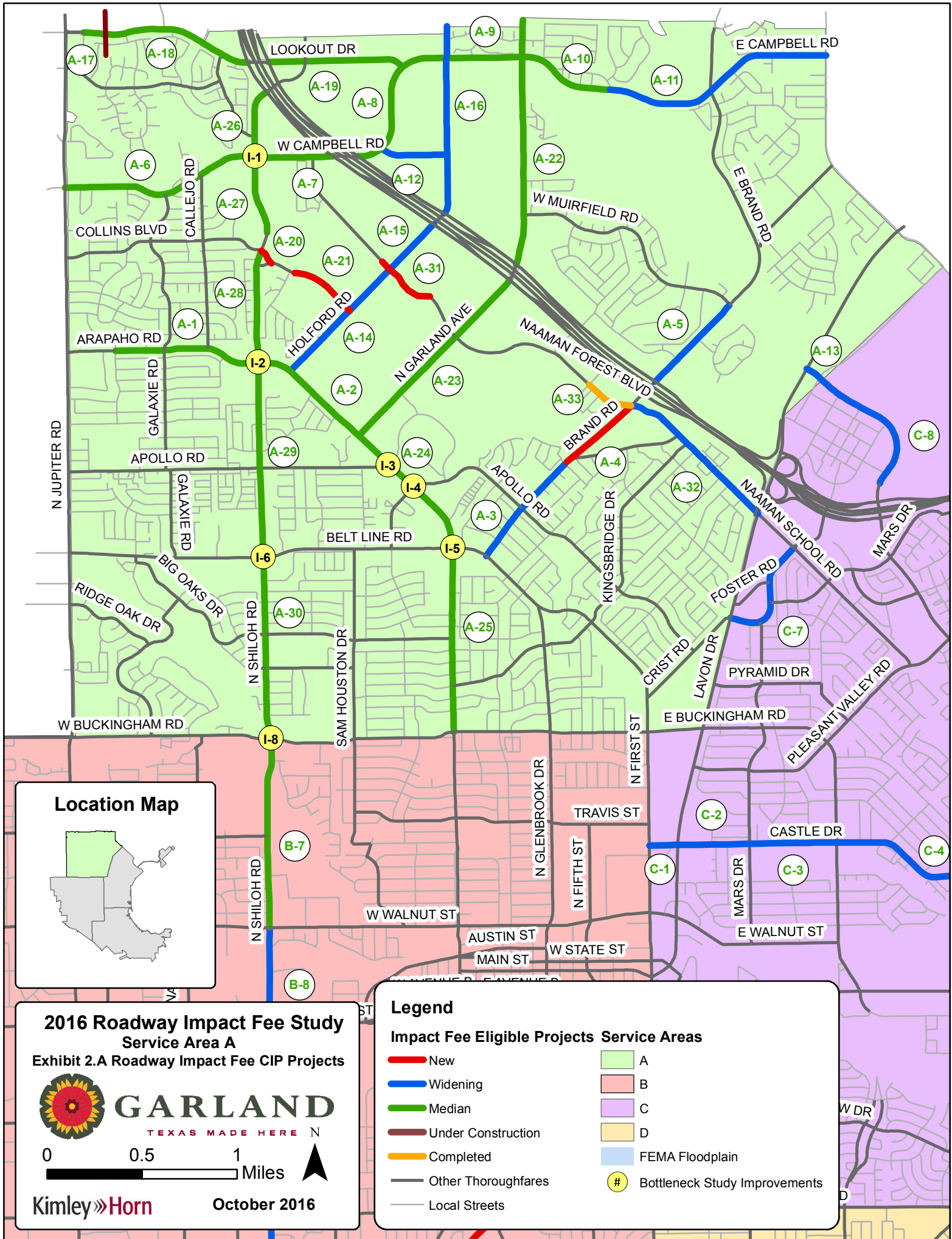
Projects starting with "I-" are intersection improvements as identified by the ongoing Bottleneck Study

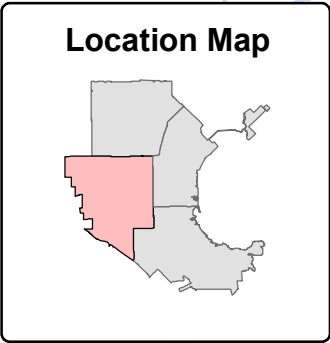
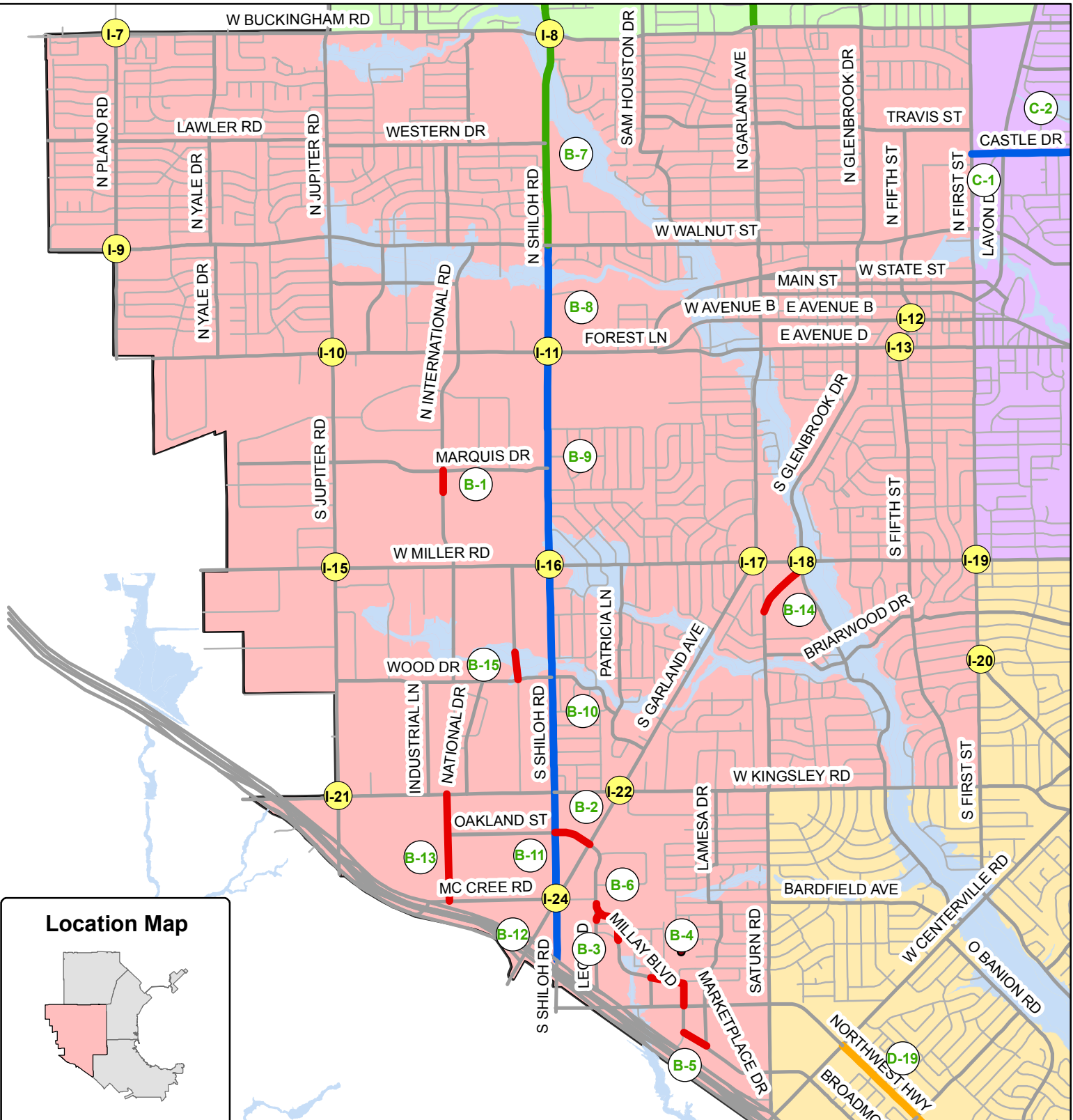
Table 2.D. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area D

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
D-1	S	Bobtown Rd (1)	Rowlett Rd to Bobtown Rd (Existing)	0.17	100%
D-2	E-S	Bobtown Rd (2)	Bobtown Rd (Future) to Waterhouse Blvd	0.34	100%
D-3	E	Bobtown Rd (3)	400' S of High Dr to Lyons Rd	0.38	100%
D-4	E	Bobtown Rd (4)	Lyons Rd to South City Limits	0.50	50%
C-10,D-5	B (1/3)	E. Miller Rd	Centerville Rd to 2,815' E of Centerville Rd	0.53	50%
D-6	F	E. Oates Rd (Future)	Country Club Rd to E. Oates Rd (Existing)	0.58	100%
D-7	B (1/3)	La Prada Dr	IH 635 E frontage road to Northwest Hwy	0.32	50%
D-8	E	Locust Grove Rd	290' E of Oceanport Dr to East City Limits	0.54	100%
D-9	B	Lyons Rd (1)	Bobtown Rd to Guthrie Rd	0.61	100%
D-10	B	Lyons Rd (2)	Guthrie Rd to Lyons Rd (Future)	0.17	100%
D-11	B	Lyons Rd (Future) (3)	Lyons Rd to South City Limits	0.23	100%
D-12	F	Rosehill Rd (1)	Rosehill Rd (Existing) to Wynn Joyce Rd	0.30	100%
D-13	B (1/3)	Rosehill Rd (2)	Bobtown Rd to IH 30 N loop	0.29	100%
D-14	A (1/3)	Rowlett Rd (1)	Broadway Blvd to Rosehill Rd	0.70	100%
D-15	A (1/3)	Rowlett Rd (2)	Rosehill Rd to Roan Rd	0.99	100%
D-16	A	Rowlett Rd (3)	Roan Rd to City Limits	0.30	100%
D-17	B (1/3)	S. Country Club Rd	Rowlett Rd to Bobtown Rd	0.33	100%
D-18	E	Zion Rd	Locust Grove Rd to Bobtown Rd	0.20	100%
D-19	B	Northwest Hwy	Centerville Rd to La Prada Dr	1.22	100%
D-20	E	Dairy Rd	Celeste Rd to Broadway Blvd	0.49	100%
C-12,D-21	B	Miller Rd Bridge	2,815' E of Centerville Rd to East City Limits	0.04	50%
I-19		First St and Miller Rd	Add EB RT & NB, SB Dual Lefts		33%
I-20		Broadway Blvd and First St	Triple LT from NB First St		50%
I-23		Broadway Blvd and Centerville Rd	Dual Lefts SWB, NEB and NWB		100%
I-25		Broadway Blvd and Rowlett Rd	Add EB RT Lane		100%
I-26		Broadway Blvd and IH-30 EBFR	Dual NB RT Lanes		100%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

Projects starting with "I-" are intersection improvements as identified by the ongoing Bottleneck Study





2016 Roadway Impact Fee Study
Service Area B
Exhibit 2.B Impact Fee CIP Projects



GARLAND
 TEXAS MADE HERE

0 0.5 1 Miles

Kimley»Horn

October 2016

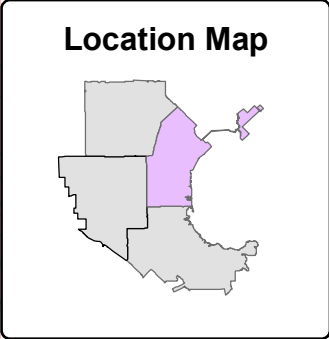
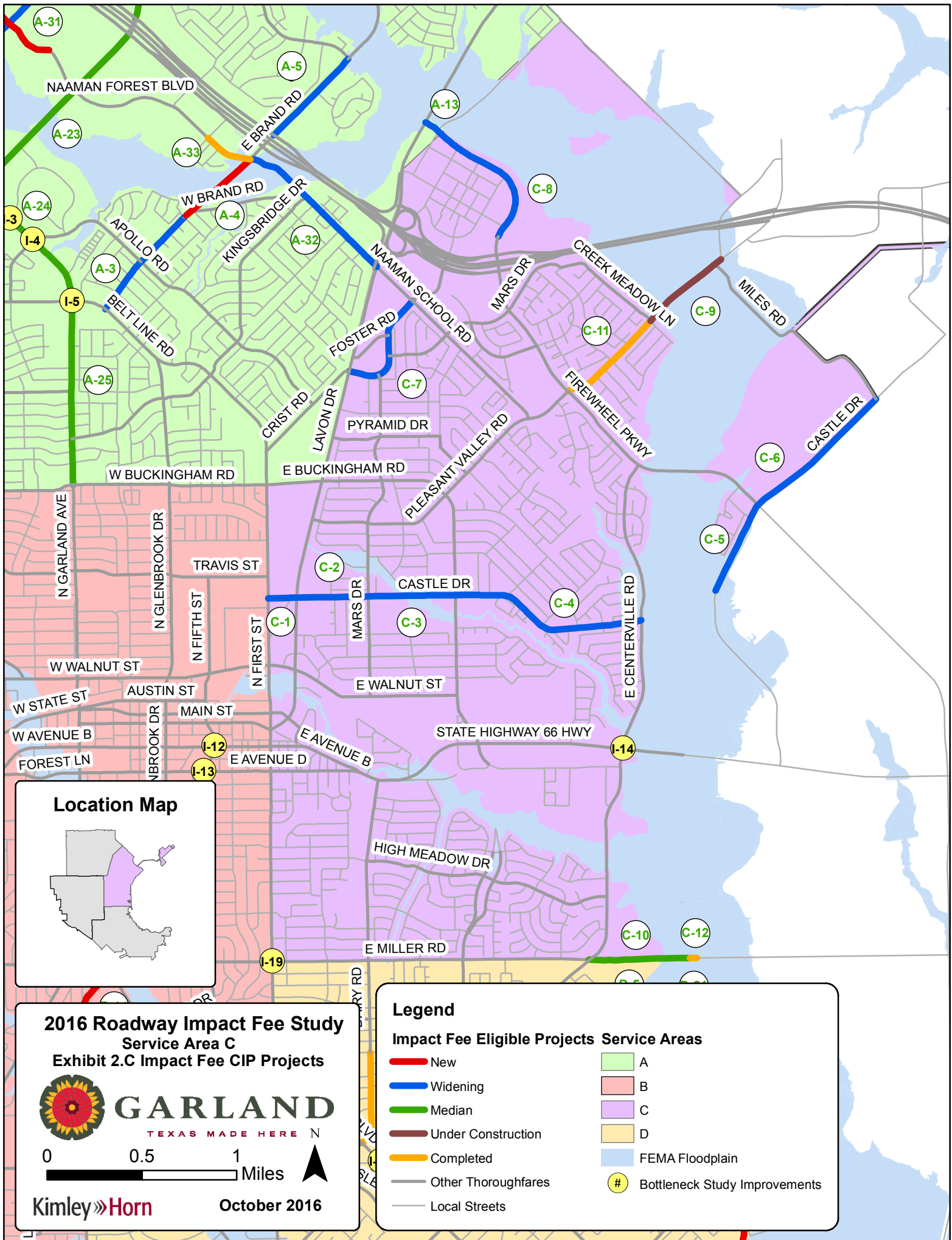
Legend

Impact Fee Eligible Projects

- New
- Widening
- Median
- Under Construction
- Completed
- Other Thoroughfares
- Local Streets

Service Areas

- A
- B
- C
- D
- FEMA Floodplain
- # Bottleneck Study Improvements



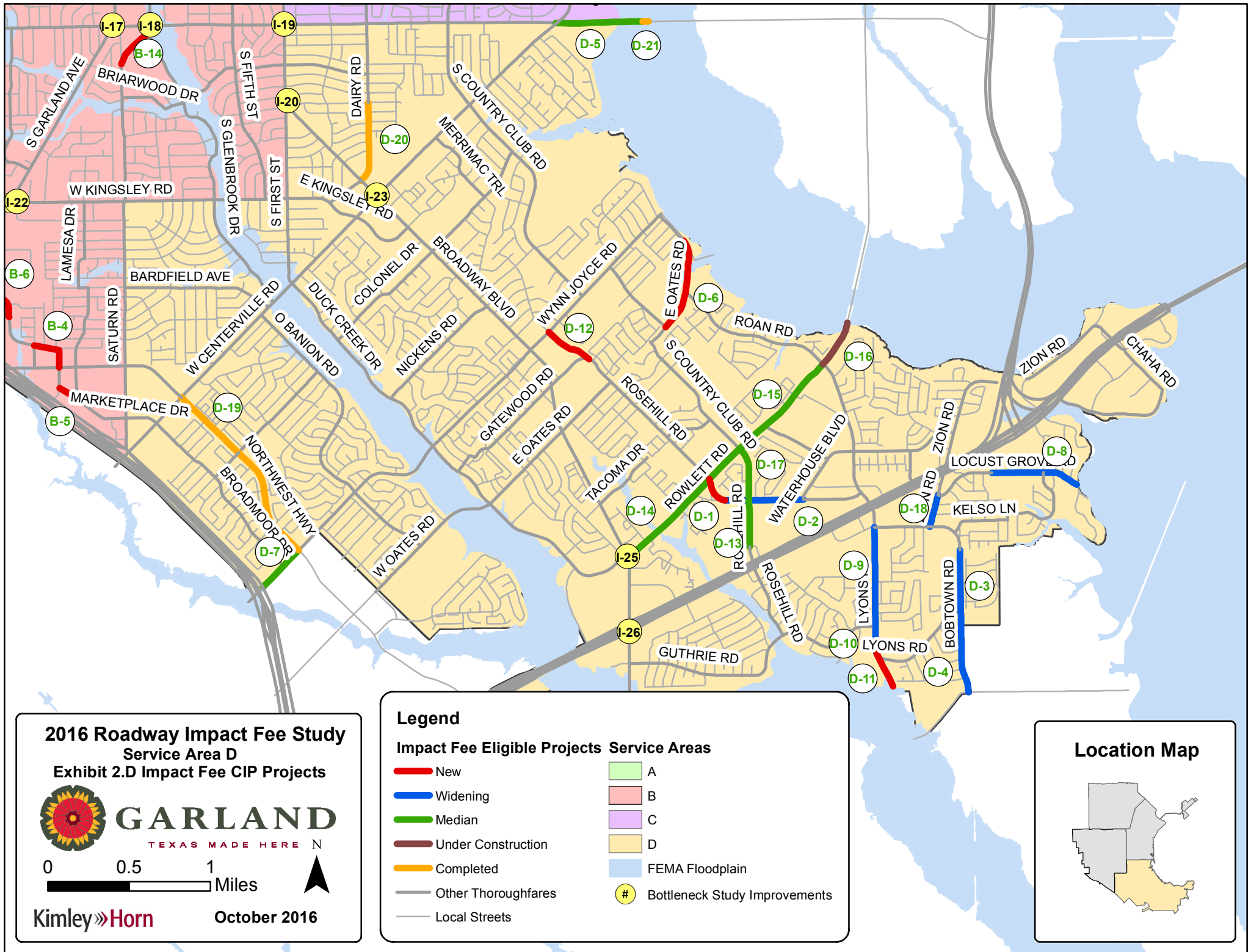
2016 Roadway Impact Fee Study
Service Area C
Exhibit 2.C Impact Fee CIP Projects

0 0.5 1 Miles

Kimley»Horn October 2016

Legend

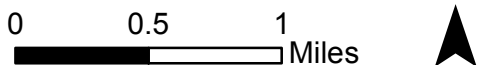
Impact Fee Eligible Projects	Service Areas
New	A
Widening	B
Median	C
Under Construction	D
Completed	FEMA Floodplain
Other Thoroughfares	Bottleneck Study Improvements
Local Streets	



2016 Roadway Impact Fee Study
Service Area D
Exhibit 2.D Impact Fee CIP Projects



GARLAND
TEXAS MADE HERE



Kimley»Horn **October 2016**

Legend

- | Impact Fee Eligible Projects | | Service Areas |
|---|---|---------------|
| — New | A | |
| — Widening | B | |
| — Median | C | |
| — Under Construction | D | |
| — Completed | FEMA Floodplain | |
| — Other Thoroughfares | # Bottleneck Study Improvements | |
| — Local Streets | | |

Location Map



IV.COMPUTATION METHOD FOR ROADWAY IMPACT FEES

A. Service Areas

The four (4) service areas used in the 2016 Roadway Impact Fee Study are shown in **Exhibit 1**. These service areas cover the entire corporate area of the City of Garland. Chapter 395 of the Texas Local Government Code specifies that “the service area is limited to an area within the corporate boundaries of the political subdivision and shall not exceed six (6) miles.”

B. Service Units

The “service unit” is a measure of consumption or use of the capital facilities by new development. In other words, it is the unit of measure used in the 2016 Roadway Impact Fee Study to quantify the supply and demand for roads in the City. For transportation purposes, the service unit is defined as a vehicle-mile. Below is the definition for vehicle-mile.

Vehicle-Mile: The capacity consumed in a single lane in the PM peak hour by a vehicle making a trip one mile in length. The PM Peak is used as the basis for transportation planning and the estimation of trips caused by new development.

Total Vehicle-Miles of Supply: Based on the total length (miles), number of lanes, and capacity (vehicles per hour) provided by the Garland Thoroughfare Plan (see **Appendix B**).

Total Vehicle-Miles of Demand: Based on the 10-year growth projections (Pg. 32). The demand is equal to PM Trip Rate (trips) * Trip Length (miles).

The capacity values used in the 2016 Roadway Impact Fee Study are based upon Thoroughfare Capacity Criteria published by the North Central Texas Council of Governments (NCTCOG) and applied to City of Garland thoroughfare standards. **Tables 3A** and **3B** show the service volumes as a function of the facility classification and type.

Table 3A. Service Volumes for Proposed Facilities
(used in Appendix B – Roadway Impact Fee CIP Service Units of Supply)

Facility Classification	Median Configuration	Hourly Vehicle-Mile Capacity per Lane-Mile of Roadway Facility
A (Regional Arterial)	Divided	750
A-C (Urban One-Way Couplet)	Divided	750
B (Regional Arterial)	Divided	750
C1, C2 (Minor Arterial)	Divided	650
D1 (Major Collector)	Divided	650
D2 (Major Collector)	Undivided	650
D3 (Major Collector)	Undivided	550
E (Minor Collector)	Undivided	550
F (Minor Collector)	Undivided	425

Table 3B. Service Volumes for Existing Facilities
(used in Appendix C – Existing Roadway Facilities Inventory)

Roadway Type	Description	Hourly Vehicle-Mile Capacity per Lane-Mile of Roadway Facility
2U-R	Rural Cross-Section (i.e., gravel, dirt, etc.)	150
2U	Two lane undivided	425
2D	Two lane divided	550
3U	Three lane undivided (two-way, left-turn lane)	550
4U	Four lane undivided	550
4D	Four lane divided	650
5U	Five lane undivided (two-way, left-turn lane)	700
6U	Six Lane Undivided	725
6D	Six lane divided	750
7U	Seven lane undivided (two-way, left-turn lane)	725

C. Cost Per Service Unit

A fundamental step in the impact fee process is to establish the cost for each service unit. In the case of the Roadway Impact Fee, this is the cost for each vehicle-mile of travel. Thus, it is the cost to construct a roadway (lane-mile) needed to accommodate a vehicle-mile of travel. The cost per service unit is calculated for each service area based on the roadway projects within that service area.

The second component of the cost per service unit is the determination of the number of service units in each service area. This number is the measure of the growth in transportation demand that is projected to occur in the ten-year period.

D. Roadway Impact Fee CIP Costing Methodology

All of the project costs for an arterial or collector facility which serves the overall transportation system are eligible to be included in the Roadway Impact Fee Capital Improvements Plan. Chapter 395 of the Texas Local Government Code specifies that the allowable costs are "...including and limited to the:

1. Construction contract price;
2. Surveying and engineering fees;
3. Land acquisition costs, including land purchases, court awards and costs, attorney's fees, and expert witness fees; and
4. Fees actually paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the capital improvements plan who is not an employee of the political subdivision."

The engineer's opinion of the probable costs of the projects in the Roadway Impact Fee CIP is based, in part, on the calculation of a unit cost of construction. This means that a cost per linear foot of roadway is calculated based on an average price for the various components of roadway construction. This allows the probable cost to be determined by the type of facility being constructed, the number of lanes, and the length of the project. The cost for location specific items such as bridges, highway ramps, drainage structures, and any other

2. Project Information

In order to correctly estimate the cost of a roadway project, several attributes are first identified:

- Project Number – Identifies which Service Area the project is in with a corresponding number. The corresponding number does not represent any prioritizations and is used only to identify projects. For example, Project A-26 is in Service Area A and is the 26th project on the list.
- Name – A unique identifier for each project.
- Limits – Represents the beginning and ending location for each project.
- Impact Fee Class – The costing class to be used in the analysis. The impact fee class provides the width for the various elements in the roadway. The construction costs are variable, based on the proposed Thoroughfare Plan classification of the roadway. For example, A represents regional arterial roads. An A Impact Fee Class means the entire roadway is to be constructed. Additional classifications are utilized in cases where a portion of the facility currently exists and the road is only to be widened. The following notations are used for these projects:
 - “(1/2)” for facilities where half the facility still needs to be constructed;
 - “(1/3)” for future six-lane regional arterial facilities where two additional median lanes are needed
- Ultimate Class – The functional classification on Garland’s Master Thoroughfare Plan.
- Length (ft) – The distance measured in feet that is used to cost out the project.
- Service Area(s) – Represents the service area(s) where the project is located. In some cases the project is partially located in the ETJ.
- Description – Used to describe the project type assumed in the costing such as a widening or reconstruction.

3. Construction Pay Items

A typical roadway project consists of a number of costs, including the following: planning, survey, design engineering, permitting, right-of way acquisition, and construction and inspection. While the construction cost component of a project may actually consist of approximately 100 various pay items, a simplified approach was used for developing the

conceptual level project costs. The construction pay items for impact fee CIP roads are shown below:

- Unclassified street excavation
- Concrete pavement
- Lime Stabilized Subgrade
- Curb
- Sidewalk
- Turn lanes and median openings

4. Construction Component Allowances

A percentage of the paving construction cost is allotted for various major construction component allowances, as appropriate. These allowances include traffic control, pavement markings and signage, roadway drainage, illumination, minor water and sewer adjustments, landscaping and irrigation. These allowance percentages are also based on historical data.

In addition, lump sum dollar allowances are provided for special drainage structures, railroad crossings, and intersection improvements where needs are anticipated. The paving and allowance subtotal is given a fifteen percent (15%) contingency, five percent (5%) mobilizations, and two percent (2%) preparation of right-of-way to determine the construction cost total.

5. Summary of Cost and Allowances

To determine the total Impact Fee Project Cost, sixteen percent (16%) of the construction cost total is added for engineering, surveying, and testing.

Percentages are also allotted ROW/easement acquisition. ROW/easement acquisition was based on whether the project was an existing alignment or future alignment. For an existing alignment, the ROW/easement acquisition cost was provided an allotment equal to 10% of the construction cost total. For a new alignment, the ROW/easement acquisition cost was equal to 20% of the construction cost total. The value for ROW/easement acquisition is an estimated contribution allocation and does not represent actual ROW/easement acquisition needs. For TxDOT facilities no ROW/easement acquisition was allotted.



The Impact Fee Project Cost Total is then the Construction Cost Total plus engineering, surveying, testing, and inspection; plus ROW/easement acquisition; and minus roadway escrow agreements.

E. Summary of Roadway Impact Fee CIP Costs

Tables 4.A – 4.D are the 10-Year Roadway Impact Fee CIP project lists for each service area with planning level project costs. Individual project cost worksheets can be seen in **Appendix A**, Conceptual Level Project Cost Projections. It should be noted that these tables reflect only conceptual-level opinions or assumptions regarding the portions of future project costs that are recoverable through impact fees. Actual project costs are likely to change with time and are dependent on market and economic conditions that cannot be predicted.

The Roadway Impact Fee CIP establishes the list of projects for which Impact Fees may be utilized. Projects not included in the Roadway Impact Fee CIP are not eligible to receive impact fee funding. The cost projections utilized in this study should not be utilized for the City's construction CIP.

**Table 4.A – 10-Year Roadway Impact Fee CIP
with Conceptual Level Cost Projections – Service Area A**

Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Cost in Service Area
A-1	B (1/3)	Arapaho Rd (1)	Elm Ridge Ln to Shiloh Rd	0.77	100%	\$ 1,383,000
A-2	B (1/3)	Arapaho Rd (2)	Shiloh Rd to N. Garland Ave	0.68	100%	\$ 1,210,000
A-3	C1	Brand Rd (1)	Bellaire Rd to Belt Line Rd	0.64	100%	\$ 4,092,000
A-4	C1	Brand Rd (2)	Naaman Forest Blvd to West Brand Rd	0.47	100%	\$ 8,172,000
A-5	C1	Brand Rd (3)	Murfield Rd to PGBT N Frontage Rd	0.56	100%	\$ 3,590,000
A-6	B (1/3)	Campbell Rd (1)	N. Jupiter Rd to Shiloh Rd	1.06	100%	\$ 1,901,000
A-7	B (1/3)	Campbell Rd (2)	Shiloh Rd to PGBT S Frontage Rd	0.41	100%	\$ 740,000
A-8	B (1/3)	Campbell Rd (3)	Lookout Dr to PGBT N Frontage Rd	0.59	100%	\$ 1,065,000
A-9	B (1/3)	Campbell Rd (4)	Lookout Dr to N. Garland Ave	0.64	100%	\$ 1,150,000
A-10	B (1/3)	Campbell Rd (5)	N. Garland Ave to Water Oak Dr	0.52	100%	\$ 929,000
A-11	B	Campbell Rd (6)	Water Oak Dr to Murphy Rd	1.24	100%	\$ 11,065,000
A-12	D1	Ferris Rd	Campbell Rd to Holford Rd	0.36	100%	\$ 2,258,000
A-13	A	Firewheel Parkway (1)	Lavon Dr to 530' E of Lavon Dr	0.10	100%	\$ 824,000
A-14	D1	Holford Rd (1)	Naaman Forest (Future) to Arapaho Rd	0.75	100%	\$ 5,347,000
A-15	C2	Holford Rd (2)	PGBT S Frontage Rd to Naaman Forest (Future)	0.33	100%	\$ 2,717,000
A-16	C2	Holford Rd (3)	N City Limits to PGBT N Frontage Rd	0.99	100%	\$ 8,118,000
A-17	B (1/3)	Lookout Dr (1)	Courtside Dr to Spring Dr	0.11	50%	\$ 100,500
A-18	B (1/3)	Lookout Dr (2)	Spring Dr to PGBT S Frontage Rd	0.80	50%	\$ 714,000
A-19	B (1/3)	Lookout Dr (3)	PGBT N Frontage Rd to Campbell Rd	0.72	100%	\$ 1,107,000
A-20	F	Mapleridge (1)	Shiloh Rd to Mapleridge Dr	0.09	100%	\$ 384,000
A-21	F	Mapleridge (2)	Mapleridge Dr (Existing) to Holford Rd	0.36	100%	\$ 3,513,000
A-22	B (1/3)	Garland Ave (1)	N City Limits to PGBT N Frontage Rd	1.29	100%	\$ 2,313,000
A-23	B (1/3)	Garland Ave (2)	Arapaho Rd to PGBT S Frontage Rd	1.14	100%	\$ 2,044,000
A-24	B-S (1/3)	Garland Ave (3)	Arapaho Rd to Belt Line Rd	0.79	100%	\$ 1,421,000
A-25	B (1/3)	Garland Ave (4)	Belt Line Rd to Buckingham Rd	0.97	100%	\$ 1,732,000
A-26	B (1/3)	Shiloh Rd (1)	PGBT S Frontage Rd to Campbell Rd	0.37	100%	\$ 657,000
A-27	B (1/3)	Shiloh Rd (2)	Campbell Rd to north bridge end	0.41	100%	\$ 733,000
A-28	B (1/3)	Shiloh Rd (3)	Collins Blvd to Arapaho Rd	0.59	100%	\$ 1,065,000
A-29	B (1/3)	Shiloh Rd (4)	Arapaho Rd to Belt Line Rd	1.03	100%	\$ 1,836,000
A-30	B (1/3)	Shiloh Rd (5)	Belt Line Rd to Buckingham Rd	0.96	100%	\$ 1,714,000
A-31	D1	Naaman Forest Blvd	W. Naaman Forest Blvd. to E. Naaman Forest Blvd.	0.33	100%	\$ 2,079,000
A-32	D1	Naaman School Rd	Brand Rd to Lavon Dr	0.88	100%	\$ 6,047,000
A-33	D1	Naaman Forest Blvd	Ranger to Brand Rd	0.26	100%	\$ 3,904,483
I-1		Shiloh Rd and Campbell Rd	Extend WB RT lane		100%	\$ 634,000
I-2		Arapaho Rd and Shiloh Rd	Add NB and SB RT lanes		100%	
I-3		Apollo Rd and Garland Ave	Add EB RT Lane		100%	
I-4		Wagon Wheel Rd and Garland Ave	WB RT Lane		100%	
I-5		Belt Line Rd and Garland Ave	WB RT Lane		100%	
I-6		Belt Line Rd and Shiloh Rd	EB RT Lane		100%	
I-7		Buckingham Rd and Plano Rd	NB RT Lane, EB and WB Dual LT Lanes		100%	
I-8		Shiloh Rd and Buckingham Rd	Add dual lefts WB, NB, and SB		50%	
Service Area Project Cost Subtotal						\$ 86,558,983
2016 Roadway Impact Fee Study Cost Per Service Area						\$ 15,840
Total Cost in SERVICE AREA A						\$ 86,574,823

- a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Garland.
- b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.



**Table 4.B – 10-Year Roadway Impact Fee CIP
with Conceptual Level Cost Projections – Service Area B**

Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Cost in Service Area
B-1	E	Kings Rd	Marquis Dr to Kings Rd (Existing)	0.10	100%	\$ 551,000
B-2	E	Leon Rd (1)	Shiloh Rd to S. Garland Ave	0.18	100%	\$ 959,000
B-3	E	Leon Rd (2)	Leon Rd (Existing) to Millay Blvd (Future)	0.04	100%	\$ 212,000
B-4	E	Marketplace ext (1)	Towngate Blvd to Northwest Hwy	0.26	100%	\$ 1,398,000
B-5	E	Marketplace ext (2)	Pendleton Dr to Marketplace Dr	0.13	100%	\$ 666,000
B-6	E	Millay Blvd (Future)	Leon Rd to Millay Blvd (Existing)	0.22	100%	\$ 1,180,000
B-7	B (1/3)	Shiloh Rd (6)	Buckingham Rd to W Walnut St	1.00	100%	\$ 1,784,000
B-8	B	Shiloh Rd (7)	W Walnut St to Forest Ln	0.50	100%	\$ 4,590,000
B-9	B	Shiloh Rd (8)	Forest Ln to Miller Rd	1.01	100%	\$ 8,552,000
B-10	B	Shiloh Rd (9)	Miller Rd to Kingsley Rd	1.07	100%	\$ 9,087,000
B-11	B	Shiloh Rd (10)	Kingsley Rd to McCree Rd	0.50	100%	\$ 4,129,000
B-12	B	Shiloh Rd (11)	Garland Ave to IH-635 WBFR	0.29	100%	\$ 2,368,000
B-13	F	New road east of Industrial Ln	Kingsley Rd to McCree Rd	0.50	100%	\$ 2,260,000
B-14	D2	Saturn Rd	Saturn Rd (Existing) to Miller Rd	0.31	100%	\$ 2,215,000
B-15	E	Sherwin	Sherwin St (Existing) to Wood Dr	0.13	100%	\$ 2,432,000
I-9		Plano Rd and Walnut St	NB and SB RT Lane		100%	\$ 379,000
I-10		Forest Ln and Jupiter Rd	EB and NB RT Lane, NB Dual LT Lanes		100%	
I-11		Forest Ln and Shiloh Rd	SB and NB RT Lanes, Dual NB LT Lanes		100%	
I-12		Avenue B (SH 78) and First St	SB RT Lane		100%	
I-13		Avenue D and First St	EB RT Lane, EB Dual LT Lanes		100%	
I-15		Jupiter Rd and Miller Rd	SB RT Lane		100%	
I-16		Miller Rd and Shiloh Rd	SB RT Lane		100%	
I-17		Garland Ave and Miller Rd	SB, EB, and WB RT Lanes		100%	
I-18		Glenbrook Dr and Miller Rd	EB and WB LT Lanes		100%	
I-19		First St and Miller Rd	Add EB RT & NB, SB Dual Lefts		33%	
I-20		Broadway Blvd and First St	Triple LT from NB First St		50%	
I-21		Jupiter Rd and Kingsley Rd	WB RT Lane		100%	
I-22		Garland Ave and Kingsley Rd	NB RT Lane		100%	
I-24		Garland Ave and McCree Rd / Shiloh Rd	SWB Dual LT Lanes		100%	
Service Area Project Cost Subtotal						\$ 42,762,000
2016 Roadway Impact Fee Study Cost Per Service Area						\$ 15,840
Total Cost in SERVICE AREA B						\$ 42,777,840

- These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Garland.
- These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.



**Table 4.C – 10-Year Roadway Impact Fee CIP
with Conceptual Level Cost Projections – Service Area C**

Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Cost in Service Area
C-1	D1	Castle Dr (1)	N. First St to Lavon Dr	0.15	100%	\$ 953,000
C-2	D1	Castle Dr (2)	Lavon Dr to Mars Dr	0.38	100%	\$ 2,390,000
C-3	E	Castle Dr (3)	Mars Dr to Country Club Rd	0.46	100%	\$ 2,424,000
C-4	E	Castle Dr (4)	Country Club Rd to Centerville Rd	1.05	100%	\$ 5,536,000
C-5	E	Castle Dr (5)	2660' south of Firewheel Pkwy to Firewheel Pkwy	0.50	50%	\$ 1,329,500
C-6	E	Castle Dr (6)	Firewheel Pkwy to Miles Rd	0.84	50%	\$ 2,216,500
C-7	D2	Crist Rd	Lavon Dr to Naaman School Rd	0.62	100%	\$ 4,436,000
C-8	A	Firewheel Parkway (2)	530' E of Lavon Dr to 310' S of Town Center Blvd	0.77	100%	\$ 6,292,000
C-9	C1	Pleasant Valley Rd (1)	Creek Meadow Ln to Miles Rd	0.50	100%	\$ 10,773,000
C-10,D-5	B (1/3)	E. Miller Rd	Centerville Rd to 2,815' E of Centerville Rd	0.53	50%	\$ 477,500
C-11	C1	Pleasant Valley Rd (2)	Firewheel Pkwy to Creek Meadow Ln	0.58	100%	\$ 3,603,239
C-12,D-21	B	Miller Rd Bridge	2,815' E of Centerville Rd to East City Limits	0.04	50%	\$ 1,371,942
I-14	Centerville Rd and SH 66		Add dual LT lanes NB and WB		100%	\$ 141,000
I-19	First St and Miller Rd		Add EB RT & NB, SB Dual Lefts		33%	
Service Area Project Cost Subtotal						\$ 41,943,681
2016 Roadway Impact Fee Study Cost Per Service Area						\$ 15,840
Total Cost in SERVICE AREA C						\$ 41,959,520

- a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Garland.
- b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.



**Table 4.D – 10-Year Roadway Impact Fee CIP
with Conceptual Level Cost Projections – Service Area D**

Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Cost in Service Area
D-1	S	Bobtown Rd (1)	Rowlett Rd to Bobtown Rd (Existing)	0.17	100%	\$ 929,000
D-2	E-S	Bobtown Rd (2)	Bobtown Rd (Future) to Waterhouse Blvd	0.34	100%	\$ 1,779,000
D-3	E	Bobtown Rd (3)	400' S of High Dr to Lyons Rd	0.38	100%	\$ 1,995,000
D-4	E	Bobtown Rd (4)	Lyons Rd to South City Limits	0.50	50%	\$ 1,327,000
C-10,D-5	B (1/3)	E. Miller Rd	Centerville Rd to 2,815' E of Centerville Rd	0.53	50%	\$ 477,500
D-6	F	E. Oates Rd (Future)	Country Club Rd to E. Oates Rd (Existing)	0.58	100%	\$ 3,219,000
D-7	B (1/3)	La Prada Dr	IH 635 E frontage road to Northwest Hwy	0.32	50%	\$ 283,500
D-8	E	Locust Grove Rd	290' E of Oceanport Dr to East City Limits	0.54	100%	\$ 2,859,000
D-9	B	Lyons Rd (1)	Bobtown Rd to Guthire Rd	0.61	100%	\$ 5,014,000
D-10	B	Lyons Rd (2)	Guthire Rd to Lyons Rd (Future)	0.17	100%	\$ 1,366,000
D-11	B	Lyons Rd (Future) (3)	Lyons Rd to South City Limits	0.23	100%	\$ 2,811,000
D-12	F	Rosehill Rd (1)	Rosehill Rd (Existing) to Wynn Joyce Rd	0.30	100%	\$ 1,364,000
D-13	B (1/3)	Rosehill Rd (2)	Bobtown Rd to IH 30 N loop	0.29	100%	\$ 513,000
D-14	A (1/3)	Rowlett Rd (1)	Broadway Blvd to Rosehill Rd	0.70	100%	\$ 1,254,000
D-15	A (1/3)	Rowlett Rd (2)	Rosehill Rd to Roan Rd	0.99	100%	\$ 1,781,000
D-16	A	Rowlett Rd (3)	Roan Rd to City Limits	0.30	100%	\$ 2,486,000
D-17	B (1/3)	S. Country Club Rd	Rowlett Rd to Bobtown Rd	0.33	100%	\$ 599,000
D-18	E	Zion Rd	Locust Grove Rd to Bobtown Rd	0.20	100%	\$ 1,075,000
D-19	B	Northwest Hwy	Centerville Rd to La Prada Dr	1.22	100%	\$ 2,904,782
D-20	E	Dairy Rd	Celeste Rd to Broadway Blvd	0.49	100%	\$ 3,597,758
C-12,D-21	B	Miller Rd Bridge	2,815' E of Centerville Rd to East City Limits	0.04	50%	\$ 1,371,942
I-19	First St and Miller Rd		Add EB RT & NB, SB Dual Lefts		33%	\$ 236,000
I-20	Broadway Blvd and First St		Triple LT from NB First St		50%	
I-23	Broadway Blvd and Centerville Rd		Dual Lefts SWB, NEB and NWB		100%	
I-25	Broadway Blvd and Rowlett Rd		Add EB RT Lane		100%	
I-26	Broadway Blvd and IH-30 EBFR		Dual NB RT Lanes		100%	
Service Area Project Cost Subtotal						\$ 39,242,482
2016 Roadway Impact Fee Study Cost Per Service Area						\$ 15,840
Total Cost in SERVICE AREA D						\$ 39,258,321

- a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Garland.
- b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.



F. Service Unit Calculation

The basic service unit for the computation of Garland's Roadway Impact Fees is the vehicle-mile of travel during the afternoon peak-hour (as explained on Pg. 17). To determine the cost per service unit, it is necessary to project the growth in vehicle-miles of travel for the service area for the ten-year period.

The growth in vehicle-miles from 2016 to 2026 is based upon projected changes in residential units and employment for the period. In order to determine this growth, estimates of residential units, basic employment, service employment, and retail employment for 2016 were made, along with growth projections for each of these demographic statistics through 2026. The Land Use Assumptions section of this report details the growth estimates used for impact fee determination.

For the purposes of impact fees, all developed and developable land is categorized as either residential or non-residential. For residential land uses, the existing and projected number of dwelling units are estimated. The number of dwelling units in each service area is multiplied by a *transportation demand factor* (discussed in more detail below) to compute the vehicle-miles of travel that occur during the afternoon peak hour. This factor indicates the average amount of demand created by the residential land uses in the service area.

For non-residential land uses, the process is similar. The Land Use Assumptions section of this report provides existing and projected number of building square footages for three (3) categories of employment – basic, service, and retail. These categories correspond to an aggregation of other specific land use categories based on the North American Industrial Classification System (NAICS).

Building square footage is the most common independent variable for the estimation of non-residential trips in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition*. This characteristic is more appropriate than the number of employees, because building square footage is tied more closely to trip generation and is known at the time of application for any development that would require the assessment of an impact fee.

The existing and projected land use assumptions for the dwelling units and the square footage of basic, service, and retail land uses provide the basis for the projected increase in vehicle-miles of travel. As noted earlier, a *transportation demand factor* is applied to these values and then summed to calculate the total peak hour vehicle-miles of demand for each service area.

The *transportation demand factors* are aggregate rates derived from three sources – the *ITE Trip Generation Manual, 9th Edition*, the National Household Travel Survey performed by the FHWA, and NCTCOG. The *ITE Trip Generation Manual, 9th Edition* provides the number of trips that are produced or attracted to the land use for each dwelling unit, square foot of building, or other corresponding unit. For the retail category of land uses, the rate is adjusted to account for the fact that a percentage of retail trips are made by people who would otherwise be traveling past that particular establishment anyway, such as a trip between work and home. For example, a stop at a nearby supermarket on the way home from work does not create a new trip onto the roadway network. These trips are called pass-by trips, and since the travel demand is accounted for in the land use calculations relative to the primary trip, it is necessary to discount the retail trip generation rates to avoid double counting trips.

The next component of the *transportation demand factor* accounts for the length of each trip. The average trip length for each category is based on the National Household Travel Survey (NHTS) conducted by the Federal Highway Administration (FHWA). A dataset for the Dallas-Fort Worth (DFW) area was pulled from the NHTS to estimate trip lengths in Garland. Trip lengths for some land uses were adjusted based on trip length information obtained from NCTCOG.

The computation of the *transportation demand factor* is based on the following equation:

$$TDF = T * (1 - P_b) * L_{\max}$$

$$\text{where...} L_{\max} = \min(L * OD \text{ or } 6)$$

Variables:

- TDF = Transportation Demand Factor,
- T = Trip Rate (peak hour trips / unit),
- P_b = Pass-By Discount (% of trips),
- L_{max} = Maximum Trip Length (miles),
- L = Average Trip Length (miles), and
- OD = Origin-Destination Reduction (50%)

The maximum trip length was limited to six (6) miles based on the maximum trip length within each service area. Chapter 395 of the Texas Local Government Code allows for a service area of six (6) miles, and the service areas within Garland are closely approximated with a six (6) mile distance.

The adjustment made to the average trip length statistic in the computation of the maximum trip length is the origin-destination reduction. This adjustment is made because the Roadway Impact Fee is charged to both the origin and destination end of the trip. For example, impact fee methodology will account for a trip from home to work within Garland to both residential and non-residential land uses. To avoid counting these trips twice as both residential and non-residential trips, a 50% origin-destination (OD) reduction factor is applied. Therefore, only half of the trip length is assessed to each land use, and the total trip is only counted once.

Table 5 shows the derivation of the *Transportation Demand Factor* for the residential land uses and the three (3) non-residential land use categories. The values utilized for all variables shown in the *transportation demand factor* equation are also shown in the table.

Table 5. Transportation Demand Factor Calculations

Variable	Residential	Basic	Service	Retail
T	1.00	0.97	1.49	3.71
P_b	0%	0%	0%	34%
L	9.79	14.65	14.65	5.60
L_{max} *	4.90	6.00	6.00	2.80
TDF	4.90	5.82	8.94	6.86
* L _{max} is less than 6 miles for residential and retail land uses; therefore this lower trip length is used for calculating the TDF for these land uses.				

Variables:

- TDF = Transportation Demand Factor,
- T = Trip Rate (peak hour trips / unit),
- P_b = Pass-By Discount (% of trips),
- L_{max} = Maximum Trip Length (miles),
- L = Average Trip Length (miles), and
- OD = Origin-Destination Reduction (50%)

The application of the demographic projections and the *transportation demand factors* are presented in the 10-Year Growth Projections in **Table 7**. This table shows the total vehicle-miles by service area for the years 2016 and 2026. These estimates and projections lead to the Vehicle-Miles of Travel for both 2016 and 2026.

Table 6. 10-Year Growth Projections

2016- 2026 Growth Projections¹

SERVICE AREA	RESIDENTIAL VEHICLE-MILES				NON-RESIDENTIAL SQUARE FEET ⁵			TRANS. DEMAND FACTOR ⁶			NON-RESIDENTIAL VEHICLE-MILES ¹⁰			TOTAL VEHICLE MILES ¹¹		
	Single Family Units	Trip Rate TDF ²	Multi-Family Units	Trip Rate TDF ³	VEHICLE MILES ⁴	BASIC	SERVICE	RETAIL	BASIC ⁷	SERVICE ⁸	RETAIL ⁹	BASIC	SERVICE		RETAIL	TOTAL
A	896	1.00	523	0.62	5,975	412,000	1,613,000	1,172,000	0.97	1.49	3.71	2,398	14,420	8,040	24,858	30,833
B	281	4.90	467	3.03	2,792	513,000	489,000	251,000	5.82	8.94	6.86	2,986	4,372	1,722	9,080	11,872
C	518		298		3,441	152,000	378,000	457,000				885	3,379	3,135	7,399	10,840
D	689		310		4,315	185,000	437,000	710,000				1,077	3,907	4,871	9,855	14,170
Totals	2,384		1,598		16,524	1,262,000	2,917,000	2,590,000				7,346	26,078	17,768	51,192	67,716

VEHICLE-MILES OF INCREASE (2016 - 2026)

SERVICE AREA	VEH-MILES
A	30,833
B	11,872
C	10,840
D	14,170

Notes:

- ¹ From City of Garland 2016 Land Use Assumptions for Roadway Impact Fees
- ² Transportation Demand Factor for each Service Area (from LUVMET) using Single Family Detached Housing land use and trip generation rate
- ³ Transportation Demand Factor for each Service Area (from LUVMET) using Apartment/Multi-family land use and trip generation rate
- ⁴ Calculated by multiplying TDF by the number of dwelling units
- ⁵ From City of Garland 2016 Land Use Assumptions for Roadway Impact Fees
- ⁶ Trip generation rate and Transportation Demand Factors from LUVMET for each land use
- ⁷ 'Basic' corresponds to General Light Industrial land use and trip generation rate
- ⁸ 'Service' corresponds to General Office land use and trip generation rate
- ⁹ 'Retail' corresponds to Shopping Center land use and trip generation rate
- ¹⁰ Calculated by multiplying Transportation Demand Factor by the number of thousand square feet for each land use
- ¹¹ Residential plus non-residential vehicle-mile totals for each Service Area

V. ROADWAY IMPACT FEE CALCULATION

A. Maximum Assessable Impact Fee Per Service Unit

This section presents the maximum assessable impact fee rate calculated for each service area. The maximum assessable impact fee is the sum of the eligible Roadway Impact Fee CIP costs for the service area divided by the growth in travel attributable to new development projected to occur within the 10-year period. A majority of the components of this calculation have been described and presented in previous sections of this report. The purpose of this section is to document the computation for each service area and to demonstrate that the guidelines provided by Chapter 395 of the Texas Local Government Code have been addressed. **Table 7** illustrates the computation of the maximum assessable impact fee computed for each service area. Each row in the table is numbered to simplify explanation of the calculation. The calculation of the maximum assessable impact fee is shown in **Table 8**.

Table 7. Maximum Assessable Roadway Impact Fee Computation

Line	Title	Description
1	<i>Total Vehicle-Miles of Capacity Added by the Roadway Impact Fee CIP</i>	The total number of vehicle-miles added to the service area based on the capacity, length, and number of lanes in each project (from Appendix B – CIP Units of Supply)

Each project identified in the CIP will add a certain amount of capacity to the City's roadway network based on its length and classification. This line displays the total amount added within each service area.

2	<i>Total Vehicle-Miles of Existing Demand</i>	A measure of the amount of traffic currently using the roadway facilities upon which capacity is being added. (from Appendix B – CIP Units of Supply)
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A number of facilities identified in the CIP have traffic currently utilizing a portion of their existing capacity. This line displays the total amount of capacity along these facilities currently being used by existing traffic.

3	<i>Total Vehicle-Miles of Existing Deficiencies</i>	Number of vehicle-miles of travel that are not accommodated by the existing roadway system (from Appendix C – Existing Roadway Facilities Inventory)
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In order to ensure that existing deficiencies on the City's roadway network are not recoverable through impact fees, this line is based on the entire roadway network within the service area. Any roadway within the service area that is deficient – even those not identified on the Roadway Impact Fee CIP – will have these additional trips removed from the calculation.

4	<i>Net Amount of Vehicle-Miles of Capacity Added</i>	A measurement of the amount of vehicle-miles added by the Roadway Impact Fee CIP that will not be utilized by existing demand (Line 1 – Line 2 – Line 3)
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This calculation identifies the portion of the Roadway Impact Fee CIP (in vehicle-miles) that may be recoverable through the collection of impact fees.

5	<i>Total Cost of the Roadway Impact Fee CIP within the Service Area</i>	The total cost of the projects within each service area (from Table 5: 10-Year Roadway Impact Fee Capital Improvements Plan with Conceptual Level Cost Opinions)
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This line simply identifies the total cost of all of the projects identified in each service area.

6	<i>Cost of Net Capacity Supplied</i>	The total Roadway Impact Fee CIP cost (Line 5) prorated by the ratio of Net Capacity Added (Line 4) to Total Capacity Added (Line 1). $[(\text{Line 4} / \text{Line 1}) * (\text{Line 5})]$
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Using the ratio of vehicle-miles added by the Roadway Impact Fee CIP available to serve future growth to the total vehicle-miles added, the total cost of the CIP is reduced to the amount available for future growth (i.e. excluding existing usage and deficiencies).

7	<i>Cost to Meet Existing Needs and Usage</i>	The difference between the Total Cost of the Roadway Impact Fee CIP (Line 5) and the Cost of the Net Capacity supplied (Line 6). (Line 5 – Line 6)
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This line is provided for information purposes only – it is to present the portion of the total cost of the Roadway Impact Fee CIP that is required to meet existing demand.

8	<i>Total Vehicle-Miles of New Demand over Ten Years</i>	Based upon the growth projection provided in the Land Use Assumptions , an estimate of the number of new vehicle-miles within the service area over the next ten years. (from Table 7)
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This line presents the amount of growth (in vehicle-miles) projected to occur within each service area over the next ten years.

9	<i>Percent of Capacity Added Attributable to New Growth</i>	The result of dividing Total Vehicle-Miles of New Demand (Line 8) by the Net Amount of Capacity Added (Line 4), limited to 100% (Line 10). This calculation is required by Chapter 395 to ensure capacity added is attributable to new growth.
10	<i>Chapter 395 Check</i>	

In order to ensure that the vehicle-miles added by the Roadway Impact Fee CIP do not exceed the amount needed to accommodate growth beyond the ten-year window, a comparison of the two values is performed. If the amount of vehicle-miles added by the Roadway Impact Fee CIP exceeds the growth projected to occur in the next ten years, the Roadway Impact Fee CIP cost is reduced accordingly.

11	<i>Cost of Roadway Impact Fee CIP Attributable to New Growth</i>	The result of multiplying the Cost of Net Capacity Added (Line 6) by the Percent of Capacity Added Attributable to New Growth, limited to 100% (Line 9).
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This value is the total Roadway Impact Fee CIP project costs (excluding financial costs) that may be recovered through impact fees. This line is determined considering the limitations to impact fees required by the Texas legislature.

B. Plan for Financing and the Ad Valorem Tax Credit

Chapter 395 of the Texas Local Government Code requires the Roadway Impact Fee Capital Improvements Plan for Roadway Impact Fees to contain specific enumeration of a plan for awarding the impact fee credit. Section 395.014 of the Code requires:

- (A) a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or
- (B) In the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan...”

The plan is summarized, as prepared by NewGen Strategies in **Appendix D** and **Appendix E**, Plan for Awarding the Transportation Impact Fee Credit. The following table summarizes the portions of **Table 8** that utilize this credit calculation.

Line	Title	Description
12	Financing Costs	(from Appendix D – Plan for Awarding the Transportation Impact Fee Credit)
13	Interest Earnings + Principal Paid on Existing Debt	(from Appendix D – Plan for Awarding the Transportation Impact Fee Credit)
14	Existing Impact Fee Fund Balance	(from Appendix D – Plan for Awarding the Transportation Impact Fee Credit)
15	Cost of the Roadway Impact Fee CIP and Financing Attributable to New Growth	The sum of the Cost of Capacity Added Attributable to New Growth, Financing Costs, and Interest Earnings. (Line 11 + Line 12 + Line 13 + Line 14)
16	Pre-Credit Maximum Fee Per Service Unit	Found by dividing the Cost of the TIP and Financing Attributable to New Growth (Line 15) by the Total Vehicle-Miles of New Demand Over Ten Years (Line 8). (Line 15 / Line 8)
17	Credit for Ad Valorem Taxes	A credit for the portion of ad valorem taxes projected to be generated by the new service units, as per Section 395.014 of the Local Government Code. (from Appendix D – Plan for Awarding the Transportation Impact Fee Credit)
18	Recoverable Cost of the Roadway Impact Fee CIP and Financing	The difference between the Cost of the TIP and Financing Attributable to New Growth (Line 15) and the Credit for Ad Valorem Taxes (Line 17). (Line 15 + Line 17)
19	Maximum Assessable Fee Per Service Unit	Found by dividing the Recoverable Cost of the TIP and Financing (Line 18) by the Total Vehicle-Miles of New Demand Over Ten Years (Line 8). (Line 18 / Line 8)

Table 8. Maximum Assessable Roadway Impact Fee

SERVICE AREA:		A	B	C	D
1	TOTAL VEH-MI OF CAPACITY ADDED BY THE ROADWAY IMPACT FEE CIP (FROM ROADWAY IMPACT FEE CIP SERVICE UNITS OF SUPPLY, APPENDIX B)	110,133	27,381	21,086	33,845
2	TOTAL VEH-MI OF EXISTING DEMAND (FROM ROADWAY IMPACT FEE CIP SERVICE UNITS OF SUPPLY, APPENDIX B)	27,386	9,268	3,783	6,736
3	TOTAL VEH-MI OF EXISTING DEFICIENCIES (FROM EXISTING ROADWAY FACILITIES INVENTORY, APPENDIX C)	305	4,758	1,591	28
4	NET AMOUNT OF VEH-MI OF CAPACITY ADDED (LINE 1 - LINE 2 - LINE 3)	82,442	13,355	15,712	27,081
5	TOTAL COST OF THE ROADWAY IMPACT FEE CIP WITHIN SERVICE AREA (FROM TABLES 4A TO 4E)	\$ 86,574,823	\$ 42,776,840	\$ 41,959,520	\$ 39,258,321
6	COST OF NET CAPACITY SUPPLIED (LINE 4 / LINE 1) * (LINE 5)	\$ 64,807,111	\$ 20,864,274	\$ 31,265,673	\$ 31,412,457
7	COST TO MEET EXISTING NEEDS AND USAGE (LINE 5 - LINE 6)	\$ 21,767,712	\$ 21,912,566	\$ 10,693,847	\$ 7,845,864
8	TOTAL VEH-MI OF NEW DEMAND OVER TEN YEARS (FROM TABLE 7 AND LAND USE ASSUMPTIONS)	30,833	11,872	10,840	14,170
9	PERCENT OF CAPACITY ADDED ATTRIBUTABLE TO GROWTH (LINE 8 / LINE 4)	37.3%	88.8%	68.9%	52.3%
10	IF LINE 8 > LINE 4, REDUCE LINE 9 TO 100%, OTHERWISE NO CHANGE	37.3%	88.8%	68.9%	52.3%
11	COST OF ROADWAY IMPACT FEE CIP ATTRIBUTABLE TO GROWTH (LINE 6 * LINE 10)	\$ 24,173,052	\$ 18,527,475	\$ 21,542,049	\$ 16,428,715
12	FINANCING COSTS (FROM APPENDIX D)	\$ 10,530,329	\$ 8,175,922	\$ 9,115,235	\$ 6,799,841
13	INTEREST EARNINGS + PRINCIPAL PAID ON EXISTING DEBT (FROM APPENDIX D)	\$ (1,354,039)	\$ (1,012,470)	\$ (1,227,386)	\$ (973,044)
14	EXISTING IMPACT FEE FUND BALANCE (FROM APPENDIX D)	\$ (1,259,298)	\$ (908,960)	\$ (502,053)	\$ (1,113,622)
15	COST OF THE ROADWAY IMPACT FEE CIP AND FINANCING ATTRIBUTABLE TO NEW GROWTH (LINE 11 + LINE 12 + LINE 13 + LINE 14)	\$ 32,090,045	\$ 24,781,968	\$ 28,927,845	\$ 21,141,890
16	PRE-CREDIT MAXIMUM FEE PER SERVICE UNIT (LINE 15 / LINE 8)	\$ 1,041	\$ 2,087	\$ 2,669	\$ 1,492
17	CREDIT FOR AD VALOREM TAXES (FROM APPENDIX D)	\$ (269,345)	\$ (77,232)	\$ (85,047)	\$ (88,284)
18	RECOVERABLE COST OF ROADWAY IMPACT FEE CIP AND FINANCING (LINE 15 + LINE 17)	\$ 31,820,700	\$ 24,704,735	\$ 28,842,799	\$ 21,053,606
19	MAXIMUM ASSESSABLE FEE PER SERVICE UNIT (LINE 18 / LINE 8)	\$ 1,032	\$ 2,081	\$ 2,661	\$ 1,486



C. Service Unit Demand Per Unit of Development

The Roadway Impact Fee is determined by multiplying the impact fee rate by the number of service units projected for the proposed development. For this purpose, the City will utilize the Land Use/Vehicle-Mile Equivalency Table (LUVMET), presented in **Table 9**. This table lists the predominant land uses that may occur within the City of Garland. For each land use, the development unit that defines the development's magnitude with respect to transportation demand is shown. Although every possible use cannot be anticipated, the majority of local uses are found in this table. The descriptions for each land use are presented in **Table 10**. If the exact use is not listed, one similar in trip-making characteristics can serve as a reasonable proxy. The individual land uses are grouped into categories, such as residential, office, commercial, industrial, and institutional.

The trip rates presented for each land use is a fundamental component of the LUVMET. The trip rate is the average number of trips generated during the afternoon peak hour by each land use per development unit. The next column in **Table 9**, if applicable to the land use, presents the number of trips to and from certain land uses reduced by pass-by trips, as previously discussed.

The definitive source of the trip generation and pass-by statistics is the *ITE Trip Generation Manual, 9th Edition*, the latest edition. This manual utilizes trip generation studies for a variety of land uses throughout the United States, and is the standard used by traffic engineers and transportation planners for traffic impact analysis, site design, and transportation planning. However, for land uses not contained within the 9th Edition of the *ITE Trip Generation Manual*, an alternative service unit demand could be calculated by completing a trip generation study based on the procedure identified in the *ITE Trip Generation Handbook*.

To convert vehicle trips to vehicle-miles, it is necessary to multiply trips by trip length. The trip length values are based on a DFW subset of the NHTS performed by the FHWA, and on trip length information from NCTCOG. The other adjustment to trip length is the 50% origin-destination reduction to avoid double counting of trips. At this stage, another important aspect of the state law is applied – the limit on transportation service unit demand. If the adjusted trip length is above six (6) miles, the maximum trip length used for calculation is

reduced to six (6) miles. This reduction, as discussed previously, limits the maximum trip length to the approximate size of the service areas.

The remaining column in the LUVMET shows the vehicle-miles per development unit. This number is the product of the trip rate and the maximum trip length. This number, previously referred to as the *Transportation Demand Factor*, is used in the impact fee to compute the number of service units attributed to each land use category. The number of service units is multiplied by the impact fee rate (established by City ordinance) in order to determine the impact fee for a development.

Table 9 - Land Use / Vehicle-Mile Equivalency Table (LUVMET)

Land Use Category	ITE Land Use Code	Development Unit	Trip Gen Rate (PM)	Pass-by Rate	Pass-by Source	Trip Rate	NHTS Trip Length (mi)	Adj. For O-D	Adj. Trip Length (mi)	Max Trip Length (mi)	Veh-Mi Per Dev-Unit
PORT AND TERMINAL											
Truck Terminal	030	Acre	6.55			6.55	14.65	50%	7.33	6.00	39.30
INDUSTRIAL											
General Light Industrial	110	1,000 SF GFA	0.97			0.97	14.65	50%	7.33	6.00	5.82
General Heavy Industrial	120	1,000 SF GFA	0.68			0.68	14.65	50%	7.33	6.00	4.08
Industrial Park	130	1,000 SF GFA	0.85			0.85	14.65	50%	7.33	6.00	5.10
Warehousing	150	1,000 SF GFA	0.32			0.32	14.65	50%	7.33	6.00	1.92
Mini-Warehouse	151	1,000 SF GFA	0.26			0.26	14.65	50%	7.33	6.00	1.56
RESIDENTIAL											
Single-Family Detached Housing	210	Dwelling Unit	1.00			1.00	9.79	50%	4.90	4.90	4.90
Apartment/Multi-family	220	Dwelling Unit	0.62			0.62	9.79	50%	4.90	4.90	3.03
Residential Condominium/Townhome	230	Dwelling Unit	0.52			0.52	9.79	50%	4.90	4.90	2.55
Mobile Home Park / Manufactured Housing	240	Dwelling Unit	0.59			0.59	9.79	50%	4.90	4.90	2.89
Senior Adult Housing-Detached	251	Dwelling Unit	0.27			0.27	9.79	50%	4.90	4.90	1.32
Senior Adult Housing-Attached	252	Dwelling Unit	0.25			0.25	9.79	50%	4.90	4.90	1.22
Assisted Living	254	Beds	0.22			0.22	9.79	50%	4.90	4.90	1.08
LODGING											
Hotel	310	Room	0.60			0.60	6.43	50%	3.22	3.22	1.93
Motel / Other Lodging Facilities	320	Room	0.47			0.47	6.43	50%	3.22	3.22	1.51
RECREATIONAL											
Golf Driving Range	432	Tee	1.25			1.25	7.86	50%	3.93	3.93	4.91
Golf Course	430	Acre	0.30			0.30	7.86	50%	3.93	3.93	1.18
Recreational Community Center	495	1,000 SF GFA	2.74			2.74	7.86	50%	3.93	3.93	10.77
Ice Skating Rink	465	1,000 SF GFA	2.36			2.36	7.86	50%	3.93	3.93	9.27
Miniature Golf Course	431	Hole	0.33			0.33	7.86	50%	3.93	3.93	1.30
Multiplex Movie Theater	445	Screens	13.64			13.64	7.86	50%	3.93	3.93	53.61
Racquet / Tennis Club	491	Court	3.35			3.35	7.86	50%	3.93	3.93	13.17
INSTITUTIONAL											
Church	560	1,000 SF GFA	0.55			0.55	8.31	50%	4.16	4.16	2.29
Day Care Center	565	1,000 SF GFA	12.34	44%	B	6.91	3.49	50%	1.75	1.75	12.06
Primary/Middle School (1-8)	522	Students	0.16			0.16	3.49	50%	1.75	1.75	0.28
High School	530	Students	0.13			0.13	3.49	50%	1.75	1.75	0.23
Junior / Community College	540	Students	0.12			0.12	10.44	50%	5.22	5.22	0.63
University / College	550	Students	0.17			0.17	10.44	50%	5.22	5.22	0.89
MEDICAL											
Clinic	630	1,000 SF GFA	5.18			5.18	9.85	50%	4.93	4.93	25.51
Hospital	610	1,000 SF GFA	0.93			0.93	9.85	50%	4.93	4.93	4.58
Nursing Home	620	Beds	0.22			0.22	9.85	50%	4.93	4.93	1.08
Animal Hospital/Veterinary Clinic	640	1,000 SF GFA	4.72	30%	B	3.30	9.85	50%	4.93	4.93	16.25
OFFICE											
Corporate Headquarters Building	714	1,000 SF GFA	1.41			1.41	14.65	50%	7.33	6.00	8.46
General Office Building	710	1,000 SF GFA	1.49			1.49	14.65	50%	7.33	6.00	8.94
Medical-Dental Office Building	720	1,000 SF GFA	3.57			3.57	9.85	50%	4.93	4.93	17.58
Single Tenant Office Building	715	1,000 SF GFA	1.74			1.74	14.65	50%	7.33	6.00	10.44
Office Park	750	1,000 SF GFA	1.48			1.48	14.65	50%	7.33	6.00	8.88

Key to Sources of Pass-by Rates:

A: ITE Trip Generation Handbook 3rd Edition (August 2014)

B: Estimated by Kimley-Horn based on ITE rates for similar categories

C: ITE rate adjusted upward by KHA based on logical relationship to other categories

Table 9 (Cont'd). Land Use / Vehicle-Mile Equivalency Table (LUVMET)

Land Use Category	ITE Land Use Code	Development Unit	Trip Gen Rate (PM)	Pass-by Rate	Pass-by Source	Trip Rate	NHTS Trip Length (mi)	Adj. For O-D	Adj. Trip Length (mi)	Max Trip Length (mi)	Veh-Mi Per Dev-Unit
COMMERCIAL											
Automobile Related											
Automobile Care Center	942	1,000 SF Occ. GLA	3.11	40%	B	1.87	4.45	50%	2.23	2.23	4.16
Automobile Parts Sales	843	1,000 SF GFA	5.98	43%	A	3.41	4.45	50%	2.23	2.23	7.59
Gasoline/Service Station	944	Vehicle Fueling Position	13.87	42%	A	8.04	1.20	50%	0.60	0.60	4.82
Gasoline/Service Station w/ Conv Market	945	Vehicle Fueling Position	13.51	56%	B	5.94	1.20	50%	0.60	0.60	3.56
Gasoline/Service Station w/ Conv Market and Car Wash	946	Vehicle Fueling Position	13.86	56%	A	6.10	1.20	50%	0.60	0.60	3.66
New Car Sales	841	1,000 SF GFA	2.62	20%	B	2.10	4.45	50%	2.23	2.23	4.67
Quick Lubrication Vehicle Shop	941	Servicing Positions	5.19	40%	B	3.11	4.45	50%	2.23	2.23	6.92
Self-Service Car Wash	947	Stall	5.54	40%	B	3.32	1.20	50%	0.60	0.60	1.99
Automated Car Wash	948	Stall	14.12	40%	B	8.47		50%	0.00	0.00	0.00
Tire Store	848	1,000 SF GFA	4.15	28%	A	2.99	4.45	50%	2.23	2.23	6.65
Dining											
Fast Food Restaurant with Drive-Thru Window	934	1,000 SF GFA	32.65	50%	A	16.33	5.64	50%	2.82	2.82	46.05
Fast Food Restaurant without Drive-Thru Window	933	1,000 SF GFA	26.15	50%	B	13.08	5.64	50%	2.82	2.82	36.89
High Turnover (Sit-Down) Restaurant	932	1,000 SF GFA	9.85	43%	A	5.61	6.07	50%	3.04	3.04	17.03
Quality Restaurant	931	1,000 SF GFA	7.49	44%	A	4.19	6.07	50%	3.04	3.04	12.72
Coffee/Donut Shop with Drive-Thru Window	937	1,000 SF GFA	42.80	70%	A	12.84	4.53	50%	2.27	2.27	29.08
Other Retail											
Free-Standing Discount Store	815	1,000 SF GFA	4.98	30%	C	3.49	5.60	50%	2.80	2.80	9.77
Nursery (Garden Center)	817	1,000 SF GFA	6.94	30%	B	4.86	5.60	50%	2.80	2.80	13.61
Home Improvement Superstore	862	1,000 SF GFA	2.33	48%	A	1.21	5.60	50%	2.80	2.80	3.39
Pharmacy/Drugstore w/o Drive-Thru Window	880	1,000 SF GFA	8.40	53%	A	3.95	5.60	50%	2.80	2.80	11.06
Pharmacy/Drugstore w/ Drive-Thru Window	881	1,000 SF GFA	9.91	49%	A	5.05	5.60	50%	2.80	2.80	14.14
Shopping Center	820	1,000 SF GLA	3.71	34%	A	2.45	5.60	50%	2.80	2.80	6.86
Supermarket	850	1,000 SF GFA	9.48	36%	A	6.07	5.60	50%	2.80	2.80	17.00
Toy/Children's Superstore	864	1,000 SF GFA	4.99	30%	B	3.49	5.60	50%	2.80	2.80	9.77
Department Store	875	1,000 SF GFA	1.87	30%	B	1.31	5.60	50%	2.80	2.80	3.67
SERVICES											
Walk-In Bank	911	1,000 SF GFA	12.13	40%	B	7.28	4.45	50%	2.23	2.23	16.20
Drive-In Bank	912	Drive-in Lanes	33.24	47%	A	17.62	4.45	50%	2.23	2.23	39.20
Hair Salon	918	1,000 SF GLA	1.45	30%	B	1.02	4.45	50%	2.23	2.23	2.27

Key to Sources of Pass-by Rates:

A: ITE Trip Generation Handbook 3rd Edition (August 2014)

B: Estimated by Kimley-Horn based on ITE rates for similar categories

C: ITE rate adjusted upward by KHA based on logical relationship to other categories



Table 10 - Land Use Descriptions

Land Use Category	ITE Land Use Code	Land Use Description
PORT AND TERMINAL		
Truck Terminal	030	Point of good transfer between trucks or between trucks and rail
INDUSTRIAL		
General Light Industrial	110	Emphasis on activities other than manufacturing; typically employing fewer than 500 workers
General Heavy Industrial	120	Primary activity is conversion of raw materials or parts into finished products
Industrial Park	130	Area containing a number of industries or related facilities
Warehousing	150	Devoted to storage of materials but may include office and maintenance areas
Mini-Warehouse	151	Facilities with a number of units rented to others for the storage of goods
RESIDENTIAL		
Single-Family Detached Housing	210	Single-family detached homes on individual lots
Apartment/Multi-family	220	At least 4 rental dwelling units per building
Residential Condominium/Townhome	230	Single-family ownership units that have at least one other single-family owned unit within the same building
Senior Adult Housing-Detached	251	Consists of detached independent living developments that include amenities such as golf courses and swimming pools
Senior Adult Housing-Attached	252	Consists of attached independent living developments that include limited social or recreation services
Assisted Living	254	Residential settings that provide either routine general protective oversight or assistance with activities.
LODGING		
Hotel	310	Lodging facilities that typically have on-site restaurants, lounges, meeting and/or banquet rooms, or other retail shops and services
Motel / Other Lodging Facilities	320	Lodging facilities that may have small on-site restaurant or buffet area but little or no meeting space
RECREATIONAL		
Golf Driving Range	432	Facilities with driving tees for practice; may provide individual or group lessons; may have prop shop and/or refreshment facilities
Golf Course	430	May include municipal courses and private country clubs; may have driving ranges, pro shops, and restaurant/banquet facilities
Recreational Community Center	495	Category includes racquet clubs, health/fitness clubs, can include facilities such as YMCA's
Ice Skating Rink	465	Rinks for ice skating and related sports; may contain spectator areas and refreshment facilities
Miniature Golf Course	431	One or more individual putting courses; category should not be used when part of a larger entertainment center(with batting cages, video game centers, etc)
Multiplex Movie Theater	445	Movie theater with audience seating, minimum of ten screens, lobby, and refreshment area.
Racquet / Tennis Club	491	Indoor or outdoor facilities specifically designed for playing tennis
INSTITUTIONAL		
Church	560	Churches and houses of worship
Day Care Center	565	Generally includes facilities for care of pre-school aged children, generally includes classrooms, offices, eating areas, and playgrounds
Primary/Middle School (1-8)	522	Serves students who have not yet entered high school
High School	530	Serves students who have completed middle or junior high school
Junior / Community College	540	Two-year junior, community, or technical colleges
University / College	550	Four-year universities or colleges that may or may not offer graduate programs
MEDICAL		
Clinic	630	Facilities with limited diagnostic and outpatient care
Hospital	610	Medical and surgical facilities with overnight accommodations
Nursing Home	620	Rest and convalescent homes with residents who do little or no driving
Animal Hospital/Veterinary Clinic	640	Rest and convalescent homes with residents who do little or no driving
OFFICE		
Corporate Headquarters Building	714	Office building housing corporate headquarters of a single company or organization
General Office Building	710	Office buildings which house multiple tenants
Medical-Dental Office Building	720	Multi-tenant building with offices for physicians and/or dentists
Single Tenant Office Building	715	Single tenant office buildings other than corporate headquarters
Office Park	750	Office buildings (typically low-rise) in a campus setting and served by a common roadway system



Table 1 (Cont'd). Land Use Descriptions

Land Use Category	ITE Land Use Code	Land Use Description
COMMERCIAL		
Automobile Related		
Automobile Care Center	942	Automobile repair and servicing including stereo installations and upholstery
Automobile Parts Sales	843	Retail sale of auto parts but no on-site vehicle repair
Gasoline/Service Station	944	Gasoline sales without convenience store or car wash; may include repair
Gasoline/Service Station w/ Conv Market	945	Gasoline sales with convenience store where the primary business is gasoline sales
Gasoline/Service Station w/ Conv Market and Car Wash	946	Gasoline sales with convenience store and car washes where the primary business is gasoline sales
New Car Sales	841	New car dealerships, typically with automobile servicing, part sales, and used car sales
Quick Lubrication Vehicle Shop	941	Primary business is to perform oil changes and fluid/filter changes with other repair services not provided
Self-Service Car Wash	947	Has stalls for driver to park and wash the vehicle
Tire Store	848	Primary business is sales and installation of tires; usually do not have large storage or warehouse area
Dining		
Fast Food Restaurant with Drive-Thru Window	934	High-turnover fast food restaurant for carry-out and eat-in customers with a drive-thru window
Fast Food Restaurant without Drive-Thru Window	933	High-turnover fast food restaurant for carry-out and eat-in customers, but without a drive-thru window
High Turnover (Sit-Down) Restaurant	932	Restaurants with turnover rates less than one hour; typically includes moderately-priced chain restaurants
Quality Restaurant	931	Restaurants with turnover rates of one hour or longer; typically require reservations
Coffee/Donut Shop with Drive-Thru Window	937	Coffee and Donut restaurants with drive-through windows, hold long store hours and have limited indoor seating
Other Retail		
Free-Standing Discount Store	815	Category includes free-standing stores with off-street parking; typically offer a variety of products and services with long store hours
Nursery (Garden Center)	817	Building with a yard of planting or landscape stock; may have office, storage, shipping or greenhouse facilities
Home Improvement Superstore	862	Warehouse-type facilities offering a large variety of products and services including lumber, tool, paint, lighting, and fixtures, among other items.
Pharmacy/Drugstore w/o Drive-Thru Window	880	Facilities that primarily sell prescription and non-prescription drugs without a drive-through window
Pharmacy/Drugstore w/ Drive-Thru Window	881	Facilities that primarily sell prescription and non-prescription drugs with a drive-through window
Shopping Center	820	Integrated group of commercial establishments; planning, owned, and managed as a unit
Supermarket	850	Primary business is sale of groceries, food, and household cleaning items; may include photo, pharmacy, video rental, and/or ATM
Toy/Children's Superstore	864	Businesses specializing in child-oriented merchandise
Department Store	875	Free-standing stores that specialize in the sale of apparel, footwear, bedding, home products, jewelry, etc.
SERVICES		
Walk-In Bank	911	Banks with their own parking lots, no drive-in lanes but contain non-drive-through ATMs
Drive-In Bank	912	Banking facilities to conduct financial transactions from the vehicle; also usually apart of walk-in bank
Hair Salon	918	Facilities that specialize in cosmetic and beauty services including hair cutting and styling

VI. SAMPLE CALCULATIONS

The following section details two (2) examples of maximum assessable Roadway Impact Fee calculations.

Example 1:

Development Type - One (1) Unit of Single-Family Housing in Service Area A

Roadway Impact Fee Calculation Steps – Example 1	
Step 1	Determine Development Unit and Vehicle-Miles Per Development Unit
	<i>From Table 10 [Land Use – Vehicle-Mile Equivalency Table]</i> Development Type: 1 Dwelling Unit of Single-Family Detached Housing Number of Development Units: 1 Dwelling Unit Veh-Mi Per Development Unit: 4.90
Step 2	Determine Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile)
	<i>From Table 9, Line 14 [Maximum Assessable Fee Per Service Unit]</i> Service Area A: \$1,032
Step 3	Determine Maximum Assessable Impact Fee
	Impact Fee = # of Development Units * Veh-Mi Per Dev Unit * Max. Fee Per Service Unit Impact Fee = 1 * 4.90 * \$1,032 Maximum Assessable Impact Fee = \$5,057

Example 2:

Development Type – 125,000 square foot Home Improvement Superstore in Service Area D

Roadway Impact Fee Calculation Steps – Example 2	
Step 1	Determine Development Unit and Vehicle-Miles Per Development Unit
	<i>From Table 10 [Land Use – Vehicle-Mile Equivalency Table]</i> Development Type: 125,000 square feet of Home Improvement Superstore Development Unit: 1,000 square feet of Gross Floor Area Veh-Mi Per Development Unit: 3.39
Step 2	Determine Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile)
	<i>From Table 9, Line 14 [Maximum Assessable Fee Per Service Unit]</i> Service Area D: \$1,486
Step 3	Determine Maximum Assessable Impact Fee
	Impact Fee = # of Development Units * Veh-Mi Per Dev Unit * Max. Fee Per Service Unit Impact Fee = 125 * 3.39 * \$1,486 Maximum Assessable Impact Fee = \$1,011,491

VII. ADOPTION AND ADMINISTRATION OF ROADWAY IMPACT FEES

A. Adoption Process

Chapter 395 of the Texas Local Government Code stipulates a specific process for the adoption of Roadway Impact Fees. A Capital Improvement Advisory Committee (CIAC) is required to review the Land Use Assumptions and Roadway Impact Fees CIP used in calculating the maximum fee, and to provide the Committee's findings for consideration by the City Council. This CIAC also reviews the Roadway Impact Fee ordinance and provides its findings to the City Council. The composition of the CIAC is required to adequately represent the building and development communities. The City Council then conducts a first public hearing on the Land Use Assumptions and Roadway Impact Fee CIP and a second public hearing on the Roadway Impact Fee Ordinance.

Following policy adoption, the CIAC is tasked with advising the City Council of the need to update the Land Use Assumptions or the Roadway Impact Fees CIP at any time within five years of adoption. Finally, the CIAC oversees the proper administration of the Impact Fee, once in place, and advises the Council as necessary.

B. Collection and Use of Transportation Impact Fees

Roadway Impact fees are assessed when a final plat is recorded. The assessment defines the impact of each unit at the time of platting, according to land use, and may not exceed the maximum impact fee allowed by law. Roadway Impact Fees are collected when a building permit is issued. Therefore, funds are not collected until development-impacts are introduced to the transportation system. Funds collected within a service area can be used only within the same service area. Finally, fees must be utilized within 10 years of collection, or must be refunded with interest.

VIII. CONCLUSIONS

The City of Garland has established a process to implement the assessment and collection of Roadway Impact Fees through the adoption of an impact fee ordinance that is consistent with Chapter 395 of the Texas Local Government Code.

This report establishes the maximum allowable Roadway Impact Fee that could be assessed by the City of Garland, as shown in the previously referenced **Table 8**.

This document serves as a guide to the assessment of Roadway Impact Fees pertaining to future development, and the City's need for transportation improvements to accommodate that growth. Following the public hearing process, the City Council may establish an impact fee amount to be collected, up to the calculated maximum and establish the Roadway Impact Fee Ordinance accordingly.

In conclusion, it is our opinion that the data and methodology used in this analysis are appropriate and consistent with Chapter 395 of the Texas Local Government Code. Furthermore, the Land Use Assumptions and the proposed Roadway Impact Fee Capital Improvements Plan are appropriately incorporated into the development of the maximum assessable Roadway Impact Fee.

Below is the listing of the 2016 Roadway Impact Fee Study's Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile):

Service Areas	A	B	C	D
2016 Roadway Impact Fee Study Maximum Assessable Fee Per Vehicle-Mile	\$ 1,032	\$ 2,081	\$ 2,661	\$ 1,486

APPENDICES

A. Conceptual Level Project Cost Projections

SERVICE AREA A
SERVICE AREA B
SERVICE AREA C
SERVICE AREA D

B. Roadway Impact Fee CIP Service Units of Supply

C. Existing Roadway Facilities Inventory

D. Plan for Awarding the Transportation Impact Fee Credit Summary

E. Plan for Awarding the Transportation Impact Fee Credit Supporting Exhibits

Appendix A – Conceptual Level Project Cost Projections

City of Garland - 2016 Roadway Impact Fee Study

Capital Improvement Plan for Roadway Impact Fees
Summary of Conceptual Level Project Cost Projections

Roadway Improvements - Service Area A

#	IF Class	Project	Limits		Status	Percent in Service Area	Project Cost	Total Cost in Service Area
			From	To				
A-1	B (1/3)	Arapaho Rd (1)	Elm Ridge Ln	Shiloh Rd	Median	100	\$ 1,383,000	\$ 1,383,000
A-2	B (1/3)	Arapaho Rd (2)	Shiloh Rd	N. Garland Ave	Median	100	\$ 1,210,000	\$ 1,210,000
A-3	C1	Brand Rd (1)	Bellaire Rd	Belt Line Rd	Widening	100	\$ 4,092,000	\$ 4,092,000
A-4	C1	Brand Rd (2)	Naaman Forest Blvd	West Brand Rd	New	100	\$ 8,172,000	\$ 8,172,000
A-5	C1	Brand Rd (3)	Murfield Rd	PGBT N Frontage Rd	Widening	100	\$ 3,590,000	\$ 3,590,000
A-6	B (1/3)	Campbell Rd (1)	N. Jupiter Rd	Shiloh Rd	Median	100	\$ 1,901,000	\$ 1,901,000
A-7	B (1/3)	Campbell Rd (2)	Shiloh Rd	PGBT S Frontage Rd	Median	100	\$ 740,000	\$ 740,000
A-8	B (1/3)	Campbell Rd (3)	Lookout Dr	PGBT N Frontage Rd	Median	100	\$ 1,065,000	\$ 1,065,000
A-9	B (1/3)	Campbell Rd (4)	Lookout Dr	N. Garland Ave	Median	100	\$ 1,150,000	\$ 1,150,000
A-10	B (1/3)	Campbell Rd (5)	N. Garland Ave	Water Oak Dr	Median	100	\$ 929,000	\$ 929,000
A-11	B	Campbell Rd (6)	Water Oak Dr	Murphy Rd	Widening	100	\$ 11,065,000	\$ 11,065,000
A-12	D1	Ferris Rd	Campbell Rd	Holford Rd	Widening	100	\$ 2,258,000	\$ 2,258,000
A-13	A	Firewheel Parkway (1)	Lavon Dr	530' E of Lavon Dr	Widening	100	\$ 824,000	\$ 824,000
A-14	D1	Holford Rd (1)	Naaman Forest (Future)	Arapaho Rd	Widening	100	\$ 5,347,000	\$ 5,347,000
A-15	C2	Holford Rd (2)	PGBT S Frontage Rd	Naaman Forest (Future)	Widening	100	\$ 2,717,000	\$ 2,717,000
A-16	C2	Holford Rd (3)	N City Limits	PGBT N Frontage Rd	Widening	100	\$ 8,118,000	\$ 8,118,000
A-17	B (1/3)	Lookout Dr (1)	Courtside Dr	Spring Dr	Median	50	\$ 201,000	\$ 100,500
A-18	B (1/3)	Lookout Dr (2)	Spring Dr	PGBT S Frontage Rd	Median	50	\$ 1,428,000	\$ 714,000
A-19	B (1/3)	Lookout Dr (3)	PGBT N Frontage Rd	Campbell Rd	Median	100	\$ 1,107,000	\$ 1,107,000
A-20	F	Mapleridge (1)	Shiloh Rd	Mapleridge Dr	New	100	\$ 384,000	\$ 384,000
A-21	F	Mapleridge (2)	Mapleridge Dr (Existing)	Holford Rd	New	100	\$ 3,513,000	\$ 3,513,000
A-22	B (1/3)	Garland Ave (1)	N City Limits	PGBT N Frontage Rd	Median	100	\$ 2,313,000	\$ 2,313,000
A-23	B (1/3)	Garland Ave (2)	Arapaho Rd	PGBT S Frontage Rd	Median	100	\$ 2,044,000	\$ 2,044,000
A-24	B-S (1/3)	Garland Ave (3)	Arapaho Rd	Belt Line Rd	Median	100	\$ 1,421,000	\$ 1,421,000
A-25	B (1/3)	Garland Ave (4)	Belt Line Rd	Buckingham Rd	Median	100	\$ 1,732,000	\$ 1,732,000
A-26	B (1/3)	Shiloh Rd (1)	PGBT S Frontage Rd	Campbell Rd	Median	100	\$ 657,000	\$ 657,000
A-27	B (1/3)	Shiloh Rd (2)	Campbell Rd	north bridge end	Median	100	\$ 733,000	\$ 733,000
A-28	B (1/3)	Shiloh Rd (3)	Collins Blvd	Arapaho Rd	Median	100	\$ 1,065,000	\$ 1,065,000
A-29	B (1/3)	Shiloh Rd (4)	Arapaho Rd	Belt Line Rd	Median	100	\$ 1,836,000	\$ 1,836,000
A-30	B (1/3)	Shiloh Rd (5)	Belt Line Rd	Buckingham Rd	Median	100	\$ 1,714,000	\$ 1,714,000
A-31	D1	Naaman Forest Blvd	W. Naaman Forest Blvd.	E. Naaman Forest Blvd.	New	100	\$ 2,079,000	\$ 2,079,000
A-32	D1	Naaman School Rd	Brand Rd	Lavon Dr	Widening	100	\$ 6,047,000	\$ 6,047,000
A-33	D1	Naaman Forest Blvd	Ranger	Brand Rd	Completed	100	\$ 3,904,483	\$ 3,904,483
TOTAL							\$ 86,739,483	\$ 85,924,983

Bottleneck Study Improvements - Service Area A

#	Intersection	Improvement(s)	Percent in Service Area	Total Project Cost in Service Area	10-Year Growth Cost in Service Area
I-1	Shiloh Rd and Campbell Rd	Extend WB RT lane	100%	\$ 2,625,000.00	\$ 634,000.00
I-2	Arapaho Rd and Shiloh Rd	Add NB and SB RT lanes	100%		
I-3	Apollo Rd and Garland Ave	Add EB RT Lane	100%		
I-4	Wagon Wheel Rd and Garland Ave	WB RT Lane	100%		
I-5	Belt Line Rd and Garland Ave	WB RT Lane	100%		
I-6	Belt Line Rd and Shiloh Rd	EB RT Lane	100%		
I-7	Buckingham Rd and Plano Rd	NB RT Lane, EB and WB Dual LT Lanes	100%		
I-8	Shiloh Rd and Buckingham Rd	Add dual lefts WB, NB, and SB	50%		

NOTE: These planning level cost projections listed in this Appendix have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Planning within the City of Garland. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.

City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-1
Name:	Arapaho Rd (1)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Elm Ridge Ln to Shiloh Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	4,075			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	5,886	cy	\$ 8.00	\$ 47,089
210	6" Lime Stabilization Subgrade	11,319	sy	\$ 2.60	\$ 29,431
310	Street Cut Paving Concrete - Class C Construct	10,414	sy	\$ 70.00	\$ 728,972
410	Curb 6" Integral	8,150	lf	\$ 1.95	\$ 15,893
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	926	sy	\$ 70.00	\$ 64,830
Paving Construction Cost Subtotal:					\$ 886,214
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 44,311
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 26,586
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 35,449
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 106,346
Paving and Allowance Subtotal:				\$	992,559
Construction Contingency:				10%	\$ 99,256
Mobilization				5%	\$ 49,628
Prep ROW				5%	\$ 49,628
Construction Cost TOTAL:				\$	1,192,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,192,000
Engineering/Survey/Testing:		16%	\$ 190,720
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,383,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-2
Name:	Arapaho Rd (2)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Shiloh Rd to N. Garland Ave			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	3,565			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	5,149	cy	\$ 8.00	\$ 41,196
210	6" Lime Stabilization Subgrade	9,903	sy	\$ 2.60	\$ 25,747
310	Street Cut Paving Concrete - Class C Construct	9,111	sy	\$ 70.00	\$ 637,739
410	Curb 6" Integral	7,130	lf	\$ 1.95	\$ 13,904
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	810	sy	\$ 70.00	\$ 56,716
Paving Construction Cost Subtotal: \$					775,301
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 38,765
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 23,259
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 31,012
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	93,036
Paving and Allowance Subtotal:				\$	868,337
Construction Contingency:				10%	\$ 86,834
Mobilization				5%	\$ 43,417
Prep ROW				5%	\$ 43,417
Construction Cost TOTAL: \$					1,043,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,043,000
Engineering/Survey/Testing:		16%	\$ 166,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,210,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-3
Name:	Brand Rd (1)	This project consists of the reconstruction of the existing facility as a four lane divided minor arterial		
Limits:	Bellaire Rd to Belt Line Rd			
Impact Fee Class:	C1			
Ultimate Class:	Minor Arterial			
Length (lf):	3,375			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
107	Unclassified Street Excavation	9,750	cy	\$ 8.00	\$ 78,000
207	6" Lime Stabilization Subgrade	19,125	sy	\$ 2.60	\$ 49,725
307	Street Cut Paving Concrete - Class C Construct	18,750	sy	\$ 70.00	\$ 1,312,500
407	Curb 6" Integral	13,500	lf	\$ 1.95	\$ 26,325
507	Sidwalk 4" Class A Construct	4,500	sy	\$ 43.00	\$ 193,500
607	Turn Lanes and Median Openings	1,552	sy	\$ 70.00	\$ 108,639
Paving Construction Cost Subtotal:					\$ 1,768,689
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 88,434
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 53,061
√	Roadway Drainage	Standard Internal System		30%	\$ 530,607
√	Illumination			6%	\$ 106,121
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 53,061
√	Sewer	Minor Adjustments		2%	\$ 35,374
√	Landscaping and Irrigation			4%	\$ 70,748
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 937,405
				Paving and Allowance Subtotal:	\$ 2,706,094
				Construction Contingency:	10% \$ 270,609
				Mobilization	5% \$ 135,305
				Prep ROW	5% \$ 135,305
				Construction Cost TOTAL:	\$ 3,248,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 3,248,000
Engineering/Survey/Testing:		16%	\$ 519,680
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 324,800
Impact Fee Project Cost TOTAL:			\$ 4,092,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-4
Name:	Brand Rd (2)	This project consists of the construction of a new four lane divided minor arterial		
Limits:	Naaman Forest Blvd to West Brand Rd			
Impact Fee Class:	C1			
Ultimate Class:	Minor Arterial			
Length (lf):	2,500			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
107	Unclassified Street Excavation	7,222	cy	\$ 8.00	\$ 57,778
207	6" Lime Stabilization Subgrade	14,167	sy	\$ 2.60	\$ 36,833
307	Street Cut Paving Concrete - Class C Construct	13,889	sy	\$ 70.00	\$ 972,222
407	Curb 6" Integral	10,000	lf	\$ 1.95	\$ 19,500
507	Sidewalk 4" Class A Construct	3,333	sy	\$ 43.00	\$ 143,333
607	Turn Lanes and Median Openings	1,150	sy	\$ 70.00	\$ 80,473
Paving Construction Cost Subtotal:					\$ 1,310,140
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	65,507
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	39,304
✓	Roadway Drainage	Standard Internal System	30%	\$	393,042
✓	Illumination		6%	\$	78,608
✓	Special Drainage Structures	Bridge Crossing	0%	\$	3,400,000
✓	Water	Minor Adjustments	3%	\$	39,304
✓	Sewer	Minor Adjustments	2%	\$	26,203
✓	Landscaping and Irrigation		4%	\$	52,406
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	4,094,374
Paving and Allowance Subtotal:				\$	5,404,514
Construction Contingency:				10%	\$ 540,451
Mobilization				5%	\$ 270,226
Prep ROW				5%	\$ 270,226
Construction Cost TOTAL:				\$	6,486,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 6,486,000
Engineering/Survey/Testing:		16%	\$ 1,037,760
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 648,600
Impact Fee Project Cost TOTAL:			\$ 8,172,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-5
Name:	Brand Rd (3)	This project consists of the reconstruction of the existing facility as a four lane divided minor arterial		
Limits:	Murfield Rd to PGBT N Frontage Rd			
Impact Fee Class:	C1			
Ultimate Class:	Minor Arterial			
Length (lf):	2,960			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
107	Unclassified Street Excavation	8,551	cy	\$ 8.00	\$ 68,409
207	6" Lime Stabilization Subgrade	16,773	sy	\$ 2.60	\$ 43,611
307	Street Cut Paving Concrete - Class C Construct	16,444	sy	\$ 70.00	\$ 1,151,111
407	Curb 6" Integral	11,840	lf	\$ 1.95	\$ 23,088
507	Sidwalk 4" Class A Construct	3,947	sy	\$ 43.00	\$ 169,707
607	Turn Lanes and Median Openings	1,361	sy	\$ 70.00	\$ 95,281
Paving Construction Cost Subtotal:					\$ 1,551,206
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 77,560
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 46,536
√	Roadway Drainage	Standard Internal System		30%	\$ 465,362
√	Illumination			6%	\$ 93,072
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 46,536
√	Sewer	Minor Adjustments		2%	\$ 31,024
√	Landscaping and Irrigation			4%	\$ 62,048
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 822,139
				Paving and Allowance Subtotal:	\$ 2,373,345
				Construction Contingency:	10% \$ 237,335
				Mobilization	5% \$ 118,667
				Prep ROW	5% \$ 118,667
				Construction Cost TOTAL:	\$ 2,849,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,849,000
Engineering/Survey/Testing:		16%	\$ 455,840
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 284,900
Impact Fee Project Cost TOTAL:			\$ 3,590,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-6
Name:	Campbell Rd (1)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	N. Jupiter Rd to Shiloh Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	5,605			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	8,096	cy	\$ 8.00	\$ 64,769
210	6" Lime Stabilization Subgrade	15,569	sy	\$ 2.60	\$ 40,481
310	Street Cut Paving Concrete - Class C Construct	14,324	sy	\$ 70.00	\$ 1,002,672
410	Curb 6" Integral	11,210	lf	\$ 1.95	\$ 21,860
510	Sidewalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	1,274	sy	\$ 70.00	\$ 89,170
Paving Construction Cost Subtotal:					\$ 1,218,952
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	60,948
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	36,569
	Roadway Drainage	None Anticipated	0%	\$	-
	Illumination		0%	\$	-
	Special Drainage Structures	None Anticipated	0%	\$	-
	Water	None Anticipated	0%	\$	-
	Sewer	None Anticipated	0%	\$	-
✓	Landscaping and Irrigation		4%	\$	48,758
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	146,274
Paving and Allowance Subtotal:					\$ 1,365,226
Construction Contingency:				10%	\$ 136,523
Mobilization				5%	\$ 68,261
Prep ROW				5%	\$ 68,261
Construction Cost TOTAL:					\$ 1,639,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,639,000
Engineering/Survey/Testing:		16%	\$ 262,240
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,901,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-7
Name:	Campbell Rd (2)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Shiloh Rd to PGBT S Frontage Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	2,180			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	3,149	cy	\$ 8.00	\$ 25,191
210	6" Lime Stabilization Subgrade	6,056	sy	\$ 2.60	\$ 15,744
310	Street Cut Paving Concrete - Class C Construct	5,571	sy	\$ 70.00	\$ 389,978
410	Curb 6" Integral	4,360	lf	\$ 1.95	\$ 8,502
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	495	sy	\$ 70.00	\$ 34,682
Paving Construction Cost Subtotal:					\$ 474,097
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	23,705
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	14,223
	Roadway Drainage	None Anticipated	0%	\$	-
	Illumination		0%	\$	-
	Special Drainage Structures	None Anticipated	0%	\$	-
	Water	None Anticipated	0%	\$	-
	Sewer	None Anticipated	0%	\$	-
✓	Landscaping and Irrigation		4%	\$	18,964
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	56,892
Paving and Allowance Subtotal:					\$ 530,989
Construction Contingency:				10%	\$ 53,099
Mobilization				5%	\$ 26,549
Prep ROW				5%	\$ 26,549
Construction Cost TOTAL:					\$ 638,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 638,000
Engineering/Survey/Testing:		16%	\$ 102,080
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 740,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-8
Name:	Campbell Rd (3)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Lookout Dr to PGBT N Frontage Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	3,140			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	4,536	cy	\$ 8.00	\$ 36,284
210	6" Lime Stabilization Subgrade	8,722	sy	\$ 2.60	\$ 22,678
310	Street Cut Paving Concrete - Class C Construct	8,024	sy	\$ 70.00	\$ 561,711
410	Curb 6" Integral	6,280	lf	\$ 1.95	\$ 12,246
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	714	sy	\$ 70.00	\$ 49,955
Paving Construction Cost Subtotal:					\$ 682,874
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 34,144
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 20,486
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 27,315
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 81,945
Paving and Allowance Subtotal:				\$	764,819
Construction Contingency:				10%	\$ 76,482
Mobilization				5%	\$ 38,241
Prep ROW				5%	\$ 38,241
Construction Cost TOTAL:				\$	918,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 918,000
Engineering/Survey/Testing:		16%	\$ 146,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,065,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-9
Name:	Campbell Rd (4)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Lookout Dr to N. Garland Ave			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	3,390			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	4,897	cy	\$ 8.00	\$ 39,173
210	6" Lime Stabilization Subgrade	9,417	sy	\$ 2.60	\$ 24,483
310	Street Cut Paving Concrete - Class C Construct	8,663	sy	\$ 70.00	\$ 606,433
410	Curb 6" Integral	6,780	lf	\$ 1.95	\$ 13,221
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	770	sy	\$ 70.00	\$ 53,932
Paving Construction Cost Subtotal: \$					737,243
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 36,862
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 22,117
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 29,490
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	88,469
Paving and Allowance Subtotal:				\$	825,712
Construction Contingency:				10%	\$ 82,571
Mobilization				5%	\$ 41,286
Prep ROW				5%	\$ 41,286
Construction Cost TOTAL:				\$	991,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 991,000
Engineering/Survey/Testing:		16%	\$ 158,560
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,150,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-10
Name:	Campbell Rd (5)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	N. Garland Ave to Water Oak Dr			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	2,740			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	3,958	cy	\$ 8.00	\$ 31,662
210	6" Lime Stabilization Subgrade	7,611	sy	\$ 2.60	\$ 19,789
310	Street Cut Paving Concrete - Class C Construct	7,002	sy	\$ 70.00	\$ 490,156
410	Curb 6" Integral	5,480	lf	\$ 1.95	\$ 10,686
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	623	sy	\$ 70.00	\$ 43,591
Paving Construction Cost Subtotal:					\$ 595,884
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 29,794
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 17,877
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 23,835
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 71,506
Paving and Allowance Subtotal:				\$	667,390
Construction Contingency:				10%	\$ 66,739
Mobilization				5%	\$ 33,369
Prep ROW				5%	\$ 33,369
Construction Cost TOTAL:				\$	801,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 801,000
Engineering/Survey/Testing:		16%	\$ 128,160
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 929,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-11
Name:	Campbell Rd (6)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Water Oak Dr to Murphy Rd			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	6,545			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	25,453	cy	\$ 8.00	\$ 203,622
209	6" Lime Stabilization Subgrade	50,178	sy	\$ 2.60	\$ 130,464
309	Street Cut Paving Concrete - Class C Construct	49,451	sy	\$ 70.00	\$ 3,461,578
409	Curb 6" Integral	26,180	lf	\$ 1.95	\$ 51,051
509	Sidwalk 4" Class A Construct	8,727	sy	\$ 43.00	\$ 375,247
609	Turn Lanes and Median Openings	2,415	sy	\$ 70.00	\$ 169,030
Paving Construction Cost Subtotal:					\$ 4,390,991
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	219,550
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	131,730
✓	Roadway Drainage	Standard Internal System	30%	\$	1,317,297
✓	Illumination		6%	\$	263,459
✓	Special Drainage Structures	Bridge Crossing	0%	\$	600,000
✓	Water	Minor Adjustments	3%	\$	131,730
✓	Sewer	Minor Adjustments	2%	\$	87,820
✓	Landscaping and Irrigation		4%	\$	175,640
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	2,927,225
Paving and Allowance Subtotal:				\$	7,318,216
Construction Contingency:				10%	\$ 731,822
Mobilization				5%	\$ 365,911
Prep ROW				5%	\$ 365,911
Construction Cost TOTAL:				\$	8,782,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 8,782,000
Engineering/Survey/Testing:		16%	\$ 1,405,120
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 878,200
Impact Fee Project Cost TOTAL:			\$ 11,065,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-12
Name:	Ferris Rd	This project consists of the reconstruction of the existing facility as a four lane divided major collector		
Limits:	Campbell Rd to Holford Rd			
Impact Fee Class:	D1			
Ultimate Class:	Major Collector			
Length (lf):	1,885			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
103	Unclassified Street Excavation	5,446	cy	\$ 8.00	\$ 43,564
203	6" Lime Stabilization Subgrade	10,682	sy	\$ 2.60	\$ 27,772
303	Street Cut Paving Concrete - Class C Construct	10,472	sy	\$ 70.00	\$ 733,056
403	Curb 6" Integral	7,540	lf	\$ 1.95	\$ 14,703
503	Sidewalk 4" Class A Construct	2,513	sy	\$ 43.00	\$ 108,073
603	Turn Lanes and Median Openings	695	sy	\$ 70.00	\$ 48,682
Paving Construction Cost Subtotal:					\$ 975,850
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	48,793
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	29,276
✓	Roadway Drainage	Standard Internal System	30%	\$	292,755
✓	Illumination		6%	\$	58,551
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	29,276
✓	Sewer	Minor Adjustments	2%	\$	19,517
✓	Landscaping and Irrigation		4%	\$	39,034
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	517,201
Paving and Allowance Subtotal:				\$	1,493,051
Construction Contingency:				10%	\$ 149,305
Mobilization				5%	\$ 74,653
Prep ROW				5%	\$ 74,653
Construction Cost TOTAL:				\$	1,792,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,792,000
Engineering/Survey/Testing:		16%	\$ 286,720
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 179,200
Impact Fee Project Cost TOTAL:			\$ 2,258,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-13
Name:	Firewheel Parkway (1)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Lavon Dr to 530' E of Lavon Dr			
Impact Fee Class:	A			
Ultimate Class:	Regional Arterial			
Length (lf):	530			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
111	Unclassified Street Excavation	2,061	cy	\$ 8.00	\$ 16,489
211	6" Lime Stabilization Subgrade	4,063	sy	\$ 2.60	\$ 10,565
311	Street Cut Paving Concrete - Class C Construct	4,004	sy	\$ 70.00	\$ 280,311
411	Curb 6" Integral	2,120	lf	\$ 1.95	\$ 4,134
511	Sidwalk 4" Class A Construct	707	sy	\$ 43.00	\$ 30,387
611	Turn Lanes and Median Openings	201	sy	\$ 70.00	\$ 14,060
Paving Construction Cost Subtotal:					\$ 355,945
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	17,797
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	10,678
✓	Roadway Drainage	Standard Internal System	30%	\$	106,784
✓	Illumination		6%	\$	21,357
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	10,678
✓	Sewer	Minor Adjustments	2%	\$	7,119
✓	Landscaping and Irrigation		4%	\$	14,238
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	188,651
Paving and Allowance Subtotal:					\$ 544,596
Construction Contingency:				10%	\$ 54,460
Mobilization				5%	\$ 27,230
Prep ROW				5%	\$ 27,230
Construction Cost TOTAL:					\$ 654,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 654,000
Engineering/Survey/Testing:		16%	\$ 104,640
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 65,400
Impact Fee Project Cost TOTAL:			\$ 824,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-14
Name:	Holford Rd (1)	This project consists of the reconstruction of the existing facility as a four lane divided major collector		
Limits:	Naaman Forest (Future) to Arapaho Rd			
Impact Fee Class:	D1			
Ultimate Class:	Major Collector			
Length (lf):	3,960			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
103	Unclassified Street Excavation	11,440	cy	\$ 8.00	\$ 91,520
203	6" Lime Stabilization Subgrade	22,440	sy	\$ 2.60	\$ 58,344
303	Street Cut Paving Concrete - Class C Construct	22,000	sy	\$ 70.00	\$ 1,540,000
403	Curb 6" Integral	15,840	lf	\$ 1.95	\$ 30,888
503	Sidwalk 4" Class A Construct	5,280	sy	\$ 43.00	\$ 227,040
603	Turn Lanes and Median Openings	1,461	sy	\$ 70.00	\$ 102,270
Paving Construction Cost Subtotal:					\$ 2,050,062
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	102,503
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	61,502
✓	Roadway Drainage	Standard Internal System	30%	\$	615,019
✓	Illumination		6%	\$	123,004
✓	Special Drainage Structures	Bridge Crossing	0%	\$	400,000
✓	Water	Minor Adjustments	3%	\$	61,502
✓	Sewer	Minor Adjustments	2%	\$	41,001
✓	Landscaping and Irrigation		4%	\$	82,002
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	1,486,533
Paving and Allowance Subtotal:					\$ 3,536,595
Construction Contingency:				10%	\$ 353,659
Mobilization				5%	\$ 176,830
Prep ROW				5%	\$ 176,830
Construction Cost TOTAL:					\$ 4,244,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 4,244,000
Engineering/Survey/Testing:		16%	\$ 679,040
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 424,400
Impact Fee Project Cost TOTAL:			\$ 5,347,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-15
Name:	Holford Rd (2)	This project consists of the reconstruction of the existing facility as a four lane divided minor arterial		
Limits:	PGBT S Frontage Rd to Naaman Forest (Future)			
Impact Fee Class:	C2			
Ultimate Class:	Minor Arterial			
Length (lf):	1,750			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
108	Unclassified Street Excavation	6,806	cy	\$ 8.00	\$ 54,444
208	6" Lime Stabilization Subgrade	13,417	sy	\$ 2.60	\$ 34,883
308	Street Cut Paving Concrete - Class C Construct	13,222	sy	\$ 70.00	\$ 925,556
408	Curb 6" Integral	7,000	lf	\$ 1.95	\$ 13,650
508	Sidewalk 4" Class A Construct	2,333	sy	\$ 43.00	\$ 100,333
608	Turn Lanes and Median Openings	646	sy	\$ 70.00	\$ 45,195
Paving Construction Cost Subtotal:					\$ 1,174,062
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	58,703
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	35,222
✓	Roadway Drainage	Standard Internal System	30%	\$	352,219
✓	Illumination		6%	\$	70,444
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	35,222
✓	Sewer	Minor Adjustments	2%	\$	23,481
✓	Landscaping and Irrigation		4%	\$	46,962
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	622,253
Paving and Allowance Subtotal:					\$ 1,796,314
Construction Contingency:				10%	\$ 179,631
Mobilization				5%	\$ 89,816
Prep ROW				5%	\$ 89,816
Construction Cost TOTAL:					\$ 2,156,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,156,000
Engineering/Survey/Testing:		16%	\$ 344,960
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 215,600
Impact Fee Project Cost TOTAL:			\$ 2,717,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-16
Name:	Holford Rd (3)	This project consists of the reconstruction of the existing facility as a four lane divided minor arterial		
Limits:	N City Limits to PGBT N Frontage Rd			
Impact Fee Class:	C2			
Ultimate Class:	Minor Arterial			
Length (lf):	5,230			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
108	Unclassified Street Excavation	20,339	cy	\$ 8.00	\$ 162,711
208	6" Lime Stabilization Subgrade	40,097	sy	\$ 2.60	\$ 104,251
308	Street Cut Paving Concrete - Class C Construct	39,516	sy	\$ 70.00	\$ 2,766,089
408	Curb 6" Integral	20,920	lf	\$ 1.95	\$ 40,794
508	Sidwalk 4" Class A Construct	6,973	sy	\$ 43.00	\$ 299,853
608	Turn Lanes and Median Openings	1,930	sy	\$ 70.00	\$ 135,069
Paving Construction Cost Subtotal:					\$ 3,508,767
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	175,438
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	105,263
✓	Roadway Drainage	Standard Internal System	30%	\$	1,052,630
✓	Illumination		6%	\$	210,526
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	105,263
✓	Sewer	Minor Adjustments	2%	\$	70,175
✓	Landscaping and Irrigation		4%	\$	140,351
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	1,859,647
Paving and Allowance Subtotal:					\$ 5,368,414
Construction Contingency:				10%	\$ 536,841
Mobilization				5%	\$ 268,421
Prep ROW				5%	\$ 268,421
Construction Cost TOTAL:					\$ 6,443,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 6,443,000
Engineering/Survey/Testing:		16%	\$ 1,030,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 644,300
Impact Fee Project Cost TOTAL:			\$ 8,118,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-17
Name:	Lookout Dr (1)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Courtside Dr to Spring Dr			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	590			
Service Area(s):	A,ETJ			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	852	cy	\$ 8.00	\$ 6,818
210	6" Lime Stabilization Subgrade	1,639	sy	\$ 2.60	\$ 4,261
310	Street Cut Paving Concrete - Class C Construct	1,508	sy	\$ 70.00	\$ 105,544
410	Curb 6" Integral	1,180	lf	\$ 1.95	\$ 2,301
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	134	sy	\$ 70.00	\$ 9,386
Paving Construction Cost Subtotal:					\$ 128,311
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 6,416
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 3,849
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 5,132
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 15,397
Paving and Allowance Subtotal:				\$	143,708
Construction Contingency:				10%	\$ 14,371
Mobilization				5%	\$ 7,185
Prep ROW				5%	\$ 7,185
Construction Cost TOTAL:				\$	173,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 173,000
Engineering/Survey/Testing:		16%	\$ 27,680
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 201,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-18
Name:	Lookout Dr (2)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Spring Dr to PGBT S Frontage Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	4,210			
Service Area(s):	A,ETJ			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	6,081	cy	\$ 8.00	\$ 48,649
210	6" Lime Stabilization Subgrade	11,694	sy	\$ 2.60	\$ 30,406
310	Street Cut Paving Concrete - Class C Construct	10,759	sy	\$ 70.00	\$ 753,122
410	Curb 6" Integral	8,420	lf	\$ 1.95	\$ 16,419
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	957	sy	\$ 70.00	\$ 66,977
Paving Construction Cost Subtotal: \$					915,573
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 45,779
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 27,467
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 36,623
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	109,869
				Paving and Allowance Subtotal: \$	1,025,442
				Construction Contingency: 10%	\$ 102,544
				Mobilization 5%	\$ 51,272
				Prep ROW 5%	\$ 51,272
				Construction Cost TOTAL: \$	1,231,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,231,000
Engineering/Survey/Testing:		16%	\$ 196,960
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,428,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-19
Name:	Lookout Dr (3)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	PGBT N Frontage Rd to Campbell Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	3,785			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	5,467	cy	\$ 8.00	\$ 43,738
210	6" Lime Stabilization Subgrade	10,514	sy	\$ 2.60	\$ 27,336
310	Street Cut Paving Concrete - Class C Construct	9,673	sy	\$ 70.00	\$ 677,094
410	Curb 6" Integral	7,570	lf	\$ 1.95	\$ 14,762
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	860	sy	\$ 70.00	\$ 60,216
Paving Construction Cost Subtotal:					\$ 823,146
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 41,157
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 24,694
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 32,926
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 98,777
Paving and Allowance Subtotal:				\$	921,923
Construction Contingency:				10%	\$ 92,192
Mobilization				5%	\$ 46,096
Prep ROW				5%	\$ 46,096
Construction Cost TOTAL:				\$	1,107,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,107,000
Engineering/Survey/Testing:		16%	\$ 177,120
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,284,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-20
Name:	Mapleridge (1)	This project consists of the construction of a new two lane undivided minor collector		
Limits:	Shiloh Rd to Mapleridge Dr			
Impact Fee Class:	F			
Ultimate Class:	Minor Collector			
Length (lf):	450			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
101	Unclassified Street Excavation	1,000	cy	\$ 8.00	\$ 8,000
201	6" Lime Stabilization Subgrade	1,950	sy	\$ 2.60	\$ 5,070
301	Street Cut Paving Concrete - Class C Construct	1,850	sy	\$ 70.00	\$ 129,500
401	Curb 6" Integral	900	lf	\$ 1.95	\$ 1,755
501	Sidwalk 4" Class A Construct	400	sy	\$ 43.00	\$ 17,200
601	Turn Lanes and Median Openings	32	sy	\$ 70.00	\$ 2,231
Paving Construction Cost Subtotal:					\$ 163,756
Major Construction Component Allowances**:					
	Item Description	Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 4,913
√	Roadway Drainage	Standard Internal System		30%	\$ 49,127
√	Illumination			6%	\$ 9,825
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 4,913
√	Sewer	Minor Adjustments		2%	\$ 3,275
√	Landscaping and Irrigation			4%	\$ 6,550
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 78,603
Paving and Allowance Subtotal:				\$	242,359
Construction Contingency:				10%	\$ 24,236
Mobilization				5%	\$ 12,118
Prep ROW				1%	\$ 2,424
Construction Cost TOTAL:				\$	282,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 282,000
Engineering/Survey/Testing:		16%	\$ 45,120
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 56,400
Impact Fee Project Cost TOTAL:			\$ 384,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-21
Name:	Mapleridge (2)	This project consists of the construction of a new two lane undivided minor collector		
Limits:	Mapleridge Dr (Existing) to Holford Rd			
Impact Fee Class:	F			
Ultimate Class:	Minor Collector			
Length (lf):	1,905			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
101	Unclassified Street Excavation	4,233	cy	\$ 8.00	\$ 33,867
201	6" Lime Stabilization Subgrade	8,255	sy	\$ 2.60	\$ 21,463
301	Street Cut Paving Concrete - Class C Construct	7,832	sy	\$ 70.00	\$ 548,217
401	Curb 6" Integral	3,810	lf	\$ 1.95	\$ 7,430
501	Sidwalk 4" Class A Construct	1,693	sy	\$ 43.00	\$ 72,813
601	Turn Lanes and Median Openings	135	sy	\$ 70.00	\$ 9,446
Paving Construction Cost Subtotal:					\$ 693,235
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	None Anticipated	0%	\$	-
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	20,797
✓	Roadway Drainage	Standard Internal System	30%	\$	207,970
✓	Illumination		6%	\$	41,594
✓	Special Drainage Structures	Bridge Crossing	0%	\$	1,200,000
✓	Water	Minor Adjustments	3%	\$	20,797
✓	Sewer	Minor Adjustments	2%	\$	13,865
✓	Landscaping and Irrigation		4%	\$	27,729
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	1,532,753
Paving and Allowance Subtotal:				\$	2,225,987
Construction Contingency:				10%	\$ 222,599
Mobilization				5%	\$ 111,299
Prep ROW				1%	\$ 22,260
Construction Cost TOTAL:				\$	2,583,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,583,000
Engineering/Survey/Testing:		16%	\$ 413,280
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 516,600
Impact Fee Project Cost TOTAL:			\$ 3,513,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-22
Name:	Garland Ave (1)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	N City Limits to PG&T N Frontage Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	6,820			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	9,851	cy	\$ 8.00	\$ 78,809
210	6" Lime Stabilization Subgrade	18,944	sy	\$ 2.60	\$ 49,256
310	Street Cut Paving Concrete - Class C Construct	17,429	sy	\$ 70.00	\$ 1,220,022
410	Curb 6" Integral	13,640	lf	\$ 1.95	\$ 26,598
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	1,550	sy	\$ 70.00	\$ 108,500
Paving Construction Cost Subtotal:					\$ 1,483,185
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 74,159
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 44,496
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 59,327
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 177,982
				Paving and Allowance Subtotal:	\$ 1,661,167
				Construction Contingency:	10% \$ 166,117
				Mobilization	5% \$ 83,058
				Prep ROW	5% \$ 83,058
				Construction Cost TOTAL:	\$ 1,994,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,994,000
Engineering/Survey/Testing:		16%	\$ 319,040
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 2,313,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-23
Name:	Garland Ave (2)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Arapaho Rd to PGBT S Frontage Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	6,025			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	8,703	cy	\$ 8.00	\$ 69,622
210	6" Lime Stabilization Subgrade	16,736	sy	\$ 2.60	\$ 43,514
310	Street Cut Paving Concrete - Class C Construct	15,397	sy	\$ 70.00	\$ 1,077,806
410	Curb 6" Integral	12,050	lf	\$ 1.95	\$ 23,498
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	1,369	sy	\$ 70.00	\$ 95,852
Paving Construction Cost Subtotal:					\$ 1,310,291
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 65,515
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 39,309
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 52,412
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 157,235
				Paving and Allowance Subtotal:	\$ 1,467,526
				Construction Contingency:	10% \$ 146,753
				Mobilization	5% \$ 73,376
				Prep ROW	5% \$ 73,376
				Construction Cost TOTAL:	\$ 1,762,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,762,000
Engineering/Survey/Testing:		16%	\$ 281,920
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 2,044,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-24
Name:	Garland Ave (3)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Arapaho Rd to Belt Line Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	4,190			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	6,052	cy	\$ 8.00	\$ 48,418
210	6" Lime Stabilization Subgrade	11,639	sy	\$ 2.60	\$ 30,261
310	Street Cut Paving Concrete - Class C Construct	10,708	sy	\$ 70.00	\$ 749,544
410	Curb 6" Integral	8,380	lf	\$ 1.95	\$ 16,341
510	Sidewalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	952	sy	\$ 70.00	\$ 66,659
Paving Construction Cost Subtotal:					\$ 911,223
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	45,561
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	27,337
	Roadway Drainage	None Anticipated	0%	\$	-
	Illumination		0%	\$	-
	Special Drainage Structures	None Anticipated	0%	\$	-
	Water	None Anticipated	0%	\$	-
	Sewer	None Anticipated	0%	\$	-
✓	Landscaping and Irrigation		4%	\$	36,449
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	109,347
Paving and Allowance Subtotal:				\$	1,020,570
Construction Contingency:				10%	\$ 102,057
Mobilization				5%	\$ 51,029
Prep ROW				5%	\$ 51,029
Construction Cost TOTAL:				\$	1,225,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,225,000
Engineering/Survey/Testing:		16%	\$ 196,000
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,421,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-25
Name:	Garland Ave (4)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Belt Line Rd to Buckingham Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	5,105			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	7,374	cy	\$ 8.00	\$ 58,991
210	6" Lime Stabilization Subgrade	14,181	sy	\$ 2.60	\$ 36,869
310	Street Cut Paving Concrete - Class C Construct	13,046	sy	\$ 70.00	\$ 913,228
410	Curb 6" Integral	10,210	lf	\$ 1.95	\$ 19,910
510	Sidewalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	1,160	sy	\$ 70.00	\$ 81,216
Paving Construction Cost Subtotal:					\$ 1,110,214
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	55,511
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	33,306
	Roadway Drainage	None Anticipated	0%	\$	-
	Illumination		0%	\$	-
	Special Drainage Structures	None Anticipated	0%	\$	-
	Water	None Anticipated	0%	\$	-
	Sewer	None Anticipated	0%	\$	-
✓	Landscaping and Irrigation		4%	\$	44,409
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	133,226
Paving and Allowance Subtotal:					\$ 1,243,439
Construction Contingency:				10%	\$ 124,344
Mobilization				5%	\$ 62,172
Prep ROW				5%	\$ 62,172
Construction Cost TOTAL:					\$ 1,493,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,493,000
Engineering/Survey/Testing:		16%	\$ 238,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,732,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-26
Name:	Shiloh Rd (1)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	PGBT S Frontage Rd to Campbell Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	1,935			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	2,795	cy	\$ 8.00	\$ 22,360
210	6" Lime Stabilization Subgrade	5,375	sy	\$ 2.60	\$ 13,975
310	Street Cut Paving Concrete - Class C Construct	4,945	sy	\$ 70.00	\$ 346,150
410	Curb 6" Integral	3,870	lf	\$ 1.95	\$ 7,547
510	Sidewalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	440	sy	\$ 70.00	\$ 30,784
Paving Construction Cost Subtotal: \$					420,816
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 21,041
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 12,624
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 16,833
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	50,498
Paving and Allowance Subtotal:				\$	471,313
Construction Contingency:				10%	\$ 47,131
Mobilization				5%	\$ 23,566
Prep ROW				5%	\$ 23,566
Construction Cost TOTAL: \$					566,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 566,000
Engineering/Survey/Testing:		16%	\$ 90,560
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 657,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-27
Name:	Shiloh Rd (2)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Campbell Rd to north bridge end			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	2,160			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	3,120	cy	\$ 8.00	\$ 24,960
210	6" Lime Stabilization Subgrade	6,000	sy	\$ 2.60	\$ 15,600
310	Street Cut Paving Concrete - Class C Construct	5,520	sy	\$ 70.00	\$ 386,400
410	Curb 6" Integral	4,320	lf	\$ 1.95	\$ 8,424
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	491	sy	\$ 70.00	\$ 34,364
Paving Construction Cost Subtotal:					\$ 469,748
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 23,487
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 14,092
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 18,790
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 56,370
Paving and Allowance Subtotal:				\$	526,117
Construction Contingency:				10%	\$ 52,612
Mobilization				5%	\$ 26,306
Prep ROW				5%	\$ 26,306
Construction Cost TOTAL:				\$	632,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 632,000
Engineering/Survey/Testing:		16%	\$ 101,120
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 733,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-28
Name:	Shiloh Rd (3)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Collins Blvd to Arapaho Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	3,140			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	4,536	cy	\$ 8.00	\$ 36,284
210	6" Lime Stabilization Subgrade	8,722	sy	\$ 2.60	\$ 22,678
310	Street Cut Paving Concrete - Class C Construct	8,024	sy	\$ 70.00	\$ 561,711
410	Curb 6" Integral	6,280	lf	\$ 1.95	\$ 12,246
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	714	sy	\$ 70.00	\$ 49,955
Paving Construction Cost Subtotal: \$					682,874
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 34,144
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 20,486
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 27,315
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	81,945
Paving and Allowance Subtotal:				\$	764,819
Construction Contingency:				10%	\$ 76,482
Mobilization				5%	\$ 38,241
Prep ROW				5%	\$ 38,241
Construction Cost TOTAL:				\$	918,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 918,000
Engineering/Survey/Testing:		16%	\$ 146,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,065,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-29
Name:	Shiloh Rd (4)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Arapaho Rd to Belt Line Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	5,415			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	7,822	cy	\$ 8.00	\$ 62,573
210	6" Lime Stabilization Subgrade	15,042	sy	\$ 2.60	\$ 39,108
310	Street Cut Paving Concrete - Class C Construct	13,838	sy	\$ 70.00	\$ 968,683
410	Curb 6" Integral	10,830	lf	\$ 1.95	\$ 21,119
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	1,231	sy	\$ 70.00	\$ 86,148
Paving Construction Cost Subtotal:					\$ 1,177,631
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 58,882
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 35,329
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 47,105
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 141,316
				Paving and Allowance Subtotal:	\$ 1,318,947
				Construction Contingency:	10% \$ 131,895
				Mobilization	5% \$ 65,947
				Prep ROW	5% \$ 65,947
				Construction Cost TOTAL:	\$ 1,583,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,583,000
Engineering/Survey/Testing:		16%	\$ 253,280
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,836,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-30
Name:	Shiloh Rd (5)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Belt Line Rd to Buckingham Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	5,055			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	7,302	cy	\$ 8.00	\$ 58,413
210	6" Lime Stabilization Subgrade	14,042	sy	\$ 2.60	\$ 36,508
310	Street Cut Paving Concrete - Class C Construct	12,918	sy	\$ 70.00	\$ 904,283
410	Curb 6" Integral	10,110	lf	\$ 1.95	\$ 19,715
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	1,149	sy	\$ 70.00	\$ 80,420
Paving Construction Cost Subtotal:					\$ 1,099,340
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 54,967
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 32,980
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 43,974
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 131,921
Paving and Allowance Subtotal:				\$	1,231,261
Construction Contingency:				10%	\$ 123,126
Mobilization				5%	\$ 61,563
Prep ROW				5%	\$ 61,563
Construction Cost TOTAL:				\$	1,478,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,478,000
Engineering/Survey/Testing:		16%	\$ 236,480
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,714,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-31
Name:	Naaman Forest Blvd	This project consists of the construction of a new four lane divided major collector		
Limits:	W. Naaman Forest Blvd. to E. Naaman Forest			
Impact Fee Class:	D1			
Ultimate Class:	Major Collector			
Length (lf):	1,720			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
103	Unclassified Street Excavation	4,969	cy	\$ 8.00	\$ 39,751
203	6" Lime Stabilization Subgrade	9,747	sy	\$ 2.60	\$ 25,341
303	Street Cut Paving Concrete - Class C Construct	9,556	sy	\$ 70.00	\$ 668,889
403	Curb 6" Integral	6,880	lf	\$ 1.95	\$ 13,416
503	Sidwalk 4" Class A Construct	2,293	sy	\$ 43.00	\$ 98,613
603	Turn Lanes and Median Openings	635	sy	\$ 70.00	\$ 44,420
Paving Construction Cost Subtotal:					\$ 890,431
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 26,713
√	Roadway Drainage	Standard Internal System		30%	\$ 267,129
√	Illumination			6%	\$ 53,426
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 26,713
√	Sewer	Minor Adjustments		2%	\$ 17,809
√	Landscaping and Irrigation			4%	\$ 35,617
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 427,407
Paving and Allowance Subtotal:					\$ 1,317,838
Construction Contingency:				10%	\$ 131,784
Mobilization				5%	\$ 65,892
Prep ROW				1%	\$ 13,178
Construction Cost TOTAL:					\$ 1,529,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,529,000
Engineering/Survey/Testing:		16%	\$ 244,640
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 305,800
Impact Fee Project Cost TOTAL:			\$ 2,079,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-32
Name:	Naaman School Rd	This project consists of the reconstruction of the existing facility as a four lane divided major collector		
Limits:	Brand Rd to Lavon Dr			
Impact Fee Class:	D1			
Ultimate Class:	Major Collector			
Length (lf):	4,670			
Service Area(s):	A			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
103	Unclassified Street Excavation	13,491	cy	\$ 8.00	\$ 107,929
203	6" Lime Stabilization Subgrade	26,463	sy	\$ 2.60	\$ 68,805
303	Street Cut Paving Concrete - Class C Construct	25,944	sy	\$ 70.00	\$ 1,816,111
403	Curb 6" Integral	18,680	lf	\$ 1.95	\$ 36,426
503	Sidewalk 4" Class A Construct	6,227	sy	\$ 43.00	\$ 267,747
603	Turn Lanes and Median Openings	1,723	sy	\$ 70.00	\$ 120,606
Paving Construction Cost Subtotal:					\$ 2,417,624
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	120,881
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	72,529
✓	Roadway Drainage	Standard Internal System	30%	\$	725,287
✓	Illumination		6%	\$	145,057
✓	Special Drainage Structures	Minor Stream Crossing	0%	\$	300,000
✓	Water	Minor Adjustments	3%	\$	72,529
✓	Sewer	Minor Adjustments	2%	\$	48,352
✓	Landscaping and Irrigation		4%	\$	96,705
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	1,581,341
Paving and Allowance Subtotal:					\$ 3,998,964
Construction Contingency:				10%	\$ 399,896
Mobilization				5%	\$ 199,948
Prep ROW				5%	\$ 199,948
Construction Cost TOTAL:					\$ 4,799,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 4,799,000
Engineering/Survey/Testing:		16%	\$ 767,840
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 479,900
Impact Fee Project Cost TOTAL:			\$ 6,047,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	A-33
Name:	Naaman Forest Blvd	This completed project consists of the widening of Naaman Forest Boulevard to a four lane divided major collector. The total cost of this project is \$3,904,483.		
Limits:	Ranger to Brand Rd			
Impact Fee Class:	D1			
Ultimate Class:	Major Collector			
Length (lf):	1,363			
Service Area(s):	A			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 3,904,483	

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
updated: 9/13/2016

Project Information:		Description:	Project No.	I-1:I-8
Name:	Bottleneck Study Improvements	This project consists of intersection improvements identified in the ongoing Bottleneck study. The total cost of these improvements in Service Area A is estimated to be \$2,625,000. The cost attributable to projected growth in Service Area A (24%) is \$634,000.		
Limits:	N/A			
Impact Fee Class:	N/A			
Ultimate Class:	N/A			
Length (If):	N/A			
Service Area(s):	A			

Impact Fee Project Cost Summary			
Impact Fee Project Cost TOTAL:			\$ 634,000

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City of Garland - 2016 Roadway Impact Fee Study
Capital Improvement Plan for Roadway Impact Fees
Summary of Conceptual Level Project Cost Projections

Roadway Improvements - Service Area B

#	IF Class	Project	Limits		Status	Percent in Service Area	Project Cost	Total Cost in Service Area
			From	To				
B-1	E	Kings Rd	Marquis Dr	Kings Rd (Existing)	New	100	\$ 551,000	\$ 551,000
B-2	E	Leon Rd (1)	Shiloh Rd	S. Garland Ave	New	100	\$ 959,000	\$ 959,000
B-3	E	Leon Rd (2)	Leon Rd (Existing)	Millay Blvd (Future)	New	100	\$ 212,000	\$ 212,000
B-4	E	Marketplace ext (1)	Towngate Blvd	Northwest Hwy	New	100	\$ 1,398,000	\$ 1,398,000
B-5	E	Marketplace ext (2)	Pendleton Dr	Marketplace Dr	New	100	\$ 666,000	\$ 666,000
B-6	E	Millay Blvd (Future)	Leon Rd	Millay Blvd (Existing)	New	100	\$ 1,180,000	\$ 1,180,000
B-7	B (1/3)	Shiloh Rd (6)	Buckingham Rd	W Walnut St	Median	100	\$ 1,784,000	\$ 1,784,000
B-8	B	Shiloh Rd (7)	W Walnut St	Forest Ln	Widening	100	\$ 4,590,000	\$ 4,590,000
B-9	B	Shiloh Rd (8)	Forest Ln	Miller Rd	Widening	100	\$ 8,552,000	\$ 8,552,000
B-10	B	Shiloh Rd (9)	Miller Rd	Kingsley Rd	Widening	100	\$ 9,087,000	\$ 9,087,000
B-11	B	Shiloh Rd (10)	Kingsley Rd	McCree Rd	Widening	100	\$ 4,129,000	\$ 4,129,000
B-12	B	Shiloh Rd (11)	Garland Ave	IH-635 WBFR	Widening	100	\$ 2,368,000	\$ 2,368,000
B-13	F	New road east of Industrial Ln	Kingsley Rd	McCree Rd	New	100	\$ 2,260,000	\$ 2,260,000
B-14	D2	Saturn Rd	Saturn Rd (Existing)	Miller Rd	New	100	\$ 2,215,000	\$ 2,215,000
B-15	E	Sherwin	Sherwin St (Existing)	Wood Dr	New	100	\$ 2,432,000	\$ 2,432,000
TOTAL							\$ 13,404,000	\$ 42,383,000

Bottleneck Study Improvements - Service Area B

#	Intersection	Improvement(s)	Percent in Service Area	Total Project Cost in Service Area	10-Year Growth Cost in Service Area
I-9	Plano Rd and Walnut St	NB an SB RT Lane	100%	\$ 9,205,000.00	\$ 378,000.00
I-10	Forest Ln and Jupiter Rd	EB and NB RT Lane, NB Dual LT Lanes	100%		
I-11	Forest Ln and Shiloh Rd	SB and NB RT Lanes, Dual NB LT Lanes	100%		
I-12	Avenue B (SH 78) and First St	SB RT Lane	100%		
I-13	Avenue D and First St	EB RT Lane, EB Dual LT Lanes	100%		
I-15	Jupiter Rd and Miller Rd	SB RT Lane	100%		
I-16	Miller Rd and Shiloh Rd	SB RT Lane	100%		
I-17	Garland Ave and Miller Rd	SB, EB, and WB RT Lanes	100%		
I-18	Glenbrook Dr and Miller Rd	EB and WB LT Lanes	100%		
I-19	First St and Miller Rd	Add EB RT & NB, SB Dual Lefts	33%		
I-20	Broadway Blvd and First St	Triple LT from NB First St	50%		
I-21	Jupiter Rd and Kingsley Rd	WB RT Lane	100%		
I-22	Garland Ave and Kingsley Rd	NB RT Lane	100%		
I-24	Garland Ave and McCree Rd / Shiloh Rd	SWB Dual LT Lanes	100%		

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-1
Name:	Kings Rd	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Marquis Dr to Kings Rd (Existing)			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	545			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	1,453	cy	\$ 8.00	\$ 11,627
202	6" Lime Stabilization Subgrade	2,846	sy	\$ 2.60	\$ 7,400
302	Street Cut Paving Concrete - Class C Construct	2,725	sy	\$ 70.00	\$ 190,750
402	Curb 6" Integral	1,090	lf	\$ 1.95	\$ 2,126
502	Sidwalk 4" Class A Construct	484	sy	\$ 43.00	\$ 20,831
602	Turn Lanes and Median Openings	39	sy	\$ 70.00	\$ 2,702
Paving Construction Cost Subtotal:					\$ 235,435
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 7,063
√	Roadway Drainage	Standard Internal System		30%	\$ 70,631
√	Illumination			6%	\$ 14,126
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 7,063
√	Sewer	Minor Adjustments		2%	\$ 4,709
√	Landscaping and Irrigation			4%	\$ 9,417
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 113,009
Paving and Allowance Subtotal:				\$	348,444
Construction Contingency:				10%	\$ 34,844
Mobilization				5%	\$ 17,422
Prep ROW				1%	\$ 3,484
Construction Cost TOTAL:				\$	405,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 405,000
Engineering/Survey/Testing:		16%	\$ 64,800
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 81,000
Impact Fee Project Cost TOTAL:			\$ 551,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-2
Name:	Leon Rd (1)	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Shiloh Rd to S. Garland Ave			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	950			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	2,533	cy	\$ 8.00	\$ 20,267
202	6" Lime Stabilization Subgrade	4,961	sy	\$ 2.60	\$ 12,899
302	Street Cut Paving Concrete - Class C Construct	4,750	sy	\$ 70.00	\$ 332,500
402	Curb 6" Integral	1,900	lf	\$ 1.95	\$ 3,705
502	Sidwalk 4" Class A Construct	844	sy	\$ 43.00	\$ 36,311
602	Turn Lanes and Median Openings	67	sy	\$ 70.00	\$ 4,710
Paving Construction Cost Subtotal:					\$ 410,392
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 12,312
√	Roadway Drainage	Standard Internal System		30%	\$ 123,118
√	Illumination			6%	\$ 24,624
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 12,312
√	Sewer	Minor Adjustments		2%	\$ 8,208
√	Landscaping and Irrigation			4%	\$ 16,416
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 196,988
				Paving and Allowance Subtotal:	\$ 607,380
				Construction Contingency:	10% \$ 60,738
				Mobilization	5% \$ 30,369
				Prep ROW	1% \$ 6,074
				Construction Cost TOTAL:	\$ 705,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 705,000
Engineering/Survey/Testing:		16%	\$ 112,800
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 141,000
Impact Fee Project Cost TOTAL:			\$ 959,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-3
Name:	Leon Rd (2)	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Leon Rd (Existing) to Millay Blvd (Future)			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	210			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	560	cy	\$ 8.00	\$ 4,480
202	6" Lime Stabilization Subgrade	1,097	sy	\$ 2.60	\$ 2,851
302	Street Cut Paving Concrete - Class C Construct	1,050	sy	\$ 70.00	\$ 73,500
402	Curb 6" Integral	420	lf	\$ 1.95	\$ 819
502	Sidwalk 4" Class A Construct	187	sy	\$ 43.00	\$ 8,027
602	Turn Lanes and Median Openings	15	sy	\$ 70.00	\$ 1,041
Paving Construction Cost Subtotal: \$					90,718
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 2,722
✓	Roadway Drainage	Standard Internal System		30%	\$ 27,215
✓	Illumination			6%	\$ 5,443
	Special Drainage Structures	None Anticipated		0%	\$ -
✓	Water	Minor Adjustments		3%	\$ 2,722
✓	Sewer	Minor Adjustments		2%	\$ 1,814
✓	Landscaping and Irrigation			4%	\$ 3,629
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	43,545
Paving and Allowance Subtotal:				\$	134,263
Construction Contingency:				10%	\$ 13,426
Mobilization				5%	\$ 6,713
Prep ROW				1%	\$ 1,343
Construction Cost TOTAL:				\$	156,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 156,000
Engineering/Survey/Testing:		16%	\$ 24,960
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 31,200
Impact Fee Project Cost TOTAL:			\$ 212,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-4
Name:	Marketplace ext (1)	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Towngate Blvd to Northwest Hwy			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	1,385			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	3,693	cy	\$ 8.00	\$ 29,547
202	6" Lime Stabilization Subgrade	7,233	sy	\$ 2.60	\$ 18,805
302	Street Cut Paving Concrete - Class C Construct	6,925	sy	\$ 70.00	\$ 484,750
402	Curb 6" Integral	2,770	lf	\$ 1.95	\$ 5,402
502	Sidwalk 4" Class A Construct	1,231	sy	\$ 43.00	\$ 52,938
602	Turn Lanes and Median Openings	98	sy	\$ 70.00	\$ 6,867
Paving Construction Cost Subtotal:					\$ 598,308
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 17,949
√	Roadway Drainage	Standard Internal System		30%	\$ 179,493
√	Illumination			6%	\$ 35,899
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 17,949
√	Sewer	Minor Adjustments		2%	\$ 11,966
√	Landscaping and Irrigation			4%	\$ 23,932
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 287,188
				Paving and Allowance Subtotal:	\$ 885,497
				Construction Contingency:	10% \$ 88,550
				Mobilization	5% \$ 44,275
				Prep ROW	1% \$ 8,855
				Construction Cost TOTAL:	\$ 1,028,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,028,000
Engineering/Survey/Testing:		16%	\$ 164,480
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 205,600
Impact Fee Project Cost TOTAL:			\$ 1,398,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-5
Name:	Marketplace ext (2)	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Pendleton Dr to Marketplace Dr			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	660			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	1,760	cy	\$ 8.00	\$ 14,080
202	6" Lime Stabilization Subgrade	3,447	sy	\$ 2.60	\$ 8,961
302	Street Cut Paving Concrete - Class C Construct	3,300	sy	\$ 70.00	\$ 231,000
402	Curb 6" Integral	1,320	lf	\$ 1.95	\$ 2,574
502	Sidwalk 4" Class A Construct	587	sy	\$ 43.00	\$ 25,227
602	Turn Lanes and Median Openings	47	sy	\$ 70.00	\$ 3,273
Paving Construction Cost Subtotal:					\$ 285,115
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 8,553
√	Roadway Drainage	Standard Internal System		30%	\$ 85,534
√	Illumination			6%	\$ 17,107
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 8,553
√	Sewer	Minor Adjustments		2%	\$ 5,702
√	Landscaping and Irrigation			4%	\$ 11,405
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 136,855
				Paving and Allowance Subtotal:	\$ 421,969
				Construction Contingency:	10% \$ 42,197
				Mobilization	5% \$ 21,098
				Prep ROW	1% \$ 4,220
				Construction Cost TOTAL:	\$ 490,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 490,000
Engineering/Survey/Testing:		16%	\$ 78,400
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 98,000
Impact Fee Project Cost TOTAL:			\$ 666,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-6
Name:	Millay Blvd (Future)	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Leon Rd to Millay Blvd (Existing)			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	1,170			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	3,120	cy	\$ 8.00	\$ 24,960
202	6" Lime Stabilization Subgrade	6,110	sy	\$ 2.60	\$ 15,886
302	Street Cut Paving Concrete - Class C Construct	5,850	sy	\$ 70.00	\$ 409,500
402	Curb 6" Integral	2,340	lf	\$ 1.95	\$ 4,563
502	Sidwalk 4" Class A Construct	1,040	sy	\$ 43.00	\$ 44,720
602	Turn Lanes and Median Openings	83	sy	\$ 70.00	\$ 5,801
Paving Construction Cost Subtotal:					\$ 505,430
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 15,163
√	Roadway Drainage	Standard Internal System		30%	\$ 151,629
√	Illumination			6%	\$ 30,326
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 15,163
√	Sewer	Minor Adjustments		2%	\$ 10,109
√	Landscaping and Irrigation			4%	\$ 20,217
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 242,607
Paving and Allowance Subtotal:				\$	748,037
Construction Contingency:				10%	\$ 74,804
Mobilization				5%	\$ 37,402
Prep ROW				1%	\$ 7,480
Construction Cost TOTAL:				\$	868,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 868,000
Engineering/Survey/Testing:		16%	\$ 138,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 173,600
Impact Fee Project Cost TOTAL:			\$ 1,180,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-7
Name:	Shiloh Rd (6)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Buckingham Rd to W Walnut St			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	5,260			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	7,598	cy	\$ 8.00	\$ 60,782
210	6" Lime Stabilization Subgrade	14,611	sy	\$ 2.60	\$ 37,989
310	Street Cut Paving Concrete - Class C Construct	13,442	sy	\$ 70.00	\$ 940,956
410	Curb 6" Integral	10,520	lf	\$ 1.95	\$ 20,514
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	1,195	sy	\$ 70.00	\$ 83,682
Paving Construction Cost Subtotal: \$					1,143,922
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 57,196
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 34,318
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 45,757
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	137,271
Paving and Allowance Subtotal:				\$	1,281,193
Construction Contingency:				10%	\$ 128,119
Mobilization				5%	\$ 64,060
Prep ROW				5%	\$ 64,060
Construction Cost TOTAL: \$					1,538,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,538,000
Engineering/Survey/Testing:		16%	\$ 246,080
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,784,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-8
Name:	Shiloh Rd (7)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	W Walnut St to Forest Ln			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	2,665			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	10,364	cy	\$ 8.00	\$ 82,911
209	6" Lime Stabilization Subgrade	20,432	sy	\$ 2.60	\$ 53,122
309	Street Cut Paving Concrete - Class C Construct	20,136	sy	\$ 70.00	\$ 1,409,489
409	Curb 6" Integral	10,660	lf	\$ 1.95	\$ 20,787
509	Sidewalk 4" Class A Construct	3,553	sy	\$ 43.00	\$ 152,793
609	Turn Lanes and Median Openings	983	sy	\$ 70.00	\$ 68,826
Paving Construction Cost Subtotal:					\$ 1,787,928
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 89,396
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 53,638
√	Roadway Drainage	Standard Internal System		30%	\$ 536,378
√	Illumination			6%	\$ 107,276
√	Special Drainage Structures	Minor Stream Crossing		0%	\$ 300,000
√	Water	Minor Adjustments		3%	\$ 53,638
√	Sewer	Minor Adjustments		2%	\$ 35,759
√	Landscaping and Irrigation			4%	\$ 71,517
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 1,247,602
				Paving and Allowance Subtotal:	\$ 3,035,530
				Construction Contingency:	10% \$ 303,553
				Mobilization	5% \$ 151,777
				Prep ROW	5% \$ 151,777
				Construction Cost TOTAL:	\$ 3,643,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 3,643,000
Engineering/Survey/Testing:		16%	\$ 582,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 364,300
Impact Fee Project Cost TOTAL:			\$ 4,590,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-9
Name:	Shiloh Rd (8)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Forest Ln to Miller Rd			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	5,315			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	20,669	cy	\$ 8.00	\$ 165,356
209	6" Lime Stabilization Subgrade	40,748	sy	\$ 2.60	\$ 105,946
309	Street Cut Paving Concrete - Class C Construct	40,158	sy	\$ 70.00	\$ 2,811,044
409	Curb 6" Integral	21,260	lf	\$ 1.95	\$ 41,457
509	Sidewalk 4" Class A Construct	7,087	sy	\$ 43.00	\$ 304,727
609	Turn Lanes and Median Openings	1,961	sy	\$ 70.00	\$ 137,264
Paving Construction Cost Subtotal: \$					3,565,793
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 178,290
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 106,974
√	Roadway Drainage	Standard Internal System		30%	\$ 1,069,738
√	Illumination			6%	\$ 213,948
√	Special Drainage Structures	Minor Stream Crossing		0%	\$ 200,000
√	Water	Minor Adjustments		3%	\$ 106,974
√	Sewer	Minor Adjustments		2%	\$ 71,316
√	Landscaping and Irrigation			4%	\$ 142,632
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	2,089,870
				Paving and Allowance Subtotal: \$	5,655,664
				Construction Contingency: 10%	\$ 565,566
				Mobilization 5%	\$ 282,783
				Prep ROW 5%	\$ 282,783
				Construction Cost TOTAL: \$	6,787,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 6,787,000
Engineering/Survey/Testing:		16%	\$ 1,085,920
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 678,700
Impact Fee Project Cost TOTAL:			\$ 8,552,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-10
Name:	Shiloh Rd (9)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Miller Rd to Kingsley Rd			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	5,660			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	22,011	cy	\$ 8.00	\$ 176,089
209	6" Lime Stabilization Subgrade	43,393	sy	\$ 2.60	\$ 112,823
309	Street Cut Paving Concrete - Class C Construct	42,764	sy	\$ 70.00	\$ 2,993,511
409	Curb 6" Integral	22,640	lf	\$ 1.95	\$ 44,148
509	Sidewalk 4" Class A Construct	7,547	sy	\$ 43.00	\$ 324,507
609	Turn Lanes and Median Openings	2,088	sy	\$ 70.00	\$ 146,174
Paving Construction Cost Subtotal: \$					3,797,251
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 189,863
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 113,918
√	Roadway Drainage	Standard Internal System		30%	\$ 1,139,175
√	Illumination			6%	\$ 227,835
√	Special Drainage Structures	Minor Stream Crossing		0%	\$ 200,000
√	Water	Minor Adjustments		3%	\$ 113,918
√	Sewer	Minor Adjustments		2%	\$ 75,945
√	Landscaping and Irrigation			4%	\$ 151,890
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	2,212,543
Paving and Allowance Subtotal:				\$	6,009,794
Construction Contingency:				10%	\$ 600,979
Mobilization				5%	\$ 300,490
Prep ROW				5%	\$ 300,490
Construction Cost TOTAL: \$					7,212,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 7,212,000
Engineering/Survey/Testing:		16%	\$ 1,153,920
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 721,200
Impact Fee Project Cost TOTAL:			\$ 9,087,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-11
Name:	Shiloh Rd (10)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Kingsley Rd to McCree Rd			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	2,660			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	10,344	cy	\$ 8.00	\$ 82,756
209	6" Lime Stabilization Subgrade	20,393	sy	\$ 2.60	\$ 53,023
309	Street Cut Paving Concrete - Class C Construct	20,098	sy	\$ 70.00	\$ 1,406,844
409	Curb 6" Integral	10,640	lf	\$ 1.95	\$ 20,748
509	Sidwalk 4" Class A Construct	3,547	sy	\$ 43.00	\$ 152,507
609	Turn Lanes and Median Openings	981	sy	\$ 70.00	\$ 68,697
Paving Construction Cost Subtotal:					\$ 1,784,574
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 89,229
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 53,537
√	Roadway Drainage	Standard Internal System		30%	\$ 535,372
√	Illumination			6%	\$ 107,074
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 53,537
√	Sewer	Minor Adjustments		2%	\$ 35,691
√	Landscaping and Irrigation			4%	\$ 71,383
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 945,824
				Paving and Allowance Subtotal:	\$ 2,730,398
				Construction Contingency:	10% \$ 273,040
				Mobilization	5% \$ 136,520
				Prep ROW	5% \$ 136,520
				Construction Cost TOTAL:	\$ 3,277,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 3,277,000
Engineering/Survey/Testing:		16%	\$ 524,320
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 327,700
Impact Fee Project Cost TOTAL:			\$ 4,129,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-12
Name:	Shiloh Rd (11)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Garland Ave to IH-635 WBFR			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	1,525			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	5,931	cy	\$ 8.00	\$ 47,444
209	6" Lime Stabilization Subgrade	11,692	sy	\$ 2.60	\$ 30,398
309	Street Cut Paving Concrete - Class C Construct	11,522	sy	\$ 70.00	\$ 806,556
409	Curb 6" Integral	6,100	lf	\$ 1.95	\$ 11,895
509	Sidwalk 4" Class A Construct	2,033	sy	\$ 43.00	\$ 87,433
609	Turn Lanes and Median Openings	563	sy	\$ 70.00	\$ 39,384
Paving Construction Cost Subtotal:					\$ 1,023,111
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 51,156
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 30,693
√	Roadway Drainage	Standard Internal System		30%	\$ 306,933
√	Illumination			6%	\$ 61,387
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 30,693
√	Sewer	Minor Adjustments		2%	\$ 20,462
√	Landscaping and Irrigation			4%	\$ 40,924
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 542,249
Paving and Allowance Subtotal:					\$ 1,565,360
Construction Contingency:				10%	\$ 156,536
Mobilization				5%	\$ 78,268
Prep ROW				5%	\$ 78,268
Construction Cost TOTAL:					\$ 1,879,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,879,000
Engineering/Survey/Testing:		16%	\$ 300,640
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 187,900
Impact Fee Project Cost TOTAL:			\$ 2,368,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-13
Name:	New road east of Industrial Ln	This project consists of the construction of a new two lane undivided minor collector		
Limits:	Kingsley Rd to McCree Rd			
Impact Fee Class:	F			
Ultimate Class:	Minor Collector			
Length (lf):	2,660			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
101	Unclassified Street Excavation	5,911	cy	\$ 8.00	\$ 47,289
201	6" Lime Stabilization Subgrade	11,527	sy	\$ 2.60	\$ 29,969
301	Street Cut Paving Concrete - Class C Construct	10,936	sy	\$ 70.00	\$ 765,489
401	Curb 6" Integral	5,320	lf	\$ 1.95	\$ 10,374
501	Sidwalk 4" Class A Construct	2,364	sy	\$ 43.00	\$ 101,671
601	Turn Lanes and Median Openings	188	sy	\$ 70.00	\$ 13,189
Paving Construction Cost Subtotal: \$					967,981
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 29,039
√	Roadway Drainage	Standard Internal System		30%	\$ 290,394
√	Illumination			6%	\$ 58,079
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 29,039
√	Sewer	Minor Adjustments		2%	\$ 19,360
√	Landscaping and Irrigation			4%	\$ 38,719
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	464,631
				Paving and Allowance Subtotal: \$	1,432,612
				Construction Contingency: 10%	\$ 143,261
				Mobilization 5%	\$ 71,631
				Prep ROW 1%	\$ 14,326
				Construction Cost TOTAL: \$	1,662,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,662,000
Engineering/Survey/Testing:		16%	\$ 265,920
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 332,400
Impact Fee Project Cost TOTAL:			\$ 2,260,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-14
Name:	Saturn Rd	This project consists of the construction of a new four lane w/ center turn major collector		
Limits:	Saturn Rd (Existing) to Miller Rd			
Impact Fee Class:	D2			
Ultimate Class:	Major Collector			
Length (lf):	1,615			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
105	Unclassified Street Excavation	5,742	cy	\$ 8.00	\$ 45,938
205	6" Lime Stabilization Subgrade	11,305	sy	\$ 2.60	\$ 29,393
305	Street Cut Paving Concrete - Class C Construct	10,946	sy	\$ 70.00	\$ 766,228
405	Curb 6" Integral	3,230	lf	\$ 1.95	\$ 6,299
505	Sidwalk 4" Class A Construct	2,153	sy	\$ 43.00	\$ 92,593
605	Turn Lanes and Median Openings	114	sy	\$ 70.00	\$ 8,008
Paving Construction Cost Subtotal:					\$ 948,458
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 28,454
√	Roadway Drainage	Standard Internal System		30%	\$ 284,537
√	Illumination			6%	\$ 56,907
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 28,454
√	Sewer	Minor Adjustments		2%	\$ 18,969
√	Landscaping and Irrigation			4%	\$ 37,938
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 455,260
				Paving and Allowance Subtotal:	\$ 1,403,718
				Construction Contingency:	10% \$ 140,372
				Mobilization	5% \$ 70,186
				Prep ROW	1% \$ 14,037
				Construction Cost TOTAL:	\$ 1,629,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,629,000
Engineering/Survey/Testing:		16%	\$ 260,640
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 325,800
Impact Fee Project Cost TOTAL:			\$ 2,215,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	B-15
Name:	Sherwin	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Sherwin St (Existing) to Wood Dr			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	690			
Service Area(s):	B			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	1,840	cy	\$ 8.00	\$ 14,720
202	6" Lime Stabilization Subgrade	3,603	sy	\$ 2.60	\$ 9,369
302	Street Cut Paving Concrete - Class C Construct	3,450	sy	\$ 70.00	\$ 241,500
402	Curb 6" Integral	1,380	lf	\$ 1.95	\$ 2,691
502	Sidwalk 4" Class A Construct	613	sy	\$ 43.00	\$ 26,373
602	Turn Lanes and Median Openings	49	sy	\$ 70.00	\$ 3,421
Paving Construction Cost Subtotal:					\$ 298,074
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 8,942
√	Roadway Drainage	Standard Internal System		30%	\$ 89,422
√	Illumination			6%	\$ 17,884
√	Special Drainage Structures	Bridge Crossing		0%	\$ 1,100,000
√	Water	Minor Adjustments		3%	\$ 8,942
√	Sewer	Minor Adjustments		2%	\$ 5,961
√	Landscaping and Irrigation			4%	\$ 11,923
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 1,243,076
Paving and Allowance Subtotal:				\$	1,541,150
Construction Contingency:				10%	\$ 154,115
Mobilization				5%	\$ 77,057
Prep ROW				1%	\$ 15,411
Construction Cost TOTAL:				\$	1,788,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,788,000
Engineering/Survey/Testing:		16%	\$ 286,080
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 357,600
Impact Fee Project Cost TOTAL:			\$ 2,432,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	I-9:I-24
Name:	Bottleneck Study Improvements	This project consists of intersection improvements identified in the ongoing Bottleneck study. The total cost of these improvements in Service Area B is estimated to be \$9,205,000. The cost attributable to projected growth in Service Area B (4%) is \$379,000.		
Limits:	N/A			
Impact Fee Class:	N/A			
Ultimate Class:	N/A			
Length (If):	N/A			
Service Area(s):	B			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 379,000	

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City of Garland - 2016 Roadway Impact Fee Study

Capital Improvement Plan for Roadway Impact Fees
Summary of Conceptual Level Project Cost Projections

Roadway Improvements - Service Area C

#	IF Class	Project	Limits		Status	Percent in Service Area	Project Cost	Total Cost in Service Area
			From	To				
C-1	D1	Castle Dr (1)	N. First St	Lavon Dr	Widening	100	\$ 953,000	\$ 953,000
C-2	D1	Castle Dr (2)	Lavon Dr	Mars Dr	Widening	100	\$ 2,390,000	\$ 2,390,000
C-3	E	Castle Dr (3)	Mars Dr	Country Club Rd	Widening	100	\$ 2,424,000	\$ 2,424,000
C-4	E	Castle Dr (4)	Country Club Rd	Centerville Rd	Widening	100	\$ 5,536,000	\$ 5,536,000
C-5	E	Castle Dr (5)	2660' south of Firewheel Pkwy	Firewheel Pkwy	Widening	50	\$ 2,659,000	\$ 1,329,500
C-6	E	Castle Dr (6)	Firewheel Pkwy	Miles Rd	Widening	50	\$ 4,433,000	\$ 2,216,500
C-7	D2	Crist Rd	Lavon Dr	Naaman School Rd	Widening	100	\$ 4,436,000	\$ 4,436,000
C-8	A	Firewheel Parkway (2)	530' E of Lavon Dr	310' S of Town Center Blvd	Widening	100	\$ 6,292,000	\$ 6,292,000
C-9	C1	Pleasant Valley Rd (1)	Creek Meadow Ln	Miles Rd	Under Construction	100	\$ 10,773,000	\$ 10,773,000
C-10,D-5	B (1/3)	E. Miller Rd	Centerville Rd	2,815' E of Centerville Rd	Median	50	\$ 955,000	\$ 477,500
C-11	C1	Pleasant Valley Rd (2)	Firewheel Pkwy	Creek Meadow Ln	Completed	100	\$ 3,603,239	\$ 3,603,239
C-12,D-21	B	Miller Rd Bridge	2,815' E of Centerville Rd	East City Limits	Completed	50	\$ 2,743,883	\$ 1,371,942
TOTAL							\$ 47,198,122	\$ 41,802,681

Bottleneck Study Improvements - Service Area C

#	Intersection	Improvement(s)	Percent in Service Area	Total Project Cost in Service Area	10-Year Growth Cost in Service Area
I-14	Centerville Rd and SH 66	Add dual LT lanes NB and WB	100%	\$ 1,030,000	\$ 141,000
I-19	First St and Miller Rd	Add EB RT & NB, SB Dual Lefts	33%		

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-1
Name:	Castle Dr (1)	This project consists of the reconstruction of the existing facility as a four lane divided major collector		
Limits:	N. First St to Lavon Dr			
Impact Fee Class:	D1			
Ultimate Class:	Major Collector			
Length (lf):	795			
Service Area(s):	C			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
103	Unclassified Street Excavation	2,297	cy	\$ 8.00	\$ 18,373
203	6" Lime Stabilization Subgrade	4,505	sy	\$ 2.60	\$ 11,713
303	Street Cut Paving Concrete - Class C Construct	4,417	sy	\$ 70.00	\$ 309,167
403	Curb 6" Integral	3,180	lf	\$ 1.95	\$ 6,201
503	Sidewalk 4" Class A Construct	1,060	sy	\$ 43.00	\$ 45,580
603	Turn Lanes and Median Openings	293	sy	\$ 70.00	\$ 20,531
Paving Construction Cost Subtotal: \$					411,565
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 20,578
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 12,347
√	Roadway Drainage	Standard Internal System		30%	\$ 123,470
√	Illumination			6%	\$ 24,694
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 12,347
√	Sewer	Minor Adjustments		2%	\$ 8,231
√	Landscaping and Irrigation			4%	\$ 16,463
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	218,130
Paving and Allowance Subtotal: \$				629,695	
Construction Contingency:				10%	\$ 62,970
Mobilization				5%	\$ 31,485
Prep ROW				5%	\$ 31,485
Construction Cost TOTAL: \$				756,000	

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 756,000
Engineering/Survey/Testing:		16%	\$ 120,960
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 75,600
Impact Fee Project Cost TOTAL:			\$ 953,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-2
Name:	Castle Dr (2)	This project consists of the reconstruction of the existing facility as a four lane divided major collector		
Limits:	Lavon Dr to Mars Dr			
Impact Fee Class:	D1			
Ultimate Class:	Major Collector			
Length (lf):	1,995			
Service Area(s):	C			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
103	Unclassified Street Excavation	5,763	cy	\$ 8.00	\$ 46,107
203	6" Lime Stabilization Subgrade	11,305	sy	\$ 2.60	\$ 29,393
303	Street Cut Paving Concrete - Class C Construct	11,083	sy	\$ 70.00	\$ 775,833
403	Curb 6" Integral	7,980	lf	\$ 1.95	\$ 15,561
503	Sidwalk 4" Class A Construct	2,660	sy	\$ 43.00	\$ 114,380
603	Turn Lanes and Median Openings	736	sy	\$ 70.00	\$ 51,522
Paving Construction Cost Subtotal:					\$ 1,032,796
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	51,640
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	30,984
✓	Roadway Drainage	Standard Internal System	30%	\$	309,839
✓	Illumination		6%	\$	61,968
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	30,984
✓	Sewer	Minor Adjustments	2%	\$	20,656
✓	Landscaping and Irrigation		4%	\$	41,312
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	547,382
Paving and Allowance Subtotal:					\$ 1,580,178
Construction Contingency:				10%	\$ 158,018
Mobilization				5%	\$ 79,009
Prep ROW				5%	\$ 79,009
Construction Cost TOTAL:					\$ 1,897,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,897,000
Engineering/Survey/Testing:		16%	\$ 303,520
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 189,700
Impact Fee Project Cost TOTAL:			\$ 2,390,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-3
Name:	Castle Dr (3)	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	Mars Dr to Country Club Rd			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	2,425			
Service Area(s):	C			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	6,467	cy	\$ 8.00	\$ 51,733
202	6" Lime Stabilization Subgrade	12,664	sy	\$ 2.60	\$ 32,926
302	Street Cut Paving Concrete - Class C Construct	12,125	sy	\$ 70.00	\$ 848,750
402	Curb 6" Integral	4,850	lf	\$ 1.95	\$ 9,458
502	Sidwalk 4" Class A Construct	2,156	sy	\$ 43.00	\$ 92,689
602	Turn Lanes and Median Openings	172	sy	\$ 70.00	\$ 12,024
Paving Construction Cost Subtotal:					\$ 1,047,580
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 52,379
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 31,427
√	Roadway Drainage	Standard Internal System		30%	\$ 314,274
√	Illumination			6%	\$ 62,855
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 31,427
√	Sewer	Minor Adjustments		2%	\$ 20,952
√	Landscaping and Irrigation			4%	\$ 41,903
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 555,217
				Paving and Allowance Subtotal:	\$ 1,602,797
				Construction Contingency:	10% \$ 160,280
				Mobilization	5% \$ 80,140
				Prep ROW	5% \$ 80,140
				Construction Cost TOTAL:	\$ 1,924,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,924,000
Engineering/Survey/Testing:		16%	\$ 307,840
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 192,400
Impact Fee Project Cost TOTAL:			\$ 2,424,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-4
Name:	Castle Dr (4)	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	Country Club Rd to Centerville Rd			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	5,540			
Service Area(s):	C			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	14,773	cy	\$ 8.00	\$ 118,187
202	6" Lime Stabilization Subgrade	28,931	sy	\$ 2.60	\$ 75,221
302	Street Cut Paving Concrete - Class C Construct	27,700	sy	\$ 70.00	\$ 1,939,000
402	Curb 6" Integral	11,080	lf	\$ 1.95	\$ 21,606
502	Sidwalk 4" Class A Construct	4,924	sy	\$ 43.00	\$ 211,751
602	Turn Lanes and Median Openings	392	sy	\$ 70.00	\$ 27,469
Paving Construction Cost Subtotal:					\$ 2,393,234
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 119,662
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 71,797
√	Roadway Drainage	Standard Internal System		30%	\$ 717,970
√	Illumination			6%	\$ 143,594
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 71,797
√	Sewer	Minor Adjustments		2%	\$ 47,865
√	Landscaping and Irrigation			4%	\$ 95,729
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 1,268,414
				Paving and Allowance Subtotal:	\$ 3,661,648
				Construction Contingency:	10% \$ 366,165
				Mobilization	5% \$ 183,082
				Prep ROW	5% \$ 183,082
				Construction Cost TOTAL:	\$ 4,394,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 4,394,000
Engineering/Survey/Testing:		16%	\$ 703,040
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 439,400
Impact Fee Project Cost TOTAL:			\$ 5,536,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-5
Name:	Castle Dr (5)	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	2660' south of Firewheel Pkwy to Firewheel Pk			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	2,660			
Service Area(s):	C,ETJ			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	7,093	cy	\$ 8.00	\$ 56,747
202	6" Lime Stabilization Subgrade	13,891	sy	\$ 2.60	\$ 36,117
302	Street Cut Paving Concrete - Class C Construct	13,300	sy	\$ 70.00	\$ 931,000
402	Curb 6" Integral	5,320	lf	\$ 1.95	\$ 10,374
502	Sidwalk 4" Class A Construct	2,364	sy	\$ 43.00	\$ 101,671
602	Turn Lanes and Median Openings	188	sy	\$ 70.00	\$ 13,189
Paving Construction Cost Subtotal:					\$ 1,149,098
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 57,455
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 34,473
√	Roadway Drainage	Standard Internal System		30%	\$ 344,729
√	Illumination			6%	\$ 68,946
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 34,473
√	Sewer	Minor Adjustments		2%	\$ 22,982
√	Landscaping and Irrigation			4%	\$ 45,964
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 609,022
				Paving and Allowance Subtotal:	\$ 1,758,120
				Construction Contingency:	10% \$ 175,812
				Mobilization	5% \$ 87,906
				Prep ROW	5% \$ 87,906
				Construction Cost TOTAL:	\$ 2,110,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,110,000
Engineering/Survey/Testing:		16%	\$ 337,600
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 211,000
Impact Fee Project Cost TOTAL:			\$ 2,659,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-6
Name:	Castle Dr (6)	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	Firewheel Pkwy to Miles Rd			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	4,435			
Service Area(s):	C,ETJ			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	11,827	cy	\$ 8.00	\$ 94,613
202	6" Lime Stabilization Subgrade	23,161	sy	\$ 2.60	\$ 60,217
302	Street Cut Paving Concrete - Class C Construct	22,175	sy	\$ 70.00	\$ 1,552,250
402	Curb 6" Integral	8,870	lf	\$ 1.95	\$ 17,297
502	Sidwalk 4" Class A Construct	3,942	sy	\$ 43.00	\$ 169,516
602	Turn Lanes and Median Openings	314	sy	\$ 70.00	\$ 21,990
Paving Construction Cost Subtotal:					\$ 1,915,883
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 95,794
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 57,476
√	Roadway Drainage	Standard Internal System		30%	\$ 574,765
√	Illumination			6%	\$ 114,953
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 57,476
√	Sewer	Minor Adjustments		2%	\$ 38,318
√	Landscaping and Irrigation			4%	\$ 76,635
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 1,015,418
				Paving and Allowance Subtotal:	\$ 2,931,301
				Construction Contingency:	10% \$ 293,130
				Mobilization	5% \$ 146,565
				Prep ROW	5% \$ 146,565
				Construction Cost TOTAL:	\$ 3,518,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 3,518,000
Engineering/Survey/Testing:		16%	\$ 562,880
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 351,800
Impact Fee Project Cost TOTAL:			\$ 4,433,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-7
Name:	Crist Rd	This project consists of the reconstruction of the existing facility as a four lane w/ center turn major collector		
Limits:	Lavon Dr to Naaman School Rd			
Impact Fee Class:	D2			
Ultimate Class:	Major Collector			
Length (lf):	3,265			
Service Area(s):	C			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
105	Unclassified Street Excavation	11,609	cy	\$ 8.00	\$ 92,871
205	6" Lime Stabilization Subgrade	22,855	sy	\$ 2.60	\$ 59,423
305	Street Cut Paving Concrete - Class C Construct	22,129	sy	\$ 70.00	\$ 1,549,061
405	Curb 6" Integral	6,530	lf	\$ 1.95	\$ 12,734
505	Sidwalk 4" Class A Construct	4,353	sy	\$ 43.00	\$ 187,193
605	Turn Lanes and Median Openings	231	sy	\$ 70.00	\$ 16,189
Paving Construction Cost Subtotal: \$					1,917,471
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 95,874
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 57,524
√	Roadway Drainage	Standard Internal System		30%	\$ 575,241
√	Illumination			6%	\$ 115,048
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 57,524
√	Sewer	Minor Adjustments		2%	\$ 38,349
√	Landscaping and Irrigation			4%	\$ 76,699
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	1,016,260
				Paving and Allowance Subtotal: \$	2,933,731
				Construction Contingency: 10%	\$ 293,373
				Mobilization 5%	\$ 146,687
				Prep ROW 5%	\$ 146,687
				Construction Cost TOTAL: \$	3,521,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 3,521,000
Engineering/Survey/Testing:		16%	\$ 563,360
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 352,100
Impact Fee Project Cost TOTAL:			\$ 4,436,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-8
Name:	Firewheel Parkway (2)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	530' E of Lavon Dr to 310' S of Town Center Bl			
Impact Fee Class:	A			
Ultimate Class:	Regional Arterial			
Length (lf):	4,050			
Service Area(s):	C			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
111	Unclassified Street Excavation	15,750	cy	\$ 8.00	\$ 126,000
211	6" Lime Stabilization Subgrade	31,050	sy	\$ 2.60	\$ 80,730
311	Street Cut Paving Concrete - Class C Construct	30,600	sy	\$ 70.00	\$ 2,142,000
411	Curb 6" Integral	16,200	lf	\$ 1.95	\$ 31,590
511	Sidwalk 4" Class A Construct	5,400	sy	\$ 43.00	\$ 232,200
611	Turn Lanes and Median Openings	1,535	sy	\$ 70.00	\$ 107,440
Paving Construction Cost Subtotal:					\$ 2,719,960
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 135,998
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 81,599
√	Roadway Drainage	Standard Internal System		30%	\$ 815,988
√	Illumination			6%	\$ 163,198
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 81,599
√	Sewer	Minor Adjustments		2%	\$ 54,399
√	Landscaping and Irrigation			4%	\$ 108,798
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 1,441,579
				Paving and Allowance Subtotal:	\$ 4,161,539
				Construction Contingency:	10% \$ 416,154
				Mobilization	5% \$ 208,077
				Prep ROW	5% \$ 208,077
				Construction Cost TOTAL:	\$ 4,994,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 4,994,000
Engineering/Survey/Testing:		16%	\$ 799,040
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 499,400
Impact Fee Project Cost TOTAL:			\$ 6,292,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-9
Name:	Pleasant Valley Rd (1)	This project consists of the construction of a new four lane divided minor arterial		
Limits:	Creek Meadow Ln to Miles Rd			
Impact Fee Class:	C1			
Ultimate Class:	Minor Arterial			
Length (lf):	2,615			
Service Area(s):	C			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
107	Unclassified Street Excavation	7,554	cy	\$ 8.00	\$ 60,436
207	6" Lime Stabilization Subgrade	14,818	sy	\$ 2.60	\$ 38,528
307	Street Cut Paving Concrete - Class C Construct	14,528	sy	\$ 70.00	\$ 1,016,944
407	Curb 6" Integral	10,460	lf	\$ 1.95	\$ 20,397
507	Sidewalk 4" Class A Construct	3,487	sy	\$ 43.00	\$ 149,927
607	Turn Lanes and Median Openings	1,203	sy	\$ 70.00	\$ 84,175
Paving Construction Cost Subtotal:					\$ 1,370,407
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	None Anticipated	0%	\$	-
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	41,112
✓	Roadway Drainage	Standard Internal System	30%	\$	411,122
✓	Illumination		6%	\$	82,224
✓	Special Drainage Structures	Bridge Crossing	0%	\$	4,800,000
✓	Water	Minor Adjustments	3%	\$	41,112
✓	Sewer	Minor Adjustments	2%	\$	27,408
✓	Landscaping and Irrigation		4%	\$	54,816
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	5,457,795
Paving and Allowance Subtotal:				\$	6,828,202
Construction Contingency:				10%	\$ 682,820
Mobilization				5%	\$ 341,410
Prep ROW				1%	\$ 68,282
Construction Cost TOTAL:				\$	7,921,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 7,921,000
Engineering/Survey/Testing:		16%	\$ 1,267,360
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 1,584,200
Impact Fee Project Cost TOTAL:			\$ 10,773,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-10,D-5
Name:	E. Miller Rd	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Centerville Rd to 2,815' E of Centerville Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	2,815			
Service Area(s):	C,D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	4,066	cy	\$ 8.00	\$ 32,529
210	6" Lime Stabilization Subgrade	7,819	sy	\$ 2.60	\$ 20,331
310	Street Cut Paving Concrete - Class C Construct	7,194	sy	\$ 70.00	\$ 503,572
410	Curb 6" Integral	5,630	lf	\$ 1.95	\$ 10,979
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	640	sy	\$ 70.00	\$ 44,784
Paving Construction Cost Subtotal: \$					612,194
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 30,610
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 18,366
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 24,488
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	73,463
Paving and Allowance Subtotal:				\$	685,658
Construction Contingency:				10%	\$ 68,566
Mobilization				5%	\$ 34,283
Prep ROW				5%	\$ 34,283
Construction Cost TOTAL:				\$	823,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 823,000
Engineering/Survey/Testing:		16%	\$ 131,680
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 955,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-11
Name:	Pleasant Valley Rd (2)	This completed project consisted of widening the previously existing facility to a 4 lane divided minor arterial. The total cost of the project was \$5,372,133, of which the City contributed \$3,603,239		
Limits:	Firewheel Pkwy to Creek Meadow Ln			
Impact Fee Class:	C1			
Ultimate Class:	Minor Arterial			
Length (lf):	3,075			
Service Area(s):	C			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 3,603,239	

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-12,D-21
Name:	Miller Rd Bridge	This completed project consisted of widening the existing bridge to a 6 lane divided regional arterial. The total cost of the project was \$24,710,481, of which the City contributed \$2,743,883		
Limits:	2,815' E of Centerville Rd to East City Limits			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	194			
Service Area(s):	C,D			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 2,743,883	

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	I-14,I-19
Name:	Bottleneck Study Improvements	This project consists of intersection improvements identified in the ongoing Bottleneck study. The total cost of these improvements in Service Area C is estimated to be \$1,030,000. The cost attributable to projected growth in Service Area C (14%) is \$141,000.		
Limits:	N/A			
Impact Fee Class:	N/A			
Ultimate Class:	N/A			
Length (If):	N/A			
Service Area(s):	C			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 141,000	

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City of Garland - 2016 Roadway Impact Fee Study

Capital Improvement Plan for Roadway Impact Fees
Summary of Conceptual Level Project Cost Projections

Roadway Improvements - Service Area D

#	IF Class	Project	Limits		Status	Percent in Service Area	Project Cost	Total Cost in Service Area
			From	To				
D-1	S	Bobtown Rd (1)	Rowlett Rd	Bobtown Rd (Existing)	New	100	\$ 929,000	\$ 929,000
D-2	E-S	Bobtown Rd (2)	Bobtown Rd (Future)	Waterhouse Blvd	Widening	100	\$ 1,779,000	\$ 1,779,000
D-3	E	Bobtown Rd (3)	400' S of High Dr	Lyons Rd	Widening	100	\$ 1,995,000	\$ 1,995,000
D-4	E	Bobtown Rd (4)	Lyons Rd	South City Limits	Widening	50	\$ 2,654,000	\$ 1,327,000
C-10,D-5	B (1/3)	E. Miller Rd	Centerville Rd	2,815' E of Centerville Rd	Median	50	\$ 955,000	\$ 477,500
D-6	F	E. Oates Rd (Future)	Country Club Rd	E. Oates Rd (Existing)	New	100	\$ 3,219,000	\$ 3,219,000
D-7	B (1/3)	La Prada Dr	IH 635 E frontage road	Northwest Hwy	Median	50	\$ 567,000	\$ 283,500
D-8	E	Locust Grove Rd	290' E of Oceanport Dr	East City Limits	Widening	100	\$ 2,859,000	\$ 2,859,000
D-9	B	Lyons Rd (1)	Bobtown Rd	Guthrie Rd	Widening	100	\$ 5,014,000	\$ 5,014,000
D-10	B	Lyons Rd (2)	Guthrie Rd	Lyons Rd (Future)	Widening	100	\$ 1,366,000	\$ 1,366,000
D-11	B	Lyons Rd (Future) (3)	Lyons Rd	South City Limits	New	100	\$ 2,811,000	\$ 2,811,000
D-12	F	Rosehill Rd (1)	Rosehill Rd (Existing)	Wynn Joyce Rd	New	100	\$ 1,364,000	\$ 1,364,000
D-13	B (1/3)	Rosehill Rd (2)	Bobtown Rd	IH 30 N loop	Median	100	\$ 513,000	\$ 513,000
D-14	A (1/3)	Rowlett Rd (1)	Broadway Blvd	Rosehill Rd	Median	100	\$ 1,254,000	\$ 1,254,000
D-15	A (1/3)	Rowlett Rd (2)	Rosehill Rd	Roan Rd	Median	100	\$ 1,781,000	\$ 1,781,000
D-16	A	Rowlett Rd (3)	Roan Rd	City Limits	Under Construction	100	\$ 2,486,000	\$ 2,486,000
D-17	B (1/3)	S. Country Club Rd	Rowlett Rd	Bobtown Rd	Median	100	\$ 599,000	\$ 599,000
D-18	E	Zion Rd	Locust Grove Rd	Bobtown Rd	Widening	100	\$ 1,075,000	\$ 1,075,000
D-19	B	Northwest Hwy	Centerville Rd	La Prada Dr	Completed	100	\$ 2,904,782	\$ 2,904,782
D-20	E	Dairy Rd	Celeste Rd	Broadway Blvd	Completed	100	\$ 3,597,758	\$ 3,597,758
C-12,D-21	B	Miller Rd Bridge	2,815' E of Centerville Rd	East City Limits	Completed	50	\$ 2,743,883	\$ 1,371,942
TOTAL							\$ 42,466,423	\$ 39,006,482

Bottleneck Study Improvements - Service Area D

#	Intersection	Improvement(s)	Percent in Service Area	Total Project Cost in Service Area	10-Year Growth Cost in Service Area
I-19	First St and Miller Rd	Add EB RT & NB, SB Dual Lefts	33%	\$ 2,630,000	\$ 236,000
I-20	Broadway Blvd and First St	Triple LT from NB First St	50%		
I-23	Broadway Blvd and Centerville Rd	Dual Lefts SWB, NEB and NWB	100%		
I-25	Broadway Blvd and Rowlett Rd	Add EB RT Lane	100%		
I-26	Broadway Blvd and IH-30 EBFR	Dual NB RT Lanes	100%		

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-1
Name:	Bobtown Rd (1)	This project consists of the construction of a new four lane undivided minor collector		
Limits:	Rowlett Rd to Bobtown Rd (Existing)			
Impact Fee Class:	E			
Ultimate Class:	Special Functional Classification			
Length (lf):	920			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	2,453	cy	\$ 8.00	\$ 19,627
202	6" Lime Stabilization Subgrade	4,804	sy	\$ 2.60	\$ 12,492
302	Street Cut Paving Concrete - Class C Construct	4,600	sy	\$ 70.00	\$ 322,000
402	Curb 6" Integral	1,840	lf	\$ 1.95	\$ 3,588
502	Sidwalk 4" Class A Construct	818	sy	\$ 43.00	\$ 35,164
602	Turn Lanes and Median Openings	65	sy	\$ 70.00	\$ 4,562
Paving Construction Cost Subtotal:					\$ 397,432
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	None Anticipated	0%	\$	-
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	11,923
✓	Roadway Drainage	Standard Internal System	30%	\$	119,230
✓	Illumination		6%	\$	23,846
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	11,923
✓	Sewer	Minor Adjustments	2%	\$	7,949
✓	Landscaping and Irrigation		4%	\$	15,897
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	190,768
Paving and Allowance Subtotal:				\$	588,200
Construction Contingency:				10%	\$ 58,820
Mobilization				5%	\$ 29,410
Prep ROW				1%	\$ 5,882
Construction Cost TOTAL:				\$	683,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 683,000
Engineering/Survey/Testing:		16%	\$ 109,280
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 136,600
Impact Fee Project Cost TOTAL:			\$ 929,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-2
Name:	Bobtown Rd (2)	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	Bobtown Rd (Future) to Waterhouse Blvd			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	1,780			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	4,747	cy	\$ 8.00	\$ 37,973
202	6" Lime Stabilization Subgrade	9,296	sy	\$ 2.60	\$ 24,168
302	Street Cut Paving Concrete - Class C Construct	8,900	sy	\$ 70.00	\$ 623,000
402	Curb 6" Integral	3,560	lf	\$ 1.95	\$ 6,942
502	Sidwalk 4" Class A Construct	1,582	sy	\$ 43.00	\$ 68,036
602	Turn Lanes and Median Openings	126	sy	\$ 70.00	\$ 8,826
Paving Construction Cost Subtotal:					\$ 768,945
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	38,447
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	23,068
✓	Roadway Drainage	Standard Internal System	30%	\$	230,684
✓	Illumination		6%	\$	46,137
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	23,068
✓	Sewer	Minor Adjustments	2%	\$	15,379
✓	Landscaping and Irrigation		4%	\$	30,758
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	407,541
Paving and Allowance Subtotal:				\$	1,176,486
Construction Contingency:				10%	\$ 117,649
Mobilization				5%	\$ 58,824
Prep ROW				5%	\$ 58,824
Construction Cost TOTAL:				\$	1,412,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,412,000
Engineering/Survey/Testing:		16%	\$ 225,920
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 141,200
Impact Fee Project Cost TOTAL:			\$ 1,779,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-3
Name:	Bobtown Rd (3)	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	400' S of High Dr to Lyons Rd			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	1,995			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	5,320	cy	\$ 8.00	\$ 42,560
202	6" Lime Stabilization Subgrade	10,418	sy	\$ 2.60	\$ 27,088
302	Street Cut Paving Concrete - Class C Construct	9,975	sy	\$ 70.00	\$ 698,250
402	Curb 6" Integral	3,990	lf	\$ 1.95	\$ 7,781
502	Sidewalk 4" Class A Construct	1,773	sy	\$ 43.00	\$ 76,253
602	Turn Lanes and Median Openings	141	sy	\$ 70.00	\$ 9,892
Paving Construction Cost Subtotal:					\$ 861,823
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	43,091
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	25,855
✓	Roadway Drainage	Standard Internal System	30%	\$	258,547
✓	Illumination		6%	\$	51,709
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	25,855
✓	Sewer	Minor Adjustments	2%	\$	17,236
✓	Landscaping and Irrigation		4%	\$	34,473
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	456,766
Paving and Allowance Subtotal:				\$	1,318,590
Construction Contingency:				10%	\$ 131,859
Mobilization				5%	\$ 65,929
Prep ROW				5%	\$ 65,929
Construction Cost TOTAL:				\$	1,583,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,583,000
Engineering/Survey/Testing:		16%	\$ 253,280
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 158,300
Impact Fee Project Cost TOTAL:			\$ 1,995,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-4
Name:	Bobtown Rd (4)	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	Lyons Rd to South City Limits			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	2,655			
Service Area(s):	D, ETJ			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	7,080	cy	\$ 8.00	\$ 56,640
202	6" Lime Stabilization Subgrade	13,865	sy	\$ 2.60	\$ 36,049
302	Street Cut Paving Concrete - Class C Construct	13,275	sy	\$ 70.00	\$ 929,250
402	Curb 6" Integral	5,310	lf	\$ 1.95	\$ 10,355
502	Sidwalk 4" Class A Construct	2,360	sy	\$ 43.00	\$ 101,480
602	Turn Lanes and Median Openings	188	sy	\$ 70.00	\$ 13,164
Paving Construction Cost Subtotal:					\$ 1,146,938
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	57,347
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	34,408
✓	Roadway Drainage	Standard Internal System	30%	\$	344,081
✓	Illumination		6%	\$	68,816
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	34,408
✓	Sewer	Minor Adjustments	2%	\$	22,939
✓	Landscaping and Irrigation		4%	\$	45,878
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	607,877
Paving and Allowance Subtotal:					\$ 1,754,815
Construction Contingency:				10%	\$ 175,481
Mobilization				5%	\$ 87,741
Prep ROW				5%	\$ 87,741
Construction Cost TOTAL:					\$ 2,106,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,106,000
Engineering/Survey/Testing:		16%	\$ 336,960
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 210,600
Impact Fee Project Cost TOTAL:			\$ 2,654,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	C-10,D-5
Name:	E. Miller Rd	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Centerville Rd to 2,815' E of Centerville Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	2,815			
Service Area(s):	C,D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	4,066	cy	\$ 8.00	\$ 32,529
210	6" Lime Stabilization Subgrade	7,819	sy	\$ 2.60	\$ 20,331
310	Street Cut Paving Concrete - Class C Construct	7,194	sy	\$ 70.00	\$ 503,572
410	Curb 6" Integral	5,630	lf	\$ 1.95	\$ 10,979
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	640	sy	\$ 70.00	\$ 44,784
Paving Construction Cost Subtotal: \$					612,194
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
✓	Traffic Control	Construction Phase Traffic Control		5%	\$ 30,610
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 18,366
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
✓	Landscaping and Irrigation			4%	\$ 24,488
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	73,463
Paving and Allowance Subtotal:				\$	685,658
Construction Contingency:				10%	\$ 68,566
Mobilization				5%	\$ 34,283
Prep ROW				5%	\$ 34,283
Construction Cost TOTAL:				\$	823,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 823,000
Engineering/Survey/Testing:		16%	\$ 131,680
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 955,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-6
Name:	E. Oates Rd (Future)	This project consists of the construction of a new two lane undivided minor collector		
Limits:	Country Club Rd to E. Oates Rd (Existing)			
Impact Fee Class:	F			
Ultimate Class:	Minor Collector			
Length (lf):	3,045			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
101	Unclassified Street Excavation	6,767	cy	\$ 8.00	\$ 54,133
201	6" Lime Stabilization Subgrade	13,195	sy	\$ 2.60	\$ 34,307
301	Street Cut Paving Concrete - Class C Construct	12,518	sy	\$ 70.00	\$ 876,283
401	Curb 6" Integral	6,090	lf	\$ 1.95	\$ 11,876
501	Sidwalk 4" Class A Construct	2,707	sy	\$ 43.00	\$ 116,387
601	Turn Lanes and Median Openings	216	sy	\$ 70.00	\$ 15,098
Paving Construction Cost Subtotal:					\$ 1,108,084
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	None Anticipated	0%	\$	-
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	33,243
✓	Roadway Drainage	Standard Internal System	30%	\$	332,425
✓	Illumination		6%	\$	66,485
✓	Special Drainage Structures	Bridge Crossing	0%	\$	400,000
✓	Water	Minor Adjustments	3%	\$	33,243
✓	Sewer	Minor Adjustments	2%	\$	22,162
✓	Landscaping and Irrigation		4%	\$	44,323
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	931,880
Paving and Allowance Subtotal:					\$ 2,039,964
Construction Contingency:				10%	\$ 203,996
Mobilization				5%	\$ 101,998
Prep ROW				1%	\$ 20,400
Construction Cost TOTAL:					\$ 2,367,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,367,000
Engineering/Survey/Testing:		16%	\$ 378,720
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 473,400
Impact Fee Project Cost TOTAL:			\$ 3,219,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-7
Name:	La Prada Dr	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	IH 635 E frontage road to Northwest Hwy			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	1,670			
Service Area(s):	D, ETJ			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	2,412	cy	\$ 8.00	\$ 19,298
210	6" Lime Stabilization Subgrade	4,639	sy	\$ 2.60	\$ 12,061
310	Street Cut Paving Concrete - Class C Construct	4,268	sy	\$ 70.00	\$ 298,744
410	Curb 6" Integral	3,340	lf	\$ 1.95	\$ 6,513
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	380	sy	\$ 70.00	\$ 26,568
Paving Construction Cost Subtotal: \$					363,185
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 18,159
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 10,896
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 14,527
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	43,582
Paving and Allowance Subtotal:				\$	406,767
Construction Contingency:				10%	\$ 40,677
Mobilization				5%	\$ 20,338
Prep ROW				5%	\$ 20,338
Construction Cost TOTAL:				\$	489,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 489,000
Engineering/Survey/Testing:		16%	\$ 78,240
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 567,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-8
Name:	Locust Grove Rd	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	290' E of Oceanport Dr to East City Limits			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	2,860			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	7,627	cy	\$ 8.00	\$ 61,013
202	6" Lime Stabilization Subgrade	14,936	sy	\$ 2.60	\$ 38,832
302	Street Cut Paving Concrete - Class C Construct	14,300	sy	\$ 70.00	\$ 1,001,000
402	Curb 6" Integral	5,720	lf	\$ 1.95	\$ 11,154
502	Sidwalk 4" Class A Construct	2,542	sy	\$ 43.00	\$ 109,316
602	Turn Lanes and Median Openings	203	sy	\$ 70.00	\$ 14,181
Paving Construction Cost Subtotal: \$					1,235,496
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 61,775
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 37,065
√	Roadway Drainage	Standard Internal System		30%	\$ 370,649
√	Illumination			6%	\$ 74,130
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 37,065
√	Sewer	Minor Adjustments		2%	\$ 24,710
√	Landscaping and Irrigation			4%	\$ 49,420
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	654,813
				Paving and Allowance Subtotal: \$	1,890,309
				Construction Contingency: 10%	\$ 189,031
				Mobilization 5%	\$ 94,515
				Prep ROW 5%	\$ 94,515
				Construction Cost TOTAL: \$	2,269,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,269,000
Engineering/Survey/Testing:		16%	\$ 363,040
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 226,900
Impact Fee Project Cost TOTAL:			\$ 2,859,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-9
Name:	Lyons Rd (1)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Bobtown Rd to Guthrie Rd			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	3,230			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	12,561	cy	\$ 8.00	\$ 100,489
209	6" Lime Stabilization Subgrade	24,763	sy	\$ 2.60	\$ 64,385
309	Street Cut Paving Concrete - Class C Construct	24,404	sy	\$ 70.00	\$ 1,708,311
409	Curb 6" Integral	12,920	lf	\$ 1.95	\$ 25,194
509	Sidwalk 4" Class A Construct	4,307	sy	\$ 43.00	\$ 185,187
609	Turn Lanes and Median Openings	1,192	sy	\$ 70.00	\$ 83,417
Paving Construction Cost Subtotal: \$					2,166,983
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 108,349
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 65,009
√	Roadway Drainage	Standard Internal System		30%	\$ 650,095
√	Illumination			6%	\$ 130,019
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 65,009
√	Sewer	Minor Adjustments		2%	\$ 43,340
√	Landscaping and Irrigation			4%	\$ 86,679
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	1,148,501
				Paving and Allowance Subtotal: \$	3,315,483
				Construction Contingency: 10%	\$ 331,548
				Mobilization 5%	\$ 165,774
				Prep ROW 5%	\$ 165,774
				Construction Cost TOTAL: \$	3,979,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 3,979,000
Engineering/Survey/Testing:		16%	\$ 636,640
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 397,900
Impact Fee Project Cost TOTAL:			\$ 5,014,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-10
Name:	Lyons Rd (2)	This project consists of the reconstruction of the existing facility as a six lane divided regional arterial		
Limits:	Guthrie Rd to Lyons Rd (Future)			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	880			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	3,422	cy	\$ 8.00	\$ 27,378
209	6" Lime Stabilization Subgrade	6,747	sy	\$ 2.60	\$ 17,541
309	Street Cut Paving Concrete - Class C Construct	6,649	sy	\$ 70.00	\$ 465,422
409	Curb 6" Integral	3,520	lf	\$ 1.95	\$ 6,864
509	Sidewalk 4" Class A Construct	1,173	sy	\$ 43.00	\$ 50,453
609	Turn Lanes and Median Openings	325	sy	\$ 70.00	\$ 22,727
Paving Construction Cost Subtotal:					\$ 590,385
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	Construction Phase Traffic Control	5%	\$	29,519
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	17,712
✓	Roadway Drainage	Standard Internal System	30%	\$	177,116
✓	Illumination		6%	\$	35,423
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	17,712
✓	Sewer	Minor Adjustments	2%	\$	11,808
✓	Landscaping and Irrigation		4%	\$	23,615
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	312,904
Paving and Allowance Subtotal:					\$ 903,290
Construction Contingency:				10%	\$ 90,329
Mobilization				5%	\$ 45,164
Prep ROW				5%	\$ 45,164
Construction Cost TOTAL:					\$ 1,084,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,084,000
Engineering/Survey/Testing:		16%	\$ 173,440
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 108,400
Impact Fee Project Cost TOTAL:			\$ 1,366,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-11
Name:	Lyons Rd (Future) (3)	This project consists of the construction of a new six lane divided regional arterial		
Limits:	Lyons Rd to South City Limits			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	1,190			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	4,628	cy	\$ 8.00	\$ 37,022
209	6" Lime Stabilization Subgrade	9,123	sy	\$ 2.60	\$ 23,721
309	Street Cut Paving Concrete - Class C Construct	8,991	sy	\$ 70.00	\$ 629,378
409	Curb 6" Integral	4,760	lf	\$ 1.95	\$ 9,282
509	Sidwalk 4" Class A Construct	1,587	sy	\$ 43.00	\$ 68,227
609	Turn Lanes and Median Openings	439	sy	\$ 70.00	\$ 30,733
Paving Construction Cost Subtotal:					\$ 798,362
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 23,951
√	Roadway Drainage	Standard Internal System		30%	\$ 239,509
√	Illumination			6%	\$ 47,902
√	Special Drainage Structures	Bridge Crossing		0%	\$ 600,000
√	Water	Minor Adjustments		3%	\$ 23,951
√	Sewer	Minor Adjustments		2%	\$ 15,967
√	Landscaping and Irrigation			4%	\$ 31,934
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 983,214
				Paving and Allowance Subtotal:	\$ 1,781,576
				Construction Contingency:	10% \$ 178,158
				Mobilization	5% \$ 89,079
				Prep ROW	1% \$ 17,816
				Construction Cost TOTAL:	\$ 2,067,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 2,067,000
Engineering/Survey/Testing:		16%	\$ 330,720
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 413,400
Impact Fee Project Cost TOTAL:			\$ 2,811,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-12
Name:	Rosehill Rd (1)	This project consists of the construction of a new two lane undivided minor collector		
Limits:	Rosehill Rd (Existing) to Wynn Joyce Rd			
Impact Fee Class:	F			
Ultimate Class:	Minor Collector			
Length (lf):	1,605			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
101	Unclassified Street Excavation	3,567	cy	\$ 8.00	\$ 28,533
201	6" Lime Stabilization Subgrade	6,955	sy	\$ 2.60	\$ 18,083
301	Street Cut Paving Concrete - Class C Construct	6,598	sy	\$ 70.00	\$ 461,883
401	Curb 6" Integral	3,210	lf	\$ 1.95	\$ 6,260
501	Sidwalk 4" Class A Construct	1,427	sy	\$ 43.00	\$ 61,347
601	Turn Lanes and Median Openings	114	sy	\$ 70.00	\$ 7,958
Paving Construction Cost Subtotal:					\$ 584,064
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
	Traffic Control	None Anticipated		0%	\$ -
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 17,522
√	Roadway Drainage	Standard Internal System		30%	\$ 175,219
√	Illumination			6%	\$ 35,044
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 17,522
√	Sewer	Minor Adjustments		2%	\$ 11,681
√	Landscaping and Irrigation			4%	\$ 23,363
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 280,351
				Paving and Allowance Subtotal:	\$ 864,415
				Construction Contingency:	10% \$ 86,441
				Mobilization	5% \$ 43,221
				Prep ROW	1% \$ 8,644
				Construction Cost TOTAL:	\$ 1,003,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,003,000
Engineering/Survey/Testing:		16%	\$ 160,480
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 200,600
Impact Fee Project Cost TOTAL:			\$ 1,364,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-13
Name:	Rosehill Rd (2)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Bobtown Rd to IH 30 N loop			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	1,510			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	2,181	cy	\$ 8.00	\$ 17,449
210	6" Lime Stabilization Subgrade	4,194	sy	\$ 2.60	\$ 10,906
310	Street Cut Paving Concrete - Class C Construct	3,859	sy	\$ 70.00	\$ 270,122
410	Curb 6" Integral	3,020	lf	\$ 1.95	\$ 5,889
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	343	sy	\$ 70.00	\$ 24,023
Paving Construction Cost Subtotal:					\$ 328,388
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 16,419
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 9,852
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 13,136
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal:	\$ 39,407
				Paving and Allowance Subtotal:	\$ 367,795
				Construction Contingency:	10% \$ 36,780
				Mobilization	5% \$ 18,390
				Prep ROW	5% \$ 18,390
				Construction Cost TOTAL:	\$ 442,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 442,000
Engineering/Survey/Testing:		16%	\$ 70,720
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 513,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-14
Name:	Rowlett Rd (1)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Broadway Blvd to Rosehill Rd			
Impact Fee Class:	A (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	3,695			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
112	Unclassified Street Excavation	5,337	cy	\$ 8.00	\$ 42,698
212	6" Lime Stabilization Subgrade	10,264	sy	\$ 2.60	\$ 26,686
312	Street Cut Paving Concrete - Class C Construct	9,443	sy	\$ 70.00	\$ 660,994
412	Curb 6" Integral	7,390	lf	\$ 1.95	\$ 14,411
512	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
0	Turn Lanes and Median Openings	840	sy	\$ 70.00	\$ 58,784
Paving Construction Cost Subtotal: \$					803,573
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 40,179
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 24,107
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 32,143
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	96,429
				Paving and Allowance Subtotal: \$	900,002
				Construction Contingency:	10% \$ 90,000
				Mobilization	5% \$ 45,000
				Prep ROW	5% \$ 45,000
				Construction Cost TOTAL: \$	1,081,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,081,000
Engineering/Survey/Testing:		16%	\$ 172,960
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,254,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-15
Name:	Rowlett Rd (2)	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Rosehill Rd to Roan Rd			
Impact Fee Class:	A (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	5,250			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
112	Unclassified Street Excavation	7,583	cy	\$ 8.00	\$ 60,667
212	6" Lime Stabilization Subgrade	14,583	sy	\$ 2.60	\$ 37,917
312	Street Cut Paving Concrete - Class C Construct	13,417	sy	\$ 70.00	\$ 939,167
412	Curb 6" Integral	10,500	lf	\$ 1.95	\$ 20,475
512	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
0	Turn Lanes and Median Openings	1,193	sy	\$ 70.00	\$ 83,523
Paving Construction Cost Subtotal: \$					1,141,748
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 57,087
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 34,252
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 45,670
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	137,010
				Paving and Allowance Subtotal: \$	1,278,757
				Construction Contingency: 10%	\$ 127,876
				Mobilization 5%	\$ 63,938
				Prep ROW 5%	\$ 63,938
				Construction Cost TOTAL: \$	1,535,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,535,000
Engineering/Survey/Testing:		16%	\$ 245,600
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 1,781,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-16
Name:	Rowlett Rd (3)	This project consists of the construction of a new six lane divided regional arterial		
Limits:	Roan Rd to City Limits			
Impact Fee Class:	A			
Ultimate Class:	Regional Arterial			
Length (lf):	1,585			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
111	Unclassified Street Excavation	6,164	cy	\$ 8.00	\$ 49,311
211	6" Lime Stabilization Subgrade	12,152	sy	\$ 2.60	\$ 31,594
311	Street Cut Paving Concrete - Class C Construct	11,976	sy	\$ 70.00	\$ 838,289
411	Curb 6" Integral	6,340	lf	\$ 1.95	\$ 12,363
511	Sidwalk 4" Class A Construct	2,113	sy	\$ 43.00	\$ 90,873
611	Turn Lanes and Median Openings	601	sy	\$ 70.00	\$ 42,048
Paving Construction Cost Subtotal:					\$ 1,064,478
Major Construction Component Allowances**:					
Item Description		Notes	Allowance	Item Cost	
✓	Traffic Control	None Anticipated	0%	\$	-
✓	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities	3%	\$	31,934
✓	Roadway Drainage	Standard Internal System	30%	\$	319,343
✓	Illumination		6%	\$	63,869
	Special Drainage Structures	None Anticipated	0%	\$	-
✓	Water	Minor Adjustments	3%	\$	31,934
✓	Sewer	Minor Adjustments	2%	\$	21,290
✓	Landscaping and Irrigation		4%	\$	42,579
	Miscellaneous:		\$0	\$	-
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal:	\$	510,950
Paving and Allowance Subtotal:					\$ 1,575,428
Construction Contingency:				10%	\$ 157,543
Mobilization				5%	\$ 78,771
Prep ROW				1%	\$ 15,754
Construction Cost TOTAL:					\$ 1,828,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 1,828,000
Engineering/Survey/Testing:		16%	\$ 292,480
Previous City contribution			
Other			
ROW/Easement Acquisition:	New Roadway Alignment	20%	\$ 365,600
Impact Fee Project Cost TOTAL:			\$ 2,486,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-17
Name:	S. Country Club Rd	This project consists of the construction of the median lanes to complete the six lane divided regional arterial		
Limits:	Rowlett Rd to Bobtown Rd			
Impact Fee Class:	B (1/3)			
Ultimate Class:	Regional Arterial			
Length (lf):	1,765			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	2,549	cy	\$ 8.00	\$ 20,396
210	6" Lime Stabilization Subgrade	4,903	sy	\$ 2.60	\$ 12,747
310	Street Cut Paving Concrete - Class C Construct	4,511	sy	\$ 70.00	\$ 315,739
410	Curb 6" Integral	3,530	lf	\$ 1.95	\$ 6,884
510	Sidwalk 4" Class A Construct	0	sy	\$ 43.00	\$ -
610	Turn Lanes and Median Openings	401	sy	\$ 70.00	\$ 28,080
Paving Construction Cost Subtotal: \$					383,845
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 19,192
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 11,515
	Roadway Drainage	None Anticipated		0%	\$ -
	Illumination			0%	\$ -
	Special Drainage Structures	None Anticipated		0%	\$ -
	Water	None Anticipated		0%	\$ -
	Sewer	None Anticipated		0%	\$ -
√	Landscaping and Irrigation			4%	\$ 15,354
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	46,061
Paving and Allowance Subtotal:				\$	429,906
Construction Contingency:				10%	\$ 42,991
Mobilization				5%	\$ 21,495
Prep ROW				5%	\$ 21,495
Construction Cost TOTAL:				\$	516,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 516,000
Engineering/Survey/Testing:		16%	\$ 82,560
Previous City contribution			
Other			
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 599,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-18
Name:	Zion Rd	This project consists of the reconstruction of the existing facility as a four lane undivided minor collector		
Limits:	Locust Grove Rd to Bobtown Rd			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	1,075			
Service Area(s):	D			

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
102	Unclassified Street Excavation	2,867	cy	\$ 8.00	\$ 22,933
202	6" Lime Stabilization Subgrade	5,614	sy	\$ 2.60	\$ 14,596
302	Street Cut Paving Concrete - Class C Construct	5,375	sy	\$ 70.00	\$ 376,250
402	Curb 6" Integral	2,150	lf	\$ 1.95	\$ 4,193
502	Sidwalk 4" Class A Construct	956	sy	\$ 43.00	\$ 41,089
602	Turn Lanes and Median Openings	76	sy	\$ 70.00	\$ 5,330
Paving Construction Cost Subtotal: \$					464,391
Major Construction Component Allowances**:					
Item Description		Notes		Allowance	Item Cost
√	Traffic Control	Construction Phase Traffic Control		5%	\$ 23,220
√	Pavement Markings/Signs/Posts	Includes Striping/Signs for Bicycle Facilities		3%	\$ 13,932
√	Roadway Drainage	Standard Internal System		30%	\$ 139,317
√	Illumination			6%	\$ 27,863
	Special Drainage Structures	None Anticipated		0%	\$ -
√	Water	Minor Adjustments		3%	\$ 13,932
√	Sewer	Minor Adjustments		2%	\$ 9,288
√	Landscaping and Irrigation			4%	\$ 18,576
	Miscellaneous:			\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal				Allowance Subtotal: \$	246,127
				Paving and Allowance Subtotal: \$	710,518
				Construction Contingency: 10%	\$ 71,052
				Mobilization 5%	\$ 35,526
				Prep ROW 5%	\$ 35,526
				Construction Cost TOTAL: \$	853,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 853,000
Engineering/Survey/Testing:		16%	\$ 136,480
Previous City contribution			
Other			
ROW/Easement Acquisition:	Existing Alignment	10%	\$ 85,300
Impact Fee Project Cost TOTAL:			\$ 1,075,000

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
updated: 9/13/2016

Project Information:		Description:	Project No.	D-19
Name:	Northwest Hwy	This completed project consisted of widening the existing facility to a six lane divided regional arterial. The total cost of this project was \$5,654,782, of which the City contributed \$2,904,782.		
Limits:	Centerville Rd to La Prada Dr			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	6,437			
Service Area(s):	D			

Impact Fee Project Cost Summary	
	Impact Fee Project Cost TOTAL: \$ 2,904,782

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	D-20
Name:	Dairy Rd	This completed project consists of widening the facility to a three lane undivided minor collector. The City cost of this project is \$3,597,758.		
Limits:	Celeste Rd to Broadway Blvd			
Impact Fee Class:	E			
Ultimate Class:	Minor Collector			
Length (lf):	2,611			
Service Area(s):	D			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 3,597,758	

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
updated: 9/13/2016

Project Information:		Description:	Project No.	C-12,D-21
Name:	Miller Rd Bridge	This completed project consisted of widening the existing bridge to a 6 lane divided regional arterial. The total cost of the project was \$24,710,481, of which the City contributed \$2,743,883		
Limits:	2,815' E of Centerville Rd to East City Limits			
Impact Fee Class:	B			
Ultimate Class:	Regional Arterial			
Length (lf):	194			
Service Area(s):	C,D			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 2,743,883	

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City of Garland
2016 Roadway Impact Fee Study
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 9/13/2016

Project Information:		Description:	Project No.	I-19:I-26
Name:	Bottleneck Study Improvements	This project consists of intersection improvements identified in the ongoing Bottleneck study. The total cost of these improvements in Service Area D is estimated to be \$2,630,000. The cost attributable to projected growth in Service Area D (8%) is \$236,000.		
Limits:	N/A			
Impact Fee Class:	N/A			
Ultimate Class:	N/A			
Length (If):	N/A			
Service Area(s):	D			

Impact Fee Project Cost Summary	
Impact Fee Project Cost TOTAL: \$ 236,000	

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Appendix B – Roadway Impact Fee CIP Service Units of Supply

City of Garland - 2016 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area A

9/14/2016

Project ID #	ROADWAY	LIMITS	LENGTH (MI)	LANES	IMPACT FEE CLASSIFICATION	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL ¹	VEH-MI TOTAL DEMAND PK-HR ²	EXCESS CAPACITY PK-HR VEH-MI ³	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
A-1	Arapaho Rd (1)	Elm Ridge Ln to Shiloh Rd	0.77	6	B (1/3)	2,365	100%	900	4168	1825	2,343	\$ 1,383,000	\$ 1,383,000
A-2	Arapaho Rd (2)	Shiloh Rd to N. Garland Ave	0.68	6	B (1/3)	2,143	100%	900	3646	1447	2199	\$ 1,210,000	\$ 1,210,000.00
A-3	Brand Rd (1)	Bellaire Rd to Belt Line Rd	0.64	6	C1	737	100%	900	3452	471	2981	\$ 4,092,000	\$ 4,092,000.00
A-4	Brand Rd (2)	Naaman Forest Blvd to West Brand Rd	0.47	6	C1	New	100%	900	2557	0	2,557	\$ 8,172,000	\$ 8,172,000
A-5	Brand Rd (3)	Murfield Rd to PGBT N Frontage Rd	0.56	6	C1	911	100%	900	3027	511	2,516	\$ 3,590,000	\$ 3,590,000
A-6	Campbell Rd (1)	N. Jupiter Rd to Shiloh Rd	1.06	6	B (1/3)	1,645	100%	900	5732	1746	3,986	\$ 1,901,000	\$ 1,901,000
A-7	Campbell Rd (2)	Shiloh Rd to PGBT S Frontage Rd	0.41	6	B (1/3)	1,489	100%	900	2230	615	1,615	\$ 740,000	\$ 740,000
A-8	Campbell Rd (3)	Lookout Dr to PGBT N Frontage Rd	0.59	6	B (1/3)	789	100%	900	3211	469	2,742	\$ 1,065,000	\$ 1,065,000
A-9	Campbell Rd (4)	Lookout Dr to N. Garland Ave	0.64	6	B (1/3)	1,550	100%	900	3467	995	2,472	\$ 1,150,000	\$ 1,150,000
A-10	Campbell Rd (5)	N. Garland Ave to Water Oak Dr	0.52	6	B (1/3)	1,071	100%	900	2802	556	2,246	\$ 929,000	\$ 929,000
A-11	Campbell Rd (6)	Water Oak Dr to Murphy Rd	1.24	6	B	1,071	100%	900	6694	1328	5,366	\$ 11,065,000	\$ 11,065,000
A-12	Ferris Rd	Campbell Rd to Holford Rd	0.36	6	D1	New	100%	900	1928	0	1,928	\$ 2,258,000	\$ 2,258,000
A-13	Firewheel Parkway (1)	Lavon Dr to 530' E of Lavon Dr	0.10	6	A	1,129	100%	925	557	113	444	\$ 824,000	\$ 824,000
A-14	Holford Rd (1)	Naaman Forest (Future) to Arapaho Rd	0.75	6	D1	327	100%	900	4050	245	3805	\$ 5,347,000	\$ 5,347,000.00
A-15	Holford Rd (2)	PGBT S Frontage Rd to Naaman Forest (Future)	0.33	6	C2	327	100%	900	1790	108	1682	\$ 2,717,000	\$ 2,717,000.00
A-16	Holford Rd (3)	N City Limits to PGBT N Frontage Rd	0.99	6	C2	102	100%	900	5349	101	5,248	\$ 8,118,000	\$ 8,118,000
A-17	Lookout Dr (1)	Courtside Dr to Spring Dr	0.11	6	B (1/3)	324	50%	900	302	18	284	\$ 201,000	\$ 100,500
A-18	Lookout Dr (2)	Spring Dr to PGBT S Frontage Rd	0.80	6	B (1/3)	324	50%	900	2153	129	2,024	\$ 1,428,000	\$ 714,000
A-19	Lookout Dr (3)	PGBT N Frontage Rd to Campbell Rd	0.72	6	B (1/3)	1,550	100%	900	3871	1111	2,760	\$ 1,107,000	\$ 1,107,000
A-20	Mapleridge (1)	Shiloh Rd to Mapleridge Dr	0.09	2	F	New	100%	525	89	0	89	\$ 384,000	\$ 384,000
A-21	Mapleridge (2)	Mapleridge Dr (Existing) to Holford Rd	0.36	2	F	New	100%	525	379	0	379	\$ 3,513,000	\$ 3,513,000
A-22	Garland Ave (1)	N City Limits to PGBT N Frontage Rd	1.29	6	B (1/3)	1,103	100%	900	6975	1425	5,550	\$ 2,313,000	\$ 2,313,000
A-23	Garland Ave (2)	Arapaho Rd to PGBT S Frontage Rd	1.14	6	B (1/3)	2,322	100%	900	6162	2650	3,512	\$ 2,044,000	\$ 2,044,000
A-24	Garland Ave (3)	Arapaho Rd to Belt Line Rd	0.79	6	B-S (1/3)	2,353	100%	900	4285	1867	2,418	\$ 1,421,000	\$ 1,421,000
A-25	Garland Ave (4)	Belt Line Rd to Buckingham Rd	0.97	6	B (1/3)	1,852	100%	900	5221	1791	3,430	\$ 1,732,000	\$ 1,732,000
A-26	Shiloh Rd (1)	PGBT S Frontage Rd to Campbell Rd	0.37	6	B (1/3)	1,500	100%	900	1979	550	1,429	\$ 657,000	\$ 657,000
A-27	Shiloh Rd (2)	Campbell Rd to north bridge end	0.41	6	B (1/3)	1,698	100%	900	2209	695	1,514	\$ 733,000	\$ 733,000
A-28	Shiloh Rd (3)	Collins Blvd to Arapaho Rd	0.59	6	B (1/3)	1,949	100%	900	3211	1159	2,052	\$ 1,065,000	\$ 1,065,000
A-29	Shiloh Rd (4)	Arapaho Rd to Belt Line Rd	1.03	6	B (1/3)	2,059	100%	900	5538	2112	3,426	\$ 1,836,000	\$ 1,836,000
A-30	Shiloh Rd (5)	Belt Line Rd to Buckingham Rd	0.96	6	B (1/3)	2,299	100%	900	5170	2201	2,969	\$ 1,714,000	\$ 1,714,000
A-31	Naaman Forest Blvd	W. Naaman Forest Blvd. to E. Naaman Forest Blvd.	0.33	6	D1	New	100%	900	1759	0	1,759	\$ 2,079,000	\$ 2,079,000
A-32	Naaman School Rd	Brand Rd to Lavon Dr	0.88	6	D1	1,080	100%	900	4776	955	3,821	\$ 6,047,000	\$ 6,047,000
A-33	Naaman Forest Blvd	Ranger to Brand Rd	0.26	6	D1	749	100%	900	1394	193	1,201	\$ 3,904,483	\$ 3,904,483
I-1	Shiloh Rd and Campbell Rd	Extend WB RT lane										\$ 634,000	\$ 634,000
I-2	Arapaho Rd and Shiloh Rd	Add NB and SB RT lanes											
I-3	Apollo Rd and Garland Ave	Add EB RT Lane											
I-4	Wagon Wheel Rd and Garland Ave	WB RT Lane											
I-5	Belt Line Rd and Garland Ave	WB RT Lane											
I-6	Belt Line Rd and Shiloh Rd	EB RT Lane											
I-7	Buckingham Rd and Plano Rd	NB RT Lane, EB and WB Dual LT Lanes											
I-8	Shiloh Rd and Buckingham Rd	Add dual lefts WB, NB, and SB											
SUBTOTAL									110,133	27,386	82,747	\$ 87,373,483	\$ 86,558,983

2016 Roadway Impact Fee Study Cost Per Service Area \$ 15,840

TOTAL COST IN SERVICE AREA A \$ 86,574,823

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]

2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% in Service Area]

3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280]. If minimal traffic is anticipated on an existing roadway, an average volume based on roadways of similar class was used.

City of Garland - 2016 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area B

9/14/2016

Project ID #	ROADWAY	LIMITS	LENGTH (MI)	LANES	IMPACT FEE CLASSIFICATION	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL ¹	VEH-MI TOTAL DEMAND PK-HR ²	EXCESS CAPACITY PK-HR VEH-MI ³	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
B-1	Kings Rd	Marquis Dr to Kings Rd (Existing)	0.10	4	E	New	100%	525	217	0	217	\$ 551,000	\$ 551,000
B-2	Leon Rd (1)	Shiloh Rd to S. Garland Ave	0.18	4	E	New	100%	525	378	0	378	\$ 959,000	\$ 959,000.00
B-3	Leon Rd (2)	Leon Rd (Existing) to Millay Blvd (Future)	0.04	4	E	New	100%	525	84	0	84	\$ 212,000	\$ 212,000
B-4	Marketplace ext (1)	Towngate Blvd to Northwest Hwy	0.26	4	E	New	100%	525	551	0	551	\$ 1,398,000	\$ 1,398,000
B-5	Marketplace ext (2)	Pendleton Dr to Marketplace Dr	0.13	4	E	New	100%	525	263	0	263	\$ 666,000	\$ 666,000
B-6	Millay Blvd (Future)	Leon Rd to Millay Blvd (Existing)	0.22	4	E	New	100%	525	465	0	465	\$ 1,180,000	\$ 1,180,000
B-7	Shiloh Rd (6)	Buckingham Rd to W Walnut St	1.00	6	B (1/3)	2,448	100%	900	5380	2,439	2,941	\$ 1,784,000	\$ 1,784,000
B-8	Shiloh Rd (7)	W Walnut St to Forest Ln	0.50	6	B	2,133	100%	900	2726	1,077	1,649	\$ 4,590,000	\$ 4,590,000
B-9	Shiloh Rd (8)	Forest Ln to Miller Rd	1.01	6	B	2,240	100%	900	5436	2,255	3,181	\$ 8,552,000	\$ 8,552,000
B-10	Shiloh Rd (9)	Miller Rd to Kingsley Rd	1.07	6	B	1,969	100%	900	5789	2,111	3,678	\$ 9,087,000	\$ 9,087,000
B-11	Shiloh Rd (10)	Kingsley Rd to McCree Rd	0.50	6	B	1,681	100%	900	2720	847	1,873	\$ 4,129,000	\$ 4,129,000
B-12	Shiloh Rd (11)	Garland Ave to IH-635 WBFR	0.29	6	B	1,867	100%	900	1560	539	1,021	\$ 2,368,000	\$ 2,368,000
B-13	New road east of Industrial Ln	Kingsley Rd to McCree Rd	0.50	2	F	New	100%	525	529	0	529	\$ 2,260,000	\$ 2,260,000
B-14	Saturn Rd	Saturn Rd (Existing) to Miller Rd	0.31	4	D2	New	100%	825	1009	0	1,009	\$ 2,215,000	\$ 2,215,000
B-15	Sherwin	Sherwin St (Existing) to Wood Dr	0.13	4	E	New	100%	525	274	0	274	\$ 2,432,000	\$ 2,432,000
I-9	Plano Rd and Walnut St	NB an SB RT Lane										\$ 378,000	\$ 378,000
I-10	Forest Ln and Jupiter Rd	EB and NB RT Lane, NB Dual LT Lanes											
I-11	Forest Ln and Shiloh Rd	SB and NB RT Lanes, Dual NB LT Lanes											
I-12	Avenue B (SH 78) and First St	SB RT Lane											
I-13	Avenue D and First St	EB RT Lane, EB Dual LT Lanes											
I-15	Jupiter Rd and Miller Rd	SB RT Lane											
I-16	Miller Rd and Shiloh Rd	SB RT Lane											
I-17	Garland Ave and Miller Rd	SB, EB, and WB RT Lanes											
I-18	Glenbrook Dr and Miller Rd	EB and WB LT Lanes											
I-19	First St and Miller Rd	Add EB RT & NB, SB Dual Lefts											
I-20	Broadway Blvd and First St	Triple LT from NB First St											
I-21	Jupiter Rd and Kingsley Rd	WB RT Lane											
I-22	Garland Ave and Kingsley Rd	NB RT Lane											
I-24	Garland Ave and McCree Rd / Shiloh Rd	SWB Dual LT Lanes											
SUBTOTAL									27,381	9,268	18,113	\$ 42,761,000	\$ 42,761,000

2016 Roadway Impact Fee Study Cost Per Service Area \$ 15,840

TOTAL COST IN SERVICE AREA B \$ 42,776,840

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]

2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]

3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280]. If minimal traffic is anticipated on an existing roadway, an average volume based on roadways of similar class was used.

City of Garland - 2016 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area C

9/14/2016

Project ID #	ROADWAY	LIMITS	LENGTH (MI)	LANES	IMPACT FEE CLASSIFICATION	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL ¹	VEH-MI TOTAL DEMAND PK-HR ²	EXCESS CAPACITY PK-HR VEH-MI ³	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
C-1	Castle Dr (1)	N. First St to Lavon Dr	0.15	6	D1	237	100%	900	813	36	777	\$ 953,000	\$ 953,000
C-2	Castle Dr (2)	Lavon Dr to Mars Dr	0.38	6	D1	561	100%	900	2040	212	1828	\$ 2,390,000	\$ 2,390,000.00
C-3	Castle Dr (3)	Mars Dr to Country Club Rd	0.46	4	E	378	100%	525	964	174	790	\$ 2,424,000	\$ 2,424,000.00
C-4	Castle Dr (4)	Country Club Rd to Centerville Rd	1.05	4	E	510	100%	525	2203	535	1,668	\$ 5,536,000	\$ 5,536,000
C-5	Castle Dr (5)	2660' south of Firewheel Pkwy to Firewheel Pkwy	0.50	4	E	206	50%	525	529	52	477	\$ 2,659,000	\$ 1,329,500
C-6	Castle Dr (6)	Firewheel Pkwy to Miles Rd	0.84	4	E	418	50%	525	882	176	706	\$ 4,433,000	\$ 2,216,500
C-7	Crist Rd	Lavon Dr to Naaman School Rd	0.62	4	D2	500	100%	825	2041	309	1,732	\$ 4,436,000	\$ 4,436,000
C-8	Firewheel Parkway (2)	530' E of Lavon Dr to 310' S of Town Center Blvd	0.77	6	A	1,450	100%	925	4257	1,112	3,145	\$ 6,292,000	\$ 6,292,000
C-9	Pleasant Valley Rd (1)	Creek Meadow Ln to Miles Rd	0.50	6	C1	796	100%	900	2674	394	2,280	\$ 10,773,000	\$ 10,773,000
C-10,D-5	E. Miller Rd	Centerville Rd to 2,815' E of Centerville Rd	0.53	6	B (1/3)	1,122	50%	900	1439	299	1,140	\$ 955,000	\$ 477,500
C-11	Pleasant Valley Rd (2)	Firewheel Pkwy to Creek Meadow Ln	0.58	6	C1	796	100%	900	3145	464	2,681	\$ 3,603,239	\$ 3,603,239
C-12,D-21	Miller Rd Bridge	2,815' E of Centerville Rd to East City Limits	0.04	6	B	1,063	50%	900	99	20	79	\$ 2,743,883	\$ 1,371,942
I-14	Centerville Rd and SH 66	Add dual LT lanes NB and WB										\$ 141,000	\$ 141,000
I-19	First St and Miller Rd	Add EB RT & NB, SB Dual Lefts											
SUBTOTAL									21,086	3,783	17,303	\$ 47,339,122	\$ 41,943,681

2016 Roadway Impact Fee Study Cost Per Service Area \$ 15,840

TOTAL COST IN SERVICE AREA C \$ 41,959,521

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]

2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]

3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280]. If minimal traffic is anticipated on an existing roadway, an average volume based on roadways of similar class was used.

City of Garland - 2016 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area D

9/14/2016

Project ID #	ROADWAY	LIMITS	LENGTH (MI)	LANES	IMPACT FEE CLASSIFICATION	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL ¹	VEH-MI TOTAL DEMAND PK-HR ²	EXCESS CAPACITY PK-HR VEH-MI ³	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
D-1	Bobtown Rd (1)	Rowlett Rd to Bobtown Rd (Existing)	0.17	2	S	New	100%	525	183	0	183	\$ 929,000	\$ 929,000.00
D-2	Bobtown Rd (2)	Bobtown Rd (Future) to Waterhouse Blvd	0.34	0	E-S	367	100%	0	0	124	-124	\$ 1,779,000	\$ 1,779,000.00
D-3	Bobtown Rd (3)	400' S of High Dr to Lyons Rd	0.38	4	E	541	100%	525	793	204	589	\$ 1,995,000	\$ 1,995,000.00
D-4	Bobtown Rd (4)	Lyons Rd to South City Limits	0.50	4	E	541	50%	525	528	136	392	\$ 2,654,000	\$ 1,327,000.00
C-10,D-5	E. Miller Rd	Centerville Rd to 2,815' E of Centerville Rd	0.53	6	B (1/3)	1,122	50%	900	1439	299	1,140	\$ 955,000	\$ 477,500
D-6	E. Oates Rd (Future)	Country Club Rd to E. Oates Rd (Existing)	0.58	2	F	New	100%	525	606	0	606	\$ 3,219,000	\$ 3,219,000
D-7	La Prada Dr	IH 635 E frontage road to Northwest Hwy	0.32	6	B (1/3)	1,145	50%	900	854	181	673	\$ 567,000	\$ 283,500
D-8	Locust Grove Rd	290' E of Oceanport Dr to East City Limits	0.54	4	E	284	100%	525	1138	154	984	\$ 2,859,000	\$ 2,859,000
D-9	Lyons Rd (1)	Bobtown Rd to Guthrie Rd	0.61	6	B	509	100%	900	3303	311	2,992	\$ 5,014,000	\$ 5,014,000
D-10	Lyons Rd (2)	Guthrie Rd to Lyons Rd (Future)	0.17	6	B	161	100%	900	900	27	873	\$ 1,366,000	\$ 1,366,000
D-11	Lyons Rd (Future) (3)	Lyons Rd to South City Limits	0.23	6	B	New	100%	900	1217	0	1,217	\$ 2,811,000	\$ 2,811,000
D-12	Rosehill Rd (1)	Rosehill Rd (Existing) to Wynn Joyce Rd	0.30	2	F	667	100%	525	319	203	116	\$ 1,364,000	\$ 1,364,000
D-13	Rosehill Rd (2)	Bobtown Rd to IH 30 N loop	0.29	6	B (1/3)	667	100%	900	1544	191	1,353	\$ 513,000	\$ 513,000
D-14	Rowlett Rd (1)	Broadway Blvd to Rosehill Rd	0.70	6	A (1/3)	1,492	100%	925	3884	1044	2,840	\$ 1,254,000	\$ 1,254,000
D-15	Rowlett Rd (2)	Rosehill Rd to Roan Rd	0.99	6	A (1/3)	1,111	100%	925	5518	1105	4,413	\$ 1,781,000	\$ 1,781,000
D-16	Rowlett Rd (3)	Roan Rd to City Limits	0.30	6	A	1,999	100%	925	1666	600	1,066	\$ 2,486,000	\$ 2,486,000
D-17	S. Country Club Rd	Rowlett Rd to Bobtown Rd	0.33	6	B (1/3)	324	100%	900	1805	108	1,697	\$ 599,000	\$ 599,000
D-18	Zion Rd	Locust Grove Rd to Bobtown Rd	0.20	4	E	423	100%	525	428	86	342	\$ 1,075,000	\$ 1,075,000
D-19	Northwest Hwy	Centerville Rd to La Prada Dr	1.22	6	B	1,362	100%	900	6583	1660	4,923	\$ 2,904,782	\$ 2,904,782
D-20	Dairy Rd	Celeste Rd to Broadway Blvd	0.49	4	E	570	100%	525	1038	282	756	\$ 3,597,758	\$ 3,597,758
C-12,D-21	Miller Rd Bridge	2,815' E of Centerville Rd to East City Limits	0.04	6	B	1,122	50%	900	99	21	78	\$ 2,743,883	\$ 1,371,942
I-19	First St and Miller Rd	Add EB RT & NB, SB Dual Lefts										\$ 236,000	\$ 236,000
I-20	Broadway Blvd and First St	Triple LT from NB First St											
I-23	Broadway Blvd and Centerville Rd	Dual Lefts SWB, NEB and NWB											
I-25	Broadway Blvd and Rowlett Rd	Add EB RT Lane											
I-26	Broadway Blvd and IH-30 EBFR	Dual NB RT Lanes											
SUBTOTAL									33,845	6,736	27,109	\$ 42,702,423	\$ 39,242,482

2016 Roadway Impact Fee Study Cost Per Service Area \$ 15,840

TOTAL COST IN SERVICE AREA D \$ 39,258,322

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]

2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]

3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280]. If minimal traffic is anticipated on an existing roadway, an average volume based on roadways of similar class was used.

Appendix C – Existing Roadway Facilities Inventory

City of Garland - 2016 Roadway Impact Fee Update
Existing Roadway Facilities Inventory

Service Area A

9/14/2016

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	FUTURE LANES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR ³		EXISTING DEFICIENCIES PK-HR ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Apollo Rd	Brand	Kingsbridge Dr	3533	0.67	1	1	2U	Minor Collector	F	151	151	100%	525	525	351	351	101	101	250	250		
Apollo Rd	Arapaho Rd	W Brand Rd	3585	0.68	1	1	2U	Minor Collector	F	265	240	100%	525	525	356	356	180	163	176	193		
Apollo Rd	Kingsbridge Dr	Crist	2872	0.54	1	1	2U	Minor Collector	F	151	151	100%	525	525	286	286	82	82	204	204		
Apollo Rd	N. Jupiter	Galaxie Rd	2705	0.51	1	1	3U	Minor Collector	F	243	223	100%	575	575	295	295	124	114	171	181		
Apollo Rd	Shiloh Rd	Arapaho Rd	3651	0.69	1	1	3U	Minor Collector	F	301	283	100%	575	575	398	398	208	196	190	202		
Apollo Rd	Galaxie Road	Shiloh Rd	2616	0.50	1	1	3U	Minor Collector	F	283	246	100%	575	575	285	285	140	122	145	163		
Arapaho Rd	Callejo Rd	Shiloh Rd	1495	0.28	2	2	4D	Regional Arterial	B	1,144	1,221	100%	900	900	510	510	324	346	186	164		
Arapaho Rd	Holford Rd	N. Garland	2618	0.50	2	2	4D	Regional Arterial	B	1,050	1,093	100%	900	900	893	893	521	542	372	351		
Arapaho Rd	Elm Ridge Ln	Galaxie Rd	1355	0.26	2	2	4D	Regional Arterial	B	1,125	1,195	100%	900	900	462	462	289	307	173	155		
Arapaho Rd	Galaxie Rd	Callejo Rd	1226	0.23	2	2	4D	Regional Arterial	B	1,144	1,221	100%	900	900	418	418	266	284	152	134		
Arapaho Rd	Shiloh Rd	Holford Rd	947	0.18	2	2	4D	Regional Arterial	B	1,050	1,093	100%	900	900	323	323	188	196	135	127		
Arapaho Rd	N. Jupiter	Elm Ridge Ln	1340	0.25	3	3	6D	Regional Arterial	B	1,125	1,195	100%	925	925	704	704	286	303	418	401		
Bettline Rd	Kingsbridge Dr	Crist	2722	0.52	3	3	6D	Regional Arterial	B	888	858	100%	925	925	1,431	1,431	458	442	973	989		
Bettline Rd	Galaxie Rd	N. Shiloh Rd	2448	0.46	3	3	6D	Regional Arterial	B	1,291	1,277	100%	925	925	1,287	1,287	599	592	688	695		
Bettline Rd	Callejo Rd	N. Garland Ave	1706	0.32	3	3	6D	Regional Arterial	B	1,033	1,035	100%	925	925	897	897	334	334	563	563		
Bettline Rd	W Brand Rd	N. Glenbrook	1999	0.38	3	3	6D	Regional Arterial	B	1,144	1,097	100%	925	925	1,051	1,051	433	415	618	636		
Bettline Rd	N. Jupiter	Galaxie Rd	1852	0.35	3	3	6D	Regional Arterial	B	1,358	1,374	100%	925	925	973	973	476	482	497	491		
Bettline Rd	Big Oaks Dr	Galaxie Rd	1097	0.21	3	3	6D	Regional Arterial	B	1,358	1,374	100%	925	925	577	577	282	285	295	292		
Bettline Rd	N. Shiloh	Sam Houston Dr	2562	0.49	3	3	6D	Regional Arterial	B	1,121	1,101	100%	925	925	1,347	1,347	544	534	803	813		
Bettline Rd	Sam Houston Dr	Apollo Rd	1035	0.20	3	3	6D	Regional Arterial	B	1,033	1,035	100%	925	925	544	544	202	203	342	341		
Bettline Rd	N. Garland Ave	W Brand Rd	971	0.18	3	3	6D	Regional Arterial	B	1,144	1,097	100%	925	925	510	510	210	202	300	308		
Bettline Rd	N. Glenbrook	Kingsbridge Dr	1636	0.31	3	3	6D	Regional Arterial	B	888	858	100%	925	925	860	860	275	266	585	594		
Big Oaks	Diamond Oaks Dr	Shiloh Rd	3121	0.59	1	1	2U	Minor Collector	F	42	45	100%	525	525	310	310	25	27	285	283		
Big Oaks	Laurel Oaks Dr	Diamond Oaks Dr	1647	0.31	1	1	2U	Minor Collector	F	265	240	100%	525	525	164	164	83	75	81	89		
Clear Springs	Lookout	Shiloh	2721	0.52	1	1	2U	Minor Collector	F	265	240	100%	525	525	271	271	137	124	134	147		
Collins	Callejo Rd	Shiloh Rd	1720	0.33	1	1	2U	Minor Collector	F	265	240	100%	525	525	171	171	86	78	85	93		
Collins	N. Jupiter	Galaxie Rd	2463	0.47	1	1	2U	Minor Collector	F	265	240	100%	525	525	245	245	124	112	121	133		
Collins	Galaxie Rd	Callejo Rd	1463	0.28	1	1	2U	Minor Collector	F	265	240	100%	525	525	145	145	73	67	72	79		
Crist Rd	Bettline	SH 78	3242	0.61	2	2	4U	Minor Collector	E	523	552	100%	525	525	645	645	321	339	324	306		
Diamond Oaks Dr	Ridge Oak Dr	Buckingham Rd	3434	0.65	1	1	2U	Minor Collector	F	71	79	100%	525	525	341	341	46	51	295	290		
Diamond Oaks Dr	Big Oaks Dr	Ridge Oak Dr	1953	0.37	1	1	2U	Minor Collector	F	265	240	100%	525	525	194	194	98	89	96	105		
Brand Rd	Campbell Rd	Provence Blvd	4533	0.86	1	1	2U	Special Functional Classification	S	247	228	100%	525	525	451	451	212	196	239	255		
Brand Rd	Muirfield Rd	PGBT	2960	0.56	1	1	2U	Special Functional Classification	S	481	430	100%	525	525	294	294	270	241	24	53		
Brand Rd	North City Limits	Campbell Rd	1763	0.33	1	1	2U	Special Functional Classification	S	132	139	100%	525	525	175	175	44	46	131	129		
Brand Rd	Talley Rd	Muirfield Dr	2106	0.40	1	1	2U	Special Functional Classification	S	265	240	100%	525	525	209	209	106	96	103	113		
Brand Rd	PGBT Frontage Road	PGBT Frontage Road	456	0.09	3	3	6D	Minor Arterial	C1	1,460	1,485	100%	925	925	240	240	126	128	114	112		
Brand Rd	PGBT	Naaman Forest Blvd	336	0.06	3	3	6D	Minor Arterial	C1	1,460	1,485	100%	925	925	177	177	93	95	84	83		
E. Buckingham Rd	First St	375' E of First St	477	0.09	3	3	6D	Regional Arterial	B	1,418	1,336	50%	925	925	125	125	64	60	61	65		
E. Buckingham Rd	375' E of First St	Lavon Dr	1065	0.20	3	3	7U	Regional Arterial	B	1,418	1,336	50%	925	925	280	280	143	135	137	145		
Campbell Rd	Brand Rd	City Limits	3574	0.68	1	1	2U	Regional Arterial	B	426	411	100%	525	525	355	355	288	278	67	77		
Campbell Rd	Water Oak	Murphy	2970	0.56	1	1	2U	Regional Arterial	B	532	539	100%	525	525	295	295	299	303	-4	-8	4	8
Ferris Rd	Campbell	Holford	1883	0.36	1	1	2U	Major Collector	D1	265	240	100%	525	525	187	187	95	86	92	101		
Galaxie	Apollo Rd	Sweet Gum St	2056	0.39	1	1	2D	Minor Collector	F	265	240	100%	575	575	224	224	103	93	121	131		
Galaxie	Campbell Rd	Collins Blvd	1514	0.29	1	1	2U	Minor Collector	F	265	240	100%	525	525	151	151	76	69	75	82		
Galaxie	Collins Blvd	Arapaho Rd	3242	0.61	1	1	2U	Minor Collector	F	265	240	100%	525	525	322	322	163	147	159	175		
Galaxie	Sweet Gum St	Belt Line Rd	422	0.08	1	1	2U	Minor Collector	F	265	240	100%	525	525	42	42	21	19	21	23		
Galaxie	Arapaho Rd	Apollo Rd	3328	0.63	1	1	3U	Minor Collector	F	202	124	100%	575	575	362	362	127	78	235	284		
Holford Rd	Campbell Rd	310' S of Campbell Rd	240	0.05	1	1	2D	Minor Arterial	C2	55	47	100%	575	575	26	26	3	2	24	24		
Holford Rd	275' N of PGBT N frontage road	PGBT N frontage road	230	0.04	1	1	2D	Minor Arterial	C2	55	47	100%	575	575	25	25	2	2	23	23		
Holford Rd	200' N of Arapaho Rd	Arapaho Rd	243	0.05	1	1	2D	Major Collector	D1	183	144	100%	575	575	26	26	8	7	18	19		
Holford Rd	Naaman Forest (Future)	200' N of Arapaho Rd	3718	0.70	1	1	2U	Major Collector	D1	183	144	100%	525	525	370	370	129	101	241	269		
Holford Rd	310' S of Campbell Rd	Ferris Rd	2456	0.47	1	1	2U	Minor Arterial	C2	55	47	100%	525	525	244	244	26	22	218	222		
Holford Rd	North City Limits	Campbell	877	0.17	1	1	2U	Minor Arterial	C2	265	240	100%	525	525	87	87	44	40	43	47		
Holford Rd	Ferris	275' N of PGBT N frontage road	1426	0.27	1	1	2U	Minor Arterial	C2	55	47	100%	525	525	142	142	15	13	127	129		
Holford Rd	PGBT S frontage road	Naaman Forest (Future)	1748	0.33	1	1	2U	Minor Arterial	C2	183	144	100%	525	525	174	174	61	48	113	126		
Holford Rd	PGBT N frontage road	PGBT S frontage road	427	0.08	3	3	6D	Minor Arterial	C2	1,460	1,485	100%	925	925	224	224	118	120	106	104		
Homestead	Sam Houston Dr	Garland Ave	2717	0.51	1	1	2U	Minor Collector	F	265	240	100%	525	525	270	270	136	124	134	147		
Homestead	Shiloh	Sam Houston Dr	2498	0.47	1	1	2U	Minor Collector	F	265	240	100%	525	525	248	248	125	114	123	134		
Kingsbridge	Apollo Rd	Naaman School Rd	4837	0.92	1	1	2U	Minor Collector	F	103	50	100%										

Service Area A Continued

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	FUTURE LANES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR VEH-MI ³		EXISTING DEFICIENCIES PK-HR VEH-MI ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB		
Lookout Dr	Spring Dr	Clear Springs Pkwy	3441	0.65	2	2	4D	Regional Arterial	B	151	173	100%	900	900	1,173	1,173	98	113	1,075	1,060		
Lookout Dr	PGBT N frontage road	Telecom	1021	0.19	2	2	4D	Regional Arterial	B	780	770	100%	900	900	348	348	151	149	197	199		
Lookout Dr	Clear Springs Pkwy	PGBT S frontage road	769	0.15	2	2	4D	Regional Arterial	B	151	173	100%	900	900	262	262	22	25	240	237		
Lookout Dr	Courtside Dr	Spring Dr	591	0.11	3	3	6D	Regional Arterial	B	151	173	100%	925	925	311	311	17	19	294	292		
Lookout Dr	PGBT S frontage road	PGBT N frontage rd	583	0.11	3	3	6D	Regional Arterial	B	1,460	1,485	100%	925	925	306	306	161	164	145	142		
Lookout Dr	N. Jupiter	Courtside Dr	513	0.10	3	3	6D	Regional Arterial	B	151	173	100%	925	925	270	270	15	17	255	253		
Mapleridge Dr	E of Shiloh Rd	End of Mapleridge Dr	729	0.14	1	1	2U	Minor Collector	F	265	240	100%	525	525	72	72	37	33	35	39		
N. First Street	Crist	Buckingham Rd	940	0.18	3	3	6D	Regional Arterial	B	1,080	1,179	100%	925	925	494	494	192	210	302	284		
N. Garland Ave	E. Naaman Forest	Arapaho	3843	0.73	2	2	4D	Regional Arterial	B	1,010	1,312	100%	900	900	1,310	1,310	735	955	575	355		
N. Garland Ave	Homestead Pl	Buckingham Rd	2604	0.49	2	2	4D	Regional Arterial	B	965	887	100%	900	900	888	888	476	437	412	451		
N. Garland Ave	Wagon Wheel Rd	Belt Line Rd	2105	0.40	2	2	4D	Regional Arterial	B-S	1,242	1,111	100%	900	900	718	718	495	443	223	275		
N. Garland Ave	North City Limits	Campbell Rd	1027	0.19	2	2	4D	Regional Arterial	B	489	488	100%	900	900	350	350	95	95	255	255		
N. Garland Ave	Campbell Rd	Muirfield Dr	4394	0.83	2	2	4D	Regional Arterial	B	555	548	100%	900	900	1,498	1,498	462	456	1,036	1,042		
N. Garland Ave	Muirfield Dr	PGBT Frontage Road	1400	0.27	2	2	4D	Regional Arterial	B	555	548	100%	900	900	477	477	147	145	330	332		
N. Garland Ave	South PGBT Frontage Road	E. Naaman Forest	2183	0.41	2	2	4D	Regional Arterial	B	1,010	1,312	100%	900	900	744	744	418	542	326	202		
N. Garland Ave	Garland Ave	Apollo Rd	1211	0.23	2	2	4D	Regional Arterial	B-S	1,242	1,111	100%	900	900	413	413	285	255	128	158		
N. Garland Ave	Apollo Rd	Wagon Wheel Rd	876	0.17	2	2	4D	Regional Arterial	B-S	1,242	1,111	100%	900	900	299	299	206	184	93	115		
N. Garland Ave	Belt Line Rd	Homestead Pl	2503	0.47	2	2	4D	Regional Arterial	B	965	887	100%	900	900	853	853	457	420	396	433		
N. Garland Ave	South PGBT Frontage Road	South PGBT Frontage Road	475	0.09	3	3	6D	Regional Arterial	B	1,460	1,485	100%	925	925	250	250	131	134	119	116		
N. Glenbrook Dr	Beltline	Kingsbridge Dr	1118	0.21	2	2	4D	Major Collector	D1	275	256	100%	900	900	381	381	58	54	323	327		
N. Glenbrook Dr	Kingsbridge Dr	Buckingham Rd	2415	0.46	2	2	4D	Major Collector	D1	275	256	100%	900	900	823	823	126	117	697	706		
Jupiter Rd	North City Limits	Springpark Wy	1513	0.29	3	3	6D	Regional Arterial	B	1,374	1,732	50%	925	925	398	398	197	248	201	150		
Jupiter Rd	Springpark Wy	W. Campbell Rd	3329	0.63	3	3	6D	Regional Arterial	B	1,374	1,732	50%	925	925	875	875	433	546	442	329		
Jupiter Rd	W. Campbell Rd	Collins Blvd	1945	0.37	3	3	6D	Regional Arterial	B	1,848	1,546	50%	925	925	511	511	340	285	171	226		
Jupiter Rd	Collins Blvd	Arapaho Rd	2632	0.50	3	3	6D	Regional Arterial	B	1,848	1,546	50%	925	925	692	692	461	385	231	307		
Jupiter Rd	Arapaho Rd	Apollo Rd	3321	0.63	3	3	6D	Regional Arterial	B	1,713	1,582	50%	925	925	873	873	539	498	334	375		
Jupiter Rd	Apollo Rd	Belt Line Rd	2260	0.43	3	3	6D	Regional Arterial	B	1,713	1,582	50%	925	925	594	594	367	339	227	255		
Jupiter Rd	Belt Line Rd	Ridge Oak Dr	1432	0.27	3	3	6D	Regional Arterial	B	1,713	1,582	50%	925	925	376	376	232	215	144	161		
Jupiter Rd	Ridge Oak Dr	W. Buckingham Rd	3697	0.70	3	3	6D	Regional Arterial	B	1,713	1,582	50%	925	925	972	972	600	554	372	418		
N. Shiloh Rd	Campbell Rd	bridge end	2160	0.41	2	2	4D	Regional Arterial	B	868	830	100%	900	900	736	736	355	340	381	396		
N. Shiloh Rd	Rich Oak Dr	Buckingham Rd	1985	0.38	1	1	4D	Regional Arterial	B	1,175	1,124	100%	900	900	338	338	442	423	-104	-85	104	85
N. Shiloh Rd	Homestead Pl	Richoak Dr	947	0.18	2	2	4D	Regional Arterial	B	1,175	1,124	100%	900	900	323	323	211	202	112	121		
N. Shiloh Rd	Belt Line Rd	Homestead Pl	2125	0.40	2	2	4D	Regional Arterial	B	1,175	1,124	100%	900	900	724	724	473	452	251	272		
N. Shiloh Rd	Apollo Rd	Belt Line Rd	2498	0.47	2	2	4D	Regional Arterial	B	1,041	1,018	100%	900	900	852	852	493	482	359	370		
N. Shiloh Rd	Arapaho Rd	Apollo Rd	2917	0.55	2	2	4D	Regional Arterial	B	943	936	100%	900	900	994	994	521	517	473	477		
N. Shiloh Rd	Mapleridge Dr	Arapaho Rd	2726	0.52	2	2	4D	Regional Arterial	B	1,021	928	100%	900	900	929	929	527	479	402	450		
N. Shiloh Rd	Collins Blvd	Mapleridge Dr	415	0.08	2	2	4D	Regional Arterial	B	1,021	928	100%	900	900	141	141	80	73	61	68		
N. Shiloh Rd	Clear Springs Pkwy	Campbell Rd	579	0.11	2	2	4D	Regional Arterial	B	752	748	100%	900	900	197	197	82	82	115	115		
N. Shiloh Rd	PGBT S frontage rd	Clear Springs Pkwy	1359	0.26	2	2	4D	Regional Arterial	B	752	748	100%	900	900	463	463	194	193	269	270		
N. Shiloh Rd	bridge end	Collins Blvd	537	0.10	2	2	4D	Regional Arterial	B	868	830	100%	900	900	183	183	88	84	95	99		
N. Shiloh Rd	PGBT N frontage road	PGBT S frontage road	409	0.08	3	3	6D	Regional Arterial	B	1,460	1,485	100%	925	925	215	215	113	115	102	100		
E. Naaman Forest	N. Garland Ave	E. Brand Rd	5700	1.08	2	2	4D	Major Collector	D1	409	340	100%	900	900	1,943	1,943	442	367	1,501	1,576		
W. Naaman Forest	Campbell Rd	Naaman Forest (Future)	1225	0.23	2	2	4D	Major Collector	D1	780	770	100%	900	900	418	418	181	179	237	239		
E. Naaman Forest	Naaman Forest (Future)	N. Garland Ave	1344	0.25	2	2	4D	Major Collector	D1	780	770	100%	900	900	458	458	199	196	259	262		
Naaman School Rd	Kingsbridge Dr	Lavon Rd	2780	0.53	1	1	2U	Major Collector	D1	642	438	100%	525	525	276	276	338	231	-62	45	62	
Naaman School Rd	E. Brand Rd	W. Brand Rd	1566	0.30	1	1	2U	Major Collector	D1	642	438	100%	525	525	156	156	190	130	-34	26	34	
Naaman School Rd	W. Brand Rd	Kingsbridge Dr	326	0.06	1	1	2U	Major Collector	D1	642	438	100%	525	525	32	32	40	27	-8	5	8	
Richoak	Shiloh Rd	Sam Houston Dr	2440	0.46	1	1	2U	Minor Collector	F	265	240	100%	525	525	243	243	122	111	121	132		
Richoak	Fulton	Shiloh Rd	492	0.09	1	1	2U	Minor Collector	F	265	240	100%	525	525	49	49	25	22	24	27		
Ridge Oak	N. Jupiter	160' of Jupiter Rd	581	0.11	1	1	2D	Minor Collector	F	60	52	100%	575	575	63	63	7	6	56	57		
Ridge Oak	160' E of Jupiter Rd	Diamond Oaks Dr	2009	0.38	1	1	2U	Minor Collector	F	60	52	100%	525	525	200	200	23	20	177	180		
Sam Houston/Meadowcrest	Beltline	Homestead Pl	2542	0.48	1	1	2U	Minor Collector	F	201	242	100%	525	525	253	253	97	117	156	136		
Sam Houston/Meadowcrest	Homestead Pl	Richoak Dr	763	0.14	1	1	2U	Minor Collector	F	201	242	100%	525	525	76	76	29	35	47	41		
Sam Houston/Meadowcrest	Richoak Dr	Buckingham Rd	1989	0.38	1	1	4D	Minor Collector	F	201	242	100%	900	900	339	339	76	91	263	248		
Springpark Way	N. Jupiter	Clear Springs Pkwy	4535	0.86	2	2	4D	Major Collector	D1	69	75	100%	900	900	1,546	1,546	59	64	1,487	1,482		
Talley Rd	Province Blvd	City Limits	3095	0.59	1	1	2U	Minor Collector	F	82	74	100%	525	525	308	308	48	43	260	265		

City of Garland - 2016 Roadway Impact Fee Update
Existing Roadway Facilities Inventory

9/14/2016

Service Area B

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	FUTURE LANES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR VEH-MI ³		EXISTING DEFICIENCIES PK-HR VEH-MI ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB		
Austin	Garland	Glenbrook Dr	2,434	0.46	1	1	2U	Minor Collector	E	135	120	100%	525	525	242	62	55	180	187			
Austin	Glenbrook Dr	N. Fifth	1,109	0.21	1	1	2U	Minor Collector	E	135	120	100%	525	525	110	28	25	82	85			
Lamesa/Bardfield	Barfield Avenue	Northwest Fwy	2,974	0.56	1	1	2U	Minor Collector	F	64	64	100%	525	525	296	36	36	260	260			
Brookside	Meadowcrest	W. Walnut	2,800	0.53	1	1	2U	Minor Collector	F	45	45	100%	525	525	278	278	24	24	255	255		
E. Avenue B	S Garland Ave	S Glenbrook Dr	2,406	0.46	4	0	4D	Urban One-way Couplet	A-C	0	1,614	100%	900	900	1,640	0	0	735	1,640	-735	735	
E. Avenue B	S Glenbrook Dr	S Fifth St	1,338	0.25	4	0	4D	Urban One-way Couplet	A-C	0	1,593	100%	900	900	912	0	0	404	912	-404	404	
E. Avenue B	S Fifth St	S First St	1,578	0.30	4	0	4D	Urban One-way Couplet	A-C	0	1,594	100%	900	900	1,076	0	0	476	1,076	-476	476	
E. Avenue D	S Garland Ave	S Glenbrook Dr	2,402	0.45	0	4	4D	Urban One-way Couplet	A-C	1,784	0	100%	900	900	0	1,638	812	0	-812	1,638	812	
E. Avenue D	S Glenbrook Dr	S Fifth St	1,049	0.20	0	4	4D	Urban One-way Couplet	A-C	1,625	0	100%	900	900	0	715	323	0	-323	715	323	
E. Avenue D	S Fifth St	S First St	1,867	0.35	0	4	4D	Urban One-way Couplet	A-C	1,704	0	100%	900	900	0	1,273	603	0	-603	1,273	603	
Edgewood	N Barnes Dr	N International Rd	1,832	0.35	1	1	2U	Minor Collector	F	135	120	100%	525	525	182	47	42	135	141			
Edgewood	S. Jupiter	N Barnes Dr	1,316	0.25	1	1	2U	Minor Collector	F	135	120	100%	525	525	131	34	30	97	101			
Forest Ln	Forest Ln	Marion Dr	1,134	0.21	0	3	6D	Urban One-way Couplet	A-C	1,360	0	100%	925	925	0	596	292	0	-292	596	292	
Forest Ln	Marion Dr	S Garland Ave	1,546	0.29	0	4	4D	Urban One-way Couplet	A-C	1,360	0	100%	900	900	0	1,054	398	0	-398	1,054	398	
Forest Ln	Shiloh Rd	W Avenue B/D	2,690	0.51	3	3	6D	Regional Arterial	A	1,421	1,430	100%	925	925	1,414	1,414	724	729	690	685		
Forest Ln	Shepherd	Jupiter Rd	4,467	0.85	3	3	6D	Regional Arterial	A	1,929	1,921	100%	925	925	2,348	2,348	1,632	1,625	716	723		
Forest Ln	Jupiter Rd	International Rd	3,139	0.59	3	3	6D	Regional Arterial	A	1,550	1,526	100%	925	925	1,650	1,650	921	907	728	743		
Forest Ln	International Rd	Shiloh Rd	2,228	0.42	3	3	6D	Regional Arterial	A	1,523	1,511	100%	925	925	1,171	1,171	643	638	528	533		
Goodwin/Potomac	Buckingham	Western	2,930	0.55	1	1	2U	Minor Collector	F	127	127	100%	525	525	291	291	70	70	221	221		
Industrial Ln	Wood	W. Kingsley	2,810	0.53	1	1	2U	Minor Collector	E	88	90	100%	525	525	279	279	47	48	233	232		
Kings	Kings (Future)	Miller	1,897	0.36	1	1	2U	Minor Collector	E	135	120	100%	525	525	189	189	49	43	140	146		
Lamesa/Bardfield	Kingsley	Barfield Avenue	2,915	0.55	1	1	2U	Minor Collector	F	64	64	100%	525	525	290	290	35	35	255	255		
Lawler Rd	N Yale Dr	N. Jupiter Rd	2,935	0.56	1	1	2U	Minor Collector	F	195	173	100%	525	525	292	292	108	96	183	196		
Lawler Rd	West City Limits	N Plano Rd	1,703	0.32	1	1	2U	Minor Collector	F	135	120	100%	525	525	169	44	39	126	131			
Lawler Rd	N. Plano Rd	N. Yale Dr	2,320	0.44	1	1	2U	Minor Collector	F	195	173	100%	525	525	231	231	86	76	145	155		
Leon Rd	S. Garland Ave	S of McCree Rd	1,699	0.30	1	1	2U	Major Collector	D2	417	243	100%	525	525	160	127	74	33	86			
Leon Rd	S of McCree Rd	IH 635	2,124	0.40	1	1	3U	Minor Collector	E	417	243	100%	575	575	231	231	168	98	64	104		
Lonecker Dr	W. Miller	1000' N of Wood Dr	2,036	0.39	1	1	2U	Minor Collector	E	26	29	100%	525	525	202	202	10	11	192	191		
Lonecker Dr	1000' N of Wood Dr	Wood Dr	832	0.16	1	1	2U	Minor Collector	E	26	29	100%	525	525	83	83	4	5	79	78		
Main St	Glenbrook Dr	Fifth St	1,136	0.22	1	1	2U	Minor Collector	E	248	285	100%	525	525	113	113	53	61	60	52		
Main St	Fifth St	First St	1,821	0.18	1	1	3U	Minor Collector	E	273	343	100%	575	575	104	104	49	62	55	42		
Main St	Garland	Glenbrook Dr	2,414	0.45	1	1	3U	Minor Collector	E	279	275	100%	575	575	1,571	1,571	762	751	809	819		
Marketplace	Northwest Hwy	Saturn Rd	2,834	0.68	1	1	3U	Major Collector	D2	182	176	100%	575	575	394	394	125	121	269	273		
Marquis Dr	Miller Park Dr	Jupiter Rd	2,383	0.27	1	1	2U	Minor Collector	E	135	120	100%	525	525	144	144	37	33	107	111		
Marquis Dr	S. Jupiter	N International Rd	2,767	0.52	1	1	4U	Minor Collector	E	118	133	100%	525	525	275	275	62	70	213	205		
Marquis Dr	N International Rd	Shiloh Rd	2,624	0.50	1	1	4U	Minor Collector	E	103	111	100%	525	525	261	261	51	55	210	206		
Maydelle	Western	W Walnut St	2,490	0.47	1	1	2U	Minor Collector	F	135	120	100%	525	525	248	248	64	57	184	191		
McCree Rd	IH 635	S. Garland	3,179	0.60	1	1	2U	Minor Collector	F	135	114	100%	525	525	316	316	81	69	235	247		
Sam Houston/Meadowcrest	Sam Houston Dr	Nash St	525	0.10	1	1	2U	Minor Collector	F	135	120	100%	525	525	52	52	13	12	39	40		
Millay	Leon	Towngate	1,437	0.27	1	1	2U	Major Collector	D2	135	120	100%	525	525	143	143	37	33	106	110		
Barnes	Edgewood Dr	Forest Ln	1,854	0.35	1	1	2U	Minor Collector	F	135	120	100%	525	525	184	184	47	42	137	142		
Barnes	W Walnut St	Edgewood Dr	935	0.18	1	1	2U	Minor Collector	F	135	120	100%	525	525	93	93	24	21	69	72		
N. Fifth Street	Austin St	W State St	367	0.07	2	1	2U	Minor Collector	E	120	135	100%	525	525	73	36	8	9	65	27		
N. Fifth Street	W. Walnut	Austin St	783	0.15	1	2	3U	Minor Collector	E	120	135	100%	575	575	85	171	18	20	67	151		
N. Fifth Street	Travis	W. Walnut	2,660	0.50	2	2	4U	Minor Collector	E	37	40	100%	525	525	529	529	19	20	510	509		
N. Fifth Street	W State St	Main	248	0.05	2	2	4U	Minor Collector	E	120	135	100%	525	525	49	49	6	6	44	43		
N. First Street	Buckingham Rd	Travis St	2,562	0.49	3	3	6D	Regional Arterial	B	940	901	50%	925	925	673	673	228	219	445	455		
N. First Street	W. Walnut	W State St	1,339	0.25	3	3	6D	Regional Arterial	B	1,254	1,211	50%	925	925	352	352	159	154	193	198		
N. First Street	Travis St	Castle Dr	598	0.11	3	3	6D	Regional Arterial	B	940	901	100%	925	925	314	314	106	102	208	212		
N. First Street	Castle Dr	Walnut St	1,864	0.35	3	3	6D	Regional Arterial	B	1,108	957	50%	925	925	490	490	196	169	294	321		
N. First Street	W. State St	Main St	462	0.09	3	3	6D	Regional Arterial	B	1,254	1,211	50%	925	925	121	121	55	53	67	68		
N. Garland Ave	Travis St	Walnut St	3,005	0.57	3	3	6D	Regional Arterial	B	927	1,019	100%	925	925	1,579	1,579	528	580	1,052	999		
N. Garland Ave	Buckingham Rd	Travis St	2,396	0.45	3	3	6D	Regional Arterial	B	927	1,019	100%	925	925	1,259	1,259	421	462	839	797		
N. Garland Ave	Walnut St	Austin St	844	0.16	3	3	6D	Regional Arterial	B	1,257	1,297	100%	925	925	444	444	201	207	243	236		
N. Garland Ave	Main St	Austin St	419	0.08	3	3	6D	Regional Arterial	B	1,257	1,297	100%	925	925	220	220	100	103	120	117		
N. Glenbrook Dr	W Walnut St	Austin St	649	0.12	1	1	3U	Major Collector	D3	298	267	100%	575	575	71	71	37	33	34	38		
N. Glenbrook Dr	Austin St	Main St	618	0.12	1	1	3U	Major Collector	D3	298	267	100%	575	575	67	67	35	31	32	36		
N. Glenbrook Dr	Travis St	W Walnut St	2,883	0.55	2	2	4D	Major Collector	D1	514	488	100%	900	900	983	983	281	266	702	716		
N. Glenbrook Dr	Buckingham Rd	Travis St	2,519	0.48	2	2	4D	Major Collector	D1	514	488	100%	900	900	859	859	245	233	614	626		
International Rd	Forest Ln	Marquis	3,074	0.58	1	1	4U	Minor Collector	E	85	77	100%	525	525	306	306	49	45	256	261		
International Rd	W. Walnut	Edgewood Dr	1,095	0.21	1	1	4U	Minor Collector	E	112	110	100%	525	525	109	109	23	23	86	86		
International Rd	Edgewood Dr	Forest Ln	1,697	0.32	2	2	4U	Minor Collector	E	112	110	100%	525	525	337	337	36	35	301	302		
Jupiter Rd	Western Dr	Walnut St	2,277	0.43	3																	

Service Area B Continued

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	FUTURE LANES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR VEH-MI ³		EXISTING DEFICIENCIES PK-HR VEH-MI ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB		
National	Wood	Kingsley	2,864	0.54	1	1	2U	Minor Collector	E	135	120	100%	525	525	285	285	73	65	212	220		
Northwest Highway	Marketplace Dr	Saturn Rd	1,606	0.30	3	3	6D	Regional Arterial	B	1,341	1,031	100%	925	925	844	844	408	314	436	530		
Northwest Highway	Pendleton Dr	Marketplace Dr	540	0.10	3	3	6D	Regional Arterial	B	1,471	1,644	100%	925	925	284	284	150	168	133	116		
Northwest Highway	Towngate Blvd	Pendleton Dr	808	0.15	3	3	6D	Minor Collector	E	1,471	1,644	100%	925	925	425	425	225	252	200	173		
Northwest Highway	LBJ E road	Towngate Blvd	728	0.14	3	3	6D	Minor Collector	E	1,471	1,644	100%	925	925	383	383	203	227	180	156		
Northwest Highway	City Limits	LBJ E Road	1,646	0.31	3	3	6D	Minor Collector	E	1,415	1,415	100%	925	925	865	865	441	441	424	424		
Patricia	W end of Oakland St	S Shiloh Rd	2,671	0.51	1	1	2U	Minor Collector	F	135	120	100%	525	525	266	266	68	61	197	205		
	Miller	Garland	5,201	0.99	1	1	2U	Minor Collector	F	135	120	100%	525	525	517	517	133	118	384	399		
Pendleton Drive	Northwest Fwy	Center	671	0.13	1	1	2U	Major Collector	D2	135	120	100%	525	525	67	67	17	15	50	51		
N. Fifth Street	Avenue D	W. Miller	5,312	1.01	1	1	2U	Minor Collector	E	199	189	100%	525	525	528	528	200	190	328	338		
S. Fifth Street	W Daugherty Dr	W Kingsley Rd	4,343	0.82	1	1	2U	Minor Collector	F	135	120	100%	525	525	432	432	111	99	321	333		
S. Fifth Street	W. Miller	Daugherty Dr	1,505	0.29	1	1	2U	Minor Collector	F	135	120	100%	525	525	150	150	38	34	111	115		
N. Fifth Street	Main	Avenue B	722	0.14	2	2	4U	Minor Collector	E	120	135	100%	525	525	144	144	16	18	127	125		
N. Fifth Street	Avenue B	Avenue D	758	0.14	2	2	4U	Minor Collector	E	120	135	100%	525	525	151	151	17	19	134	131		
S. First Street	Broadway	Kingsley Rd	3,154	0.60	2	2	4U	Major Collector	D3	980	1,080	50%	900	900	538	538	293	323	245	215		
S. First Street	E Avenue D	E Miller Rd	5,311	1.01	3	3	6D	Regional Arterial	B	2,182	2,058	50%	925	925	1,396	1,396	1,097	1,035	298	261		
S. First Street	Main St	W Avenue B	465	0.09	3	3	6D	Regional Arterial	B	2,111	2,128	50%	925	925	122	122	93	94	29	28		
S. First Street	W Avenue B	E Avenue D	694	0.13	3	3	6D	Regional Arterial	B	1,415	1,415	50%	925	925	182	182	93	93	89	89		
N. Garland Ave	W Avenue B	W Avenue D	721	0.14	2	2	5U	Regional Arterial	B	904	1,432	100%	850	850	232	232	123	196	109	37		
N. Garland Ave	Main	W Avenue B	654	0.12	2	2	5U	Regional Arterial	B	945	1,030	100%	850	850	211	211	117	128	94	83		
S. Garland Ave	Shiloh Rd	IH 635	2,453	0.46	3	3	6D	Regional Arterial	B	1,104	790	100%	925	925	1,289	1,289	513	367	776	922		
S. Garland Ave	W Avenue F	W Miller Rd	4,558	0.86	3	3	6D	Regional Arterial	B	1,257	1,344	100%	925	925	2,396	2,396	1,085	1,160	1,310	1,235		
S. Garland Ave	W Miller Rd	Patricia Ln	5,388	1.02	3	3	6D	Regional Arterial	B	1,315	1,370	100%	925	925	2,832	2,832	1,342	1,398	1,490	1,434		
S. Garland Ave	Patricia Ln	W Kingsley Rd	1,222	0.23	3	3	6D	Regional Arterial	B	1,315	1,370	100%	925	925	642	642	304	317	338	325		
S. Garland Ave	W Kingsley Rd	Leon Rd	1,531	0.29	3	3	6D	Regional Arterial	B	1,177	1,439	100%	925	925	805	805	341	417	463	387		
S. Garland Ave	Leon Rd	Shiloh Rd	1,586	0.30	3	3	6D	Regional Arterial	B	1,177	1,439	100%	925	925	834	834	354	432	480	401		
S. Garland Ave	Shiloh Rd	W Avenue F	787	0.15	3	3	6U	Regional Arterial	B	1,257	1,344	100%	925	925	414	414	187	200	226	213		
S. Glenbrook Dr	Pt on S Glenbrook Dr	Pt on S Glenbrook Dr	1,218	0.23	1	1	2D	Major Collector	D3	212	217	100%	575	575	133	133	49	50	84	83		
S. Glenbrook Dr	W. Miller	Briarwood Dr	2,766	0.52	1	1	2U	Minor Collector	F	154	90	100%	525	525	275	275	81	47	194	228		
S. Glenbrook Dr	Briarwood Dr	W Kingsley Rd	3,816	0.72	1	1	2U	Minor Collector	F	154	90	100%	525	525	379	379	111	65	268	314		
S. Glenbrook Dr	Avenue B	Avenue D	687	0.13	1	1	3U	Major Collector	D3	301	303	100%	575	575	75	75	39	39	36	35		
S. Glenbrook Dr	Avenue D	Pt on S Glenbrook Dr	3,529	0.67	1	1	3U	Major Collector	D3	212	217	100%	575	575	384	384	142	145	243	239		
S. Glenbrook Dr	Main	Avenue B	675	0.13	1	1	3U	Major Collector	D3	301	303	100%	575	575	74	74	38	39	35	35		
S. Glenbrook Dr	Pt on S Glenbrook Dr	W. Miller	1,066	0.20	1	1	3U	Major Collector	D3	212	217	100%	575	575	116	116	43	44	73	72		
Jupiter Rd	Wood Dr	W Kingsley Rd	2,887	0.55	3	3	6D	Regional Arterial	B	1,609	1,527	50%	925	925	759	759	440	417	319	341		
Jupiter Rd	Edgewood Dr	Forest Ln	1,765	0.33	3	3	6D	Regional Arterial	B	1,491	1,502	100%	925	925	928	928	498	502	429	426		
Jupiter Rd	Forest Ln	Marquis Dr	2,724	0.52	3	3	6D	Regional Arterial	B	1,411	1,326	100%	925	925	1,432	1,432	728	684	704	748		
Jupiter Rd	Marquis Dr	W Miller Rd	2,633	0.50	3	3	6D	Regional Arterial	B	1,556	1,607	100%	925	925	1,384	1,384	776	801	608	582		
Jupiter Rd	W Miller Rd	Wood Dr	2,814	0.53	3	3	6D	Regional Arterial	B	1,515	1,412	100%	925	925	1,479	1,479	807	753	672	726		
Jupiter Rd	W Kingsley Rd	IH 635	1,941	0.37	3	3	6D	Regional Arterial	B	1,740	1,657	100%	925	925	1,020	1,020	640	609	380	411		
S. Shiloh Rd	McCree Rd	IH 635	2,811	0.53	2	2	4D	Regional Arterial	B	986	881	100%	900	900	958	958	525	469	433	489		
S. Shiloh Rd	Forest Ln	Marquis Dr	2,893	0.55	2	2	4D	Regional Arterial	B	1,184	1,056	100%	900	900	986	986	649	579	338	408		
S. Shiloh Rd	Marquis Dr	W Miller Rd	2,423	0.46	2	2	4D	Regional Arterial	B	1,138	1,062	100%	900	900	826	826	522	487	304	339		
S. Shiloh Rd	W Miller Rd	Wood Dr	2,782	0.53	2	2	4D	Regional Arterial	B	1,033	936	100%	900	900	948	948	544	493	404	455		
S. Shiloh Rd	Wood Dr	W Kingsley Rd	2,875	0.54	2	2	4D	Regional Arterial	B	971	898	100%	900	900	980	980	529	489	451	491		
S. Shiloh Rd	W Kingsley Rd	Oakland St	1,021	0.19	2	2	4D	Regional Arterial	B	865	816	100%	900	900	348	348	167	158	181	190		
S. Shiloh Rd	Oakland St	McCree Rd	1,638	0.31	2	2	4D	Regional Arterial	B	865	816	100%	900	900	558	558	268	253	290	305		
Sam Houston/Meadowcrest	Buckingham Rd	Travis St	2,030	0.38	1	1	2U	Minor Collector	F	110	116	100%	525	525	202	202	42	45	160	157		
Sam Houston/Meadowcrest	Travis St	Meadowcrest Dr	873	0.17	1	1	2U	Minor Collector	F	135	120	100%	525	525	87	87	22	20	64	67		
Saturn Rd	S of Miller Rd	W. Kingsley	4,444	0.84	1	1	3U	Major Collector	D2	467	423	100%	575	575	484	484	393	356	91	128		
Sherwin	Miller	Sherwin (Future)	2,163	0.41	1	1	2U	Minor Collector	E	135	120	100%	525	525	215	215	55	49	160	166		
Towngate	Northwest Hwy	Millay	739	0.14	2	2	4D	Minor Collector	E	995	935	100%	900	900	252	252	139	131	113	121		
Travis	Sam Houston	Garland Ave	2,892	0.55	1	1	2U	Minor Collector	F	135	120	100%	525	525	288	288	74	66	214	222		
Travis	Garland Ave	Sylvan Dr	1,500	0.28	1	1	2U	Minor Collector	F	135	120	100%	525	525	149	149	38	34	111	115		
Travis	Sylvan Dr	N Glenbrook Dr	1,181	0.22	1	1	2U	Minor Collector	F	135	120	100%	525	525	117	117	30	27	87	91		
Travis	N Glenbrook Dr	Fifth St	1,049	0.20	1	1	2U	Minor Collector	F	135	120	100%	525	525	104	104	27	24	77	80		
Travis	Fifth St	First St	1,664	0.32	1	1	2U	Minor Collector	F	135	120	100%	525	525	165	165	43	38	123	128		
W. Avenue B	Forest	S. Garland	2,875	0.54	3	0	6D	Urban One-way Couplet	A													

Service Area B Continued

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	FUTURE LANES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR VEH-MI ³		EXISTING DEFICIENCIES PK-HR VEH-MI ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
W. Miller Rd	West City Limits	S. Jupiter	3,358	0.64	3	3	6D	Regional Arterial	B	1,075	1,158	100%	925	925	1,765	1,765	684	736	1,081	1,028		
W. Miller Rd	S. Jupiter	430' E of S Jupiter Rd	624	0.12	3	3	6D	Regional Arterial	B	906	900	100%	925	925	328	328	107	106	221	222		
State	Forest	Garland	3,618	0.69	1	1	2U	Minor Collector	E	190	190	100%	525	525	360	360	130	130	230	230		
State	Fifth St	First St	1,801	0.34	1	1	2U	Minor Collector	F	135	135	120%	525	525	215	215	55	55	160	160		
State	Garland	Glenbrook Dr	2,588	0.49	1	1	2U	Minor Collector	F	135	120	100%	525	525	257	257	66	59	191	199		
State	Glenbrook Dr	Fifth St	1,113	0.21	1	1	2U	Minor Collector	F	135	120	120%	525	525	133	133	34	30	99	102		
W. Walnut St	West City Limits	Plano Rd	1,641	0.31	2	2	4D	Regional Arterial	B	1,104	902	100%	900	900	559	559	343	280	216	279		
W. Walnut St	Fifth St	First St	1,677	0.32	2	2	4D	Major Collector	D1	707	712	100%	900	900	572	572	225	226	347	346		
W. Walnut St	Plano Rd	Purdue Dr	1,362	0.26	2	2	4D	Major Collector	D2	961	994	100%	900	900	464	464	248	256	216	208		
W. Walnut St	Forest Crest Dr	Jupiter Rd	1,505	0.29	2	2	4D	Major Collector	D2	1,056	1,022	100%	900	900	513	513	301	291	212	222		
W. Walnut St	Jupiter Rd	Barnes Dr	1,339	0.25	2	2	4D	Major Collector	D2	844	878	100%	900	900	456	456	214	223	242	234		
W. Walnut St	435' west of Shiloh Rd	Shiloh Rd	529	0.10	2	2	4D	Major Collector	D2	844	878	100%	900	900	180	180	85	88	96	92		
W. Walnut St	Shiloh Rd	Muriel Dr	1,662	0.31	2	2	4D	Major Collector	D2	1,003	999	100%	900	900	567	567	316	314	251	252		
W. Walnut St	Rita Dr	Brookside Dr	819	0.16	2	2	4D	Major Collector	D2	1,003	999	100%	900	900	279	279	156	155	124	124		
W. Walnut St	550' west of Garland Ave	N. Garland Ave	687	0.13	2	2	4D	Major Collector	D2	1,003	999	100%	900	900	234	234	131	130	104	104		
W. Walnut St	N. Garland Ave	Glenbrook Dr	2,508	0.48	2	2	4D	Major Collector	D1	790	775	100%	900	900	855	855	375	368	480	487		
W. Walnut St	Glenbrook Dr	Fifth St	1,167	0.22	2	2	4D	Major Collector	D1	995	935	100%	900	900	398	398	220	207	178	191		
W. Walnut St	Brookside Dr	550' west of Garland Ave	835	0.16	2	2	5U	Major Collector	D2	1,003	999	100%	850	850	269	269	159	158	110	111		
W. Walnut St	Purdue Dr	Yale Dr	993	0.19	2	2	5U	Major Collector	D2	961	994	100%	850	850	320	320	181	187	139	133		
W. Walnut St	Yale Dr	Forest Crest Dr	1,474	0.28	2	2	5U	Major Collector	D2	1,056	1,022	100%	850	850	475	475	295	285	180	189		
W. Walnut St	Barnes Dr	International Rd	2,244	0.43	2	2	5U	Major Collector	D2	844	878	100%	850	850	723	723	359	373	364	349		
W. Walnut St	International Rd	435' west of Shiloh Rd	1,350	0.26	2	2	5U	Major Collector	D2	844	878	100%	850	850	435	435	216	224	219	210		
W. Walnut St	Muriel Dr	Rita Dr	1,263	0.24	2	2	5U	Major Collector	D2	1,003	999	100%	850	850	407	407	240	239	167	168		
Western	Jupiter	Maydelle Ln	2,958	0.56	1	1	2U	Minor Collector	F	135	120	100%	525	525	294	294	76	67	218	227		
Western	Maydelle Ln	Goodwin Dr	593	0.11	1	1	2U	Minor Collector	F	135	120	100%	525	525	59	59	15	13	44	45		
Western	Goodwin Dr	Shiloh	1,894	0.36	1	1	2U	Minor Collector	F	135	120	100%	525	525	188	188	48	43	140	145		
Wood	Jupiter	Lonnecker Dr	2,924	0.55	1	1	2U	Minor Collector	F	135	120	100%	525	525	291	291	75	66	216	224		
Wood	Lonnecker Dr	160' W of Market St	1,413	0.27	1	1	2U	Minor Collector	F	135	120	100%	525	525	140	140	36	32	104	108		
Wood	160' W of Market St	Shiloh	1,043	0.20	1	1	2U	Minor Collector	F	135	120	100%	525	525	104	104	27	24	77	80		
SUBTOTAL			355,531	69.42											94,743	94,928	45,329	44,104	49,415	50,824	2,449	2,309
															189,672		89,433		100,239		4,758	

City of Garland - 2016 Roadway Impact Fee Update
Existing Roadway Facilities Inventory

Service Area C

9/14/2016

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LINES		EXIST LINES	CLASS	FUTURE LINES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR VEH-MI ³		EXISTING DEFICIENCIES PK-HR VEH-MI ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Castle Dr	Lavon Dr	Mars	1,994	0.38	1	1	2U	Major Collector	D1	275	285	100%	525	525	198	198	104	104	94	90		
Castle Dr	Toyah Creek Ln	Centerville	2,871	0.54	1	1	2U	Minor Collector	E	255	252	100%	525	525	285	285	139	137	147	148		
Castle Dr	Firewheel Pkwy	Miles	4,434	0.84	1	1	2U	Minor Collector	E	220	198	50%	525	525	220	220	92	83	128	137		
Castle Dr	Dexham Rd	Firewheel Pkwy	2,658	0.50	1	1	2U	Minor Collector	E	100	106	50%	525	525	132	132	25	27	107	105		
Castle Dr	N. First	Lavon Dr	793	0.15	1	1	2U	Major Collector	D1	114	123	100%	525	525	79	79	17	18	62	60		
Castle Dr	Mars	Country Club Rd	2,424	0.46	1	1	2U	Minor Collector	E	197	181	100%	525	525	241	241	90	83	151	158		
Castle Dr	Country Club Rd	Toyah Creek Ln	2,669	0.51	1	1	2U	Minor Collector	E	252	258	100%	525	525	265	265	127	130	138	135		
Commerce St	SH 66	Hebron	667	0.13	1	2	3U	Minor Arterial	C1	255	252	100%	575	575	73	145	32	32	40	113		
Crist Rd	Mars Dr	Naaman School Rd	1,770	0.34	1	1	2U	Major Collector	D2	239	261	100%	525	525	176	176	80	87	96	89		
Crist Rd	Lavon Dr	Mars Dr	1,493	0.28	1	1	2U	Major Collector	D2	239	261	100%	525	525	148	148	68	74	81	75		
Crist Rd	PGBT S frontage road	PGBT N frontage road	269	0.05	2	2	4D	Major Collector	D2	710	740	100%	900	900	92	92	36	38	56	54		
Crist Rd	Naaman School	PGBT S frontage rd	1,425	0.27	2	2	5U	Major Collector	D2	257	335	100%	850	850	459	459	69	91	389	368		
Crosslands	Mars	Firewheel	2,427	0.46	1	1	2U	Minor Collector	F	190	195	100%	525	525	241	241	87	90	154	152		
Dairy Rd	SH 66	E. Miller	5,043	0.96	2	2	4U	Minor Collector	E	544	468	100%	525	525	1,003	520	447	483	556			
E. Avenue B	S. First St	Merge with Ave D	2,645	0.50	4	0	4D	Urban One-way Couplet	A-C	0	1,416	100%	900	900	1,803	0	0	709	1,803	-709		709
E. Avenue D	S. First St	Merge with Ave B	2,483	0.47	0	4	4D	Urban One-way Couplet	A-C	1,352	0	100%	900	900	0	1,693	636	0	-636	1,693	636	
E. Buckingham Rd	Mars Dr	Pleasant Valley	1,926	0.36	2	2	4D	Regional Arterial	B	932	1,006	100%	900	900	657	657	340	367	317	290		
E. Buckingham Rd	Lavon Dr	Mars Dr	1,659	0.31	2	2	4D	Regional Arterial	B	932	1,006	100%	900	900	566	566	293	316	273	249		
E. Centerville Rd	Hwy 66	High Meadow Dr	4,205	0.80	3	3	6D	Regional Arterial	B	1,225	1,202	100%	925	925	2,210	2,210	976	957	1,234	1,253		
E. Centerville Rd	Firewheel Pkwy	Castle Dr	4,529	0.86	3	3	6D	Regional Arterial	B	723	666	100%	925	925	2,380	2,380	620	571	1,760	1,809		
E. Centerville Rd	Castle Dr	Hwy 66	3,687	0.70	3	3	6D	Regional Arterial	B	892	838	100%	925	925	1,938	1,938	623	585	1,315	1,353		
E. Centerville Rd	High Meadow Dr	E Miller Rd	1,933	0.37	3	3	6D	Regional Arterial	B	1,225	1,202	100%	925	925	1,016	1,016	448	440	567	576		
E. Walnut St	N. First	Walnut Cir E	408	0.08	2	2	4D	Minor Collector	E	710	740	100%	900	900	139	139	55	57	84	82		
E. Walnut St	Mars Dr	N. Country Club	2,419	0.46	2	2	4U	Minor Collector	E	512	486	100%	525	525	481	481	235	223	246	258		
E. Walnut St	Walnut Cir E	Lavon Dr	340	0.06	2	2	4U	Minor Collector	E	510	500	100%	525	525	68	68	33	32	35	35		
E. Walnut St	Lavon Dr	Mars Dr	2,292	0.43	2	2	4U	Minor Collector	E	487	547	100%	525	525	456	456	203	237	253	218		
Firewheel Parkway	Lavon Dr	S of Town Center Blvd	4,583	0.87	2	2	4U	Regional Arterial	A	710	740	100%	900	900	1,562	1,562	616	642	946	920		
Firewheel Parkway	E Centerville Rd	Castle Dr	3,697	0.70	3	3	6D	Regional Arterial	A	1,108	1,073	100%	925	925	1,943	1,943	776	751	1,167	1,192		
Firewheel Parkway	PGBT N frontage road	PGBT S frontage road	451	0.09	3	3	6D	Regional Arterial	A	1,250	1,295	100%	925	925	237	237	107	111	130	126		
Firewheel Parkway	PGBT S frontage road	Mars Dr	1,136	0.22	3	3	6D	Regional Arterial	A	1,167	1,133	100%	925	925	597	597	251	244	346	353		
Firewheel Parkway	Mars Dr	Crosslands Dr	1,264	0.24	3	3	6D	Regional Arterial	A	1,028	1,286	100%	925	925	664	664	246	308	418	356		
Firewheel Parkway	Crosslands Dr	Pleasant Valley Rd	1,553	0.29	3	3	6D	Regional Arterial	A	1,028	1,286	100%	925	925	816	816	302	378	514	438		
Firewheel Parkway	Pleasant Valley Rd	E Centerville Rd	2,834	0.54	3	3	6D	Regional Arterial	A	1,450	1,423	100%	925	925	1,489	1,489	778	764	711	726		
Firewheel Parkway	S of Town Center Blvd	PGBT N frontage road	527	0.10	3	3	6D	Regional Arterial	A	513	616	100%	925	925	277	277	51	61	226	215		
Foster	SH 78	Crist	1,231	0.23	1	1	2U	Minor Collector	F	190	195	100%	525	525	122	122	44	45	78	77		
Garvon St	State St	Avenue A	419	0.08	1	1	2U	Minor Collector	E	190	195	100%	525	525	42	42	15	15	27	26		
State Highway 78 (Lavon)	Castle Dr	E Walnut St	2,016	0.38	3	3	6D	Regional Arterial	A	1,347	1,584	100%	925	925	1,060	1,060	514	605	545	455		
State Highway 78 (Lavon)	E Buckingham Rd	Pleasant Valley Rd	1,100	0.21	3	3	6D	Regional Arterial	A	1,563	1,609	100%	925	925	578	578	326	335	253	243		
State Highway 78 (Lavon)	Pleasant Valley Rd	Castle Dr	2,225	0.42	3	3	6D	Regional Arterial	A	1,563	1,609	100%	925	925	1,169	1,169	659	678	511	491		
State Highway 78 (Lavon)	E Walnut St	W. State St	1,388	0.26	3	3	6D	Regional Arterial	A	1,473	1,463	100%	925	925	729	729	387	385	342	345		
State Highway 78 (Lavon)	W. State St	First St	588	0.11	3	3	6D	Regional Arterial	A	1,473	1,463	100%	925	925	309	309	164	163	145	146		
Mars Dr	Crist	Naaman School	1,801	0.34	1	1	2U	Minor Collector	F	190	195	100%	525	525	179	179	65	67	114	113		
Mars Dr	Firewheel Pkwy	Valley Creek	1,349	0.26	1	1	2U	Minor Collector	E	190	195	100%	525	525	134	134	49	50	86	84		
Mars Dr	Naaman School	Firewheel Pkwy	1,958	0.37	1	1	4U	Minor Collector	E	510	500	100%	525	525	195	195	189	185	6	9		
Meandering	Pyramid	Pleasant Valley	1,344	0.25	1	1	2U	Minor Collector	F	190	195	100%	525	525	134	134	48	50	85	84		
Miles Rd	Pleasant Valley	Castle	6,406	1.21	1	1	2U	Minor Collector	F	24	24	50%	525	525	318	318	15	15	304	304		
N. Country Club Rd	Castle Dr	E Walnut St	2,788	0.53	2	2	4D	Minor Arterial	C1	659	669	100%	900	900	950	950	348	353	602	597		
N. Country Club Rd	Pleasant Valley Rd	Castle Dr	2,854	0.54	2	2	4D	Minor Arterial	C1	655	655	100%	900	900	973	973	354	354	619	619		
N. Country Club Rd	Walnut	S.H. 66	1,501	0.28	2	2	4D	Minor Arterial	C1	836	911	100%	900	900	512	512	238	259	274	253		
Naaman School Rd	Mars Dr	Pleasant Valley Rd	3,283	0.62	2	2	4D	Major Collector	D1	367	374	100%	900	900	1,119	1,119	228	233	891	887		
Naaman School Rd	Crist Rd	Mars Dr	1,333	0.25	2	2	4D	Major Collector	D1	710	740	100%	900	900	454	454	179	187	275	268		
Naaman School Rd	Lavon Dr	Crist Rd	1,376	0.26	2	2	5U	Major Collector	D2	255	335	100%	850	850	443	443	66	87	377	356		
Pleasant Valley Rd	Mars Dr	Country Club Rd	2,493	0.47	1	1	2U	Minor Collector	F	190	195	100%	525	525	248	248	90	92	158	156		
Pleasant Valley Rd	Lavon Dr	Mars Dr	1,550	0.29	1	1	2U	Minor Collector	F	190	195	100%	525	525	154	154	56	57	98	97		
Pleasant Valley Rd	City Limits	Creek Meadow Ln	2,614	0.50	1	1	2U-R	Minor Arterial	C1	384	412	100%	150	150	74	74	190	204	-116	-130	116	130
Pleasant Valley Rd	Creek Meadow Ln	Firewheel Pkwy	3,076	0.58	2	2	4D	Minor Arterial	C1	384	412	100%	900	900	1,049	1,049	224	240	825	809		
Pleasant Valley Rd	Naaman School Rd	Pyramid Dr	2,338	0.44	2	2	4D	Minor Arterial	C1	710	740	100%	900	900	797	797	314	328	483	469		
Pleasant Valley Rd	Firewheel Pkwy	Naaman School Rd	1,374	0.26	2	2	4D	Minor Arterial	C1	760	764	100%	900	900	468	468	198	199	271	270		
Pleasant Valley Rd	Pyramid Dr	Buckingham Rd	843	0.16	2	2	4D	Minor Arterial	C1	710	740	100%	900	900	287	287	113	118	174	169		
Pyramid	SH 78	Meandering	3,004	0.57	1	1	2U	Minor Collector	F	190	195	100%	525	525	299	299	108	111	191	188		
S. Country Club Rd	Mill Crossing	E. Miller	5,684	1.08	2	2	4D	Minor Arterial	C1	236	178	100%	900	900	1,938	1,938	254	192	1,684	1,746		
State Highway 66	S. Country Club	Centerville Rd	4,034	0.76	3	3	6D	Regional Arterial	A	1,458	1,475	100%	925	925	2,120	2,120	1,114	1,127	1,006	993		
State Highway 66	Avenue B	Dairy Rd	552	0.10	3	3	6D	Regional Arterial	A	1,345	1,348	100%	925	925	290	290	141	141	150	149		
State Highway 66	Dairy Rd	Davidson Dr	885	0.17	3	3	6D	Regional Arterial	A	1,296	1,375	100%	925	925	465	465	217	230	248	235		
State Highway 66	Hebron Dr	Commerce St	576	0.11	3	3	6D	Regional Arterial	A	1,296	1,375	100%	925	925	303	303	141	150	161	153		

City of Garland - 2016 Roadway Impact Fee Update
Existing Roadway Facilities Inventory

Service Area D

9/14/2016

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	FUTURE LANES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR VEH-MI ³		EXISTING DEFICIENCIES PK-HR VEH-MI ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB		
Bardfield	Saturn	Centerville	4,840	0.92	1	1	2U	Minor Collector	F	66	66	100%	525	525	481	61	61	421	421			
Bass Pro	Zion	Chaha	698	0.13	1	1	2U	Minor Collector	F	26	30	100%	525	525	69	3	4	66	65			
Bass Pro	Zion	Chaha	363	0.07	1	1	2U	Minor Collector	F	465	188	100%	525	525	36	36	32	13	4	23		
Birchwood	Northwest Fwy	O'Banion	3,679	0.70	1	1	2U	Minor Collector	F	195	165	100%	525	525	366	366	136	115	230	251		
Birchwood	Broadmoor Dr	Northwest Fwy	1,102	0.21	1	1	2U-R	Minor Collector	F	50	50	100%	150	150	31	31	10	10	21	21		
Bobtown Rd	Rosehill Rd	Waterhouse Blvd	1,778	0.34	1	1	2U	Minor Collector	E-S	199	168	100%	525	525	177	177	67	57	110	120		
Bobtown Rd	Lyons	South City Limits	2,657	0.50	1	1	2U	Minor Collector	E	274	267	100%	525	525	264	264	138	134	126	130		
Bobtown Rd	E of Rosehill Rd	Rosehill Rd	780	0.15	1	1	2U	Minor Collector	E-S	165	130	100%	525	525	78	78	24	19	53	58		
Bobtown Rd	400' S of High Dr	Lyons Rd	1,996	0.38	1	1	3U	Minor Collector	E	274	267	100%	575	575	217	217	104	101	114	116		
Bobtown Rd	Lyons Rd	Zion Rd	1,792	0.34	1	1	3U	Minor Collector	E	274	267	100%	575	575	195	195	93	91	102	105		
Bobtown Rd	Zion Rd	400' S of High Dr	1,460	0.28	1	1	3U	Minor Collector	E	274	267	100%	575	575	159	159	76	74	83	85		
Bobtown Rd	Waterhouse Blvd	Roan	2,915	0.56	2	2	4U	Minor Collector	E-S	199	168	100%	525	525	381	381	72	61	309	320		
Bobtown Rd	Roan	Lyons	600	0.11	2	2	6D	Regional Arterial	B	330	309	100%	925	925	210	210	38	35	173	175		
Bobtown Rd	Roan	Lyons	431	0.08	2	2	6D	Regional Arterial	B	741	766	100%	925	925	151	151	60	63	91	88		
Bobtown Rd	IH 30 S frontage road	IH 30 S frontage rd	218	0.04	3	3	6D	Regional Arterial	B	330	309	100%	925	925	115	115	14	13	101	102		
Broadmoor Dr	Birchwood Dr	La Prada	3,693	0.70	1	1	2U	Minor Collector	F	156	128	100%	525	525	367	367	109	90	258	278		
Broadmoor Dr	Delray Dr	Birchwood Dr	1,261	0.24	1	1	2U	Minor Collector	F	156	128	100%	525	525	125	125	37	31	88	95		
Broadmoor Dr	W. Centerville	N of Chevy Chase Dr	575	0.11	1	1	3U	Minor Collector	E	156	128	100%	575	575	63	63	17	14	46	49		
Broadmoor Dr	N of Chevy Chase Dr	Delray Dr	742	0.14	1	1	3U	Minor Collector	F	156	128	100%	575	575	81	81	22	18	59	63		
Broadway Blvd	Gateway Rd	E Oates Rd	1,532	0.29	3	3	6D	Regional Arterial	B	1,441	1,539	100%	925	925	805	805	418	447	387	359		
Broadway Blvd	Duck Creek/Rowlett Rd	IH 30 N frontage Rd	2,075	0.39	3	3	6D	Regional Arterial	B	2,033	1,979	100%	925	925	1,091	1,091	799	778	292	313		
Broadway Blvd	Guthrie Rd	South City Limits	1,489	0.28	3	3	6D	Regional Arterial	B	1,156	1,163	100%	925	925	783	783	326	328	457	455		
Broadway Blvd	S. First	Dairy Rd	3,510	0.66	3	3	6D	Regional Arterial	B	1,125	1,092	100%	925	925	1,845	1,845	748	726	1,097	1,119		
Broadway Blvd	E Oates Rd	Tacoma Dr	2,661	0.50	3	3	6D	Regional Arterial	B	1,500	1,606	100%	925	925	1,399	1,399	756	809	643	589		
Broadway Blvd	Dairy Rd	Centerville Rd	722	0.14	3	3	6D	Regional Arterial	B	1,125	1,092	100%	925	925	379	379	154	149	226	230		
Broadway Blvd	Centerville Rd	Kingsley Rd	1,430	0.27	3	3	6D	Regional Arterial	B	1,694	1,720	100%	925	925	746	746	456	463	291	284		
Broadway Blvd	Kingsley Rd	Colonel Dr	1,114	0.21	3	3	6D	Regional Arterial	B	1,694	1,720	100%	925	925	585	585	357	363	228	223		
Broadway Blvd	Colonel Dr	Nickens Rd	2,506	0.47	3	3	6D	Regional Arterial	B	1,624	1,658	100%	925	925	1,317	1,317	771	787	546	530		
Broadway Blvd	Nickens Rd	Wynn Joyce Rd	2,005	0.38	3	3	6D	Regional Arterial	B	1,535	1,579	100%	925	925	1,054	1,054	583	600	471	454		
Broadway Blvd	Wynn Joyce Rd	Gateway Rd	1,405	0.27	3	3	6D	Regional Arterial	B	1,441	1,539	100%	925	925	738	738	383	410	355	329		
Broadway Blvd	Tacoma Dr	Rowlett Rd	1,942	0.37	3	3	6D	Regional Arterial	B	1,500	1,606	100%	925	925	1,021	1,021	552	591	469	430		
Broadway Blvd	IH 30 N frontage road	IH 30 S frontage rd	363	0.07	3	3	6D	Regional Arterial	B	1,430	1,445	100%	925	925	191	191	98	99	92	91		
Broadway Blvd	IH 30 S frontage road	Guthrie Rd	1,007	0.19	3	3	6D	Regional Arterial	B	1,562	1,496	100%	925	925	529	529	298	285	231	244		
Chaha Rd	Bass Pro	Lake Hubbard Pkwy	1,794	0.34	1	1	2U	Minor Collector	F	160	138	100%	525	525	178	178	54	47	124	131		
Colonel Dr	Broadway	S. Country Club	4,204	0.80	1	1	2U	Minor Collector	F	116	128	100%	525	525	418	418	92	102	326	316		
Colonel Dr	Duck Creek	Broadway	4,250	0.80	2	2	4D	Major Collector	D1	182	183	100%	900	900	1,449	1,449	146	147	1,302	1,302		
Dairy Rd	Celeste Dr	Broadway	2,611	0.49	1	1	3U	Minor Collector	E	284	286	100%	575	575	284	284	140	141	144	143		
Dairy Rd	E. Miller	Daugherty Dr	1,636	0.31	1	1	4U	Minor Collector	E	284	286	100%	525	525	163	163	88	89	75	74		
Dairy Rd	Daugherty Dr	Celeste Dr	933	0.18	1	1	4U	Minor Collector	E	284	286	100%	525	525	93	93	50	51	43	42		
Duck Creek Rd	E Oates Rd	Broadway Blvd	5,492	1.04	2	2	4D	Minor Arterial	C1	670	617	100%	900	900	1,872	1,872	697	642	1,175	1,230		
Duck Creek Rd	Red Wood Dr	E Oates Rd	1,481	0.28	2	2	4D	Minor Arterial	C1	638	639	100%	900	900	505	505	179	179	326	326		
Duck Creek Rd	Colonel Dr	Nickens Rd	2,620	0.50	2	2	4D	Minor Arterial	C1	635	624	100%	900	900	893	893	315	310	578	584		
Duck Creek Rd	E. Centerville	Colonel Dr	2,389	0.45	2	2	4D	Minor Arterial	C1	658	695	100%	900	900	814	814	298	314	517	500		
Duck Creek Rd	La Prada Dr	Red Wood Dr	1,207	0.23	2	2	4D	Minor Arterial	C1	638	639	100%	900	900	411	411	146	146	266	265		
Duck Creek Rd	Nickens Rd	La Prada Dr	2,082	0.39	2	2	4D	Minor Arterial	C1	610	551	100%	900	900	710	710	241	217	469	493		
E. Kingsley Rd	W Centerville Rd	Broadway Blvd	2,119	0.40	2	2	4D	Major Collector	D1	585	560	100%	900	900	722	722	235	225	488	498		
E. Kingsley Rd	S. First	350' E of S First St	482	0.09	2	2	4D	Major Collector	D1	476	469	100%	900	900	164	164	43	43	121	122		
E. Kingsley Rd	Honeysuckle Dr	W Centerville Rd	1,290	0.24	2	2	4D	Major Collector	D1	476	469	100%	900	900	440	440	116	115	323	325		
E. Kingsley Rd	350' E of S First St	Honeysuckle Dr	672	0.13	2	2	5U	Major Collector	D1	476	469	100%	850	850	216	216	61	60	156	157		
E. Miller Rd	S Country Club Rd	Centerville Rd	3,506	0.66	2	2	4D	Minor Arterial	C1	435	415	50%	900	900	598	598	144	138	453	460		
E. Miller Rd	S. First	Dairy	2,680	0.51	2	2	4D	Major Collector	D1	588	559	50%	900	900	457	457	149	142	308	315		
E. Miller Rd	Centerville Rd	East City Limits	3,008	0.57	2	2	4D	Regional Arterial	B	571	551	50%	900	900	513	513	163	157	350	356		
E. Miller Rd	Dairy	S Country Club Rd	2,634	0.50	2	2	4D	Minor Arterial	C1	535	528	50%	900	900	449	449	133	132	316	317		
E. Oates Rd	Broadway	Rosehill	2,260	0.43	1	1	2U	Major Collector	D1-S	123	127	100%	525	525	225	225	53	54	172	170		
E. Oates Rd	Wynn Joyce	E. Oates (Future)	1,138	0.22	1	1	3U	Minor Collector	F	230	225	100%	575	575	124	124	50	48	74	75		
Oak Tree	Duck Creek	Broadway	3,321	0.63	2	2	4D	Minor Arterial	C1	468	362	100%	900	900	1,132	1,132	294	228	838	904		
Oak Tree/Redwood/Gateway	Duck Creek	Broadway	4,253	0.81	1	1	2U	Minor Collector	F	195	165	100%	525	525	423	423	157	133	266	290		
Gateway Dr	Broadway	Rosehill	358	0.07	1	1	3U	Minor Collector	F	230	225	100%	575	575	39	39	16	15	23	24		
Guthrie Rd	Broadway Blvd	Rosehill Rd	5,862	1.11	1	1	4U	Minor Collector	E	111	116	100%	525	525	583	583	123	129	460	454		
Guthrie Rd	Rosehill Rd	Lyons																				

Service Area D

9/14/2016

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	FUTURE LANES	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL ¹		VEH-MI DEMAND PK-HR TOTAL ²		EXCESS CAPACITY PK-HR ³		EXISTING DEFICIENCIES PK-HR ⁴	
					NB/EB	SB/WB				NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB		
Kelso	Kelso Ln	Kelso Ln	197	0.04	1	1	2U	Minor Collector	F	195	165	100%	525	525	20	20	7	6	12	13		
Merrimac	Centerville	Colonel	2,637	0.50	1	1	2U	Minor Collector	F	195	165	100%	525	525	262	262	97	82	165	180		
Nickens Rd	Duck Creek	Broadway	4,334	0.82	1	1	2U	Minor Collector	F	170	154	100%	525	525	431	431	140	126	291	305		
Northwest Highway	Birchwood Dr	La Prada Dr	3,859	0.73	3	3	6D	Regional Arterial	B	697	665	100%	925	925	2,028	2,028	509	486	1,519	1,542		
Northwest Highway	W. Centerville	Birchwood Dr	2,579	0.49	3	3	6D	Regional Arterial	B	689	689	100%	925	925	1,355	1,355	319	337	1,036	1,019		
Northwest Highway	Saturn Rd	Saturn Rd	2,209	0.42	3	3	6D	Regional Arterial	B	1,203	1,179	100%	925	925	1,161	1,161	503	493	658	668		
O'Banion Rd	W. Centerville	Birchwood Dr	2,594	0.49	1	1	2U	Minor Collector	F	269	287	100%	525	525	258	258	132	141	126	117		
O'Banion Rd	Birchwood Dr	La Prada Dr	4,918	0.93	1	1	2U	Minor Collector	F	137	136	100%	525	525	489	489	128	127	361	362		
O'Banion Rd	La Prada Dr	W. Oates	2,773	0.53	1	1	2U	Minor Collector	F	127	121	100%	525	525	276	276	67	64	209	212		
Peninsula Way	Locust Grove	Hollow Bend	1,880	0.36	1	1	2U	Minor Collector	F	195	165	100%	525	525	187	187	69	59	118	128		
Roan Rd	E. Oates (Future)	Rowlett Rd	5,282	1.00	2	2	4D	Major Collector	D1	84	115	100%	900	900	1,801	1,801	84	115	1,717	1,686		
Roan Rd	Rowlett Rd	Waterhouse Blvd	3,058	0.58	2	2	4D	Arterial	C2-S	741	766	100%	900	900	1,043	1,043	429	444	613	599		
Roan Rd	Waterhouse Blvd	Bobtown Rd	1,388	0.26	2	2	4D	Arterial	C2-S	741	766	100%	900	900	473	473	195	201	278	272		
Rosehill Rd	Columbine Dr	Rowlett Rd	2,516	0.48	1	1	2U	Minor Collector	F	381	327	100%	525	525	250	250	182	156	69	94		
Rosehill Rd	E Oates Rd	Hopewell Dr	618	0.12	1	1	2U	Minor Collector	F	381	327	100%	525	525	61	61	45	38	17	23		
Rosehill Rd	Hopewell	E Oates Rd	2,253	0.43	1	1	3U	Minor Collector	F	230	225	100%	575	575	245	245	98	96	147	149		
Rosehill Rd	Hopewell	Columbine Dr	1,359	0.26	1	1	2U	Minor Collector	F	381	327	100%	575	575	148	148	98	84	50	64		
Rosehill Rd	Bobtown	IH 30 N loop	1,510	0.29	2	2	4D	Regional Arterial	B	333	334	100%	900	900	515	515	95	96	420	419		
National	IH 30 S loop	Guthrie Rd	2,018	0.38	1	1	4U	Minor Collector	E	270	285	100%	525	525	201	201	103	109	97	92		
Rosehill Rd	IH 30 N loop	IH 30 S frontage road	711	0.13	2	2	4U	Regional Arterial	B	307	307	100%	525	525	141	141	41	41	100	100		
National	IH 30 S frontage road	IH 30 S loop	398	0.08	2	2	4U	Minor Collector	E	255	265	100%	525	525	79	79	19	20	60	59		
Rowlett Rd	S Country Club Rd	Roan Rd	3,866	0.73	2	2	4D	Regional Arterial	A	567	544	100%	900	900	1,318	1,318	415	398	903	920		
Rowlett Rd	Broadway	Rosehill Rd	3,696	0.70	2	2	4D	Regional Arterial	A	820	672	100%	900	900	1,260	1,260	574	470	686	790		
Rowlett Rd	Rosehill Rd	S Country Club Rd	1,384	0.26	2	2	4D	Regional Arterial	A	567	544	100%	900	900	472	472	149	143	323	329		
Rowlett Rd	Roan Rd	City Limits	1,583	0.30	2	2	4D	Regional Arterial	A	952	1,047	100%	900	900	540	540	285	314	254	226		
S. Country Club Rd	Wynn Joyce	Rowlett Rd	1,430	0.27	1	1	2U	Minor Collector	F	195	165	100%	525	525	142	142	53	45	89	98		
S. Country Club Rd	E Oates Rd	Rowlett Rd	4,570	0.87	1	1	2U	Minor Collector	F	104	110	100%	525	525	454	454	90	95	364	359		
S. Country Club Rd	Wynn Joyce	Rowlett Rd	1,254	0.24	1	1	2U	Minor Collector	F	195	165	100%	525	525	125	125	46	39	78	86		
S. Country Club Rd	E Oates Rd	E of E Oates Rd	701	0.13	1	1	2U	Minor Collector	F	195	165	100%	525	525	70	70	26	22	44	48		
S. Country Club Rd	Rowlett Rd	Bobtown	1,763	0.33	2	2	4D	Regional Arterial	B	169	155	100%	900	900	601	601	56	52	545	549		
S. Country Club Rd	E. Miller	E. Centerville	2,881	0.55	2	2	4D	Minor Arterial	C1	231	225	100%	900	900	982	982	126	123	856	859		
S. First Street	Kingsley Rd	Centerville Rd	2,780	0.53	2	2	4D	Major Collector	D1	1,009	1,062	100%	900	900	948	948	531	559	416	389		
S. First Street	W. Miller Rd	W. Daugherty Dr	1,299	0.25	3	3	6D	Regional Arterial	B	2,037	2,059	50%	925	925	341	341	251	253	91	88		
S. First Street	Daugherty Dr	S. First St	1,208	0.23	3	3	6D	Regional Arterial	B	2,037	2,059	50%	925	925	317	317	233	236	84	82		
S. Glenbrook Dr	W. Kingsley Rd	W. Centerville Rd	4,027	0.76	1	1	2U	Minor Collector	F	195	165	100%	525	525	400	400	149	126	252	275		
Saturn Rd	Northwest Hwy	Marketplace Dr	1,699	0.32	2	2	4D	Minor Arterial	C1	439	336	50%	900	900	290	290	71	54	219	236		
Saturn Rd	Marketplace Dr	IH 635	1,006	0.19	2	2	4D	Minor Arterial	C1	439	336	50%	900	900	171	171	42	32	130	139		
Saturn Rd	Mayfield Ave	Northwest Hwy	855	0.16	2	2	4D	Major Collector	D2	838	801	50%	900	900	146	146	68	65	78	81		
Saturn Rd	Susannah Dr	Mayfield Ave	954	0.18	2	2	4U	Major Collector	D2	838	801	50%	525	525	95	95	76	72	19	22		
Saturn Rd	W. Kingsley	Susannah Dr	3,529	0.67	2	2	5U	Major Collector	D2	838	801	50%	850	850	568	568	280	268	288	300		
Centerville Rd	O'Banion Rd	Northwest Pkwy	3,722	0.70	3	3	6D	Regional Arterial	B	1,976	2,060	100%	925	925	1,956	1,956	1,393	1,452	563	504		
Centerville Rd	E. Miller Rd	S Country Club Rd	3,890	0.74	3	3	6D	Regional Arterial	B	1,197	1,152	100%	925	925	2,044	2,044	882	849	1,163	1,196		
Centerville Rd	S Country Club Rd	Merrimac Trl	1,516	0.29	3	3	6D	Regional Arterial	B	1,395	1,326	100%	925	925	797	797	401	381	396	416		
Centerville Rd	Merrimac Trl	Broadway Blvd	2,697	0.51	3	3	6D	Regional Arterial	B	1,395	1,326	100%	925	925	1,417	1,417	713	677	705	740		
Centerville Rd	Broadway Blvd	E Kingsley Rd	947	0.18	3	3	6D	Regional Arterial	B	1,402	1,308	100%	925	925	498	498	251	235	246	263		
Centerville Rd	E Kingsley Rd	Duck Creek Dr	3,001	0.57	3	3	6D	Regional Arterial	B	1,402	1,308	100%	925	925	1,577	1,577	797	743	780	834		
Centerville Rd	Duck Creek Dr	S Glenbrook Dr	837	0.16	3	3	6D	Regional Arterial	B	2,277	2,285	100%	925	925	440	440	361	362	79	78		
Centerville Rd	S Glenbrook Dr	Bardfield Ave	245	0.05	3	3	6D	Regional Arterial	B	2,277	2,285	100%	925	925	129	129	106	106	23	23		
Centerville Rd	Bardfield Ave	O'Banion Rd	353	0.07	3	3	6D	Regional Arterial	B	2,277	2,285	100%	925	925	186	186	152	153	33	33		
Centerville Rd	Northwest Hwy	Broadmoor Dr	1,162	0.22	3	3	6D	Regional Arterial	B	1,679	1,752	100%	925	925	611	611	370	386	241	225		
Centerville Rd	Broadmoor Dr	LBJ Fwy	1,291	0.24	3	3	6D	Regional Arterial	B	2,016	2,289	100%	925	925	679	679	493	560	186	119		
Centerville Rd	LBJ Fwy	IH 635 S frontage road	657	0.12	3	3	6D	Regional Arterial	B	1,430	1,445	100%	925	925	345	345	178	180	167	165		
W. Kingsley Rd	Saturn Rd	S Glenbrook Dr	2,905	0.55	2	2	4D	Major Collector	D1	888	876	50%	900	900	495	495	244	241	251	254		
W. Kingsley Rd	S Glenbrook Dr	S Fifth St	1,651	0.31	2	2	4D	Major Collector	D1	888	876	50%	900	900	281	281	139	137	143	144		
W. Kingsley Rd	S Fifth St	S First St	720	0.14	2	2	4D	Major Collector	D1	888	876	50%	900	900	123	123	61	60	62	63		
W. Oates Rd	O'Banion	Duck Creek	2,744	0.52	2	2	4D	Minor Arterial	C1	752	653	100%	900	900	935	935	391	339	545	596		
W. Oates Rd	City Limits	O'Banion	2,083	0.39	2	2	4D	Minor Arterial	C1	796	715	100%	900	900	710	710	314	282	396	428		
Waterhouse	Bobtown	Hayman	1,553	0.29	1	1	2U	Minor Collector	F	195	165	100%	525	525	154	154						

**Appendix D – Plan for Awarding the
Transportation Impact Fee Credit Summary**
(as prepared by NewGen Strategies.)

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area A

Recoverable Impact Fee CIP Costs	\$ 24,173,052	Line 11, Max Fee Calculation Table
Principal Paid on Existing Debt Funded Project Costs	(80,054)	Page 4 of Appendix E - Service Area A
Financing Costs	10,530,329	See Detail Below
Existing Fund Balance	(1,259,298)	Page 1 of Appendix E - Service Area A
Interest Earnings	(1,273,984)	Page 5 of Appendix E - Service Area A
Pre Credit Recoverable Cost for Impact Fee	\$ 32,090,045	Sum of Above
Credit for Ad Valorem Revenues	(269,345)	Page 8 of Appendix E - Service Area A
Maximum Recoverable Cost for Impact Fee	\$ 31,820,700	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through impact fees.
Reference is Service Area A column, line 11 on the Max Fee Calculation Table.

Principal Paid on Existing Debt Funded Project Costs:

Represents the portion of principal already paid for existing debt funded projects from a detailed project funding list and debt service schedules provided by the City. (Page 4 of Appendix E - Service Area A)

Financing Costs:

Represents the interest costs associated with debt financing the new impact fee project costs. It is assumed 80% of the new impact fee project costs will be funded through new debt issues (Page 7 of Appendix E - Service Area A). Interest costs are derived from forecasted debt issues.

New Annual Debt Service	\$ 28,384,994	(Page 3 of Appendix E - Service Area A)
Existing Annual Debt Service	1,650,403	(Page 3 of Appendix E - Service Area A)
Principal Component	(19,505,068)	(Page 4 of Appendix E - Service Area A)
Financing Costs	<u>\$ 10,530,329</u>	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended.
To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Appendix E - Service Area A.

Interest Earnings:

Represents the interest earned on cash flows. Assumes a 0.451% annual interest rate based on the City's GO Interest and Sinking Fund yield as of June 30, 2016. The Impact Fee Statute states that interest earnings are funds of the impact fee account and are held to the same restrictions as impact fee revenues.
Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 5 of Appendix E - Service Area A.

Pre Credit Recoverable Cost for Impact Fee

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the Impact Fee Statute was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund impact fee eligible projects for which the new service units were charged an impact fee. The intent of this amendment is to avoid double-charging the new service units for impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 8 of Appendix E - Service Area A.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues.
This is the maximum cost that can be recovered through impact fees.

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area B

Recoverable Impact Fee CIP Costs	\$ 18,527,475	Line 11, Max Fee Calculation Table
Principal Paid on Existing Debt Funded Project Costs	-	Page 4 of Appendix E - Service Area B
Financing Costs	8,175,922	See Detail Below
Existing Fund Balance	(908,960)	Page 1 of Appendix E - Service Area B
Interest Earnings	(1,012,470)	Page 5 of Appendix E - Service Area B
Pre Credit Recoverable Cost for Impact Fee	\$ 24,781,968	Sum of Above
Credit for Ad Valorem Revenues	(77,232)	Page 8 of Appendix E - Service Area B
Maximum Recoverable Cost for Impact Fee	\$ 24,704,735	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through impact fees.
Reference is Service Area B column, line 11 on the Max Fee Calculation Table.

Principal Paid on Existing Debt Funded Project Costs:

After review of a detailed project funding list provided by City Staff, there have been no prior debt payments for projects included in the impact fee CIP for this area. (Page 4 of Appendix E - Service Area B)

Financing Costs:

Represents the interest costs associated with debt financing the new impact fee project costs. It is assumed 80% of the new impact fee project costs will be funded through new debt issues (Page 7 of Appendix E - Service Area B). Interest costs are derived from forecasted debt issues.

New Annual Debt Service	\$ 22,985,230	(Page 3 of Appendix E - Service Area B)
Principal Component	(14,809,308)	(Page 4 of Appendix E - Service Area B)
Financing Costs	<u>\$ 8,175,922</u>	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended.
To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Appendix E - Service Area B.

Interest Earnings:

Represents the interest earned on cash flows. Assumes a 0.451% annual interest rate based on the City's GO Interest and Sinking Fund yield as of June 30, 2016. The Impact Fee Statute states that interest earnings are funds of the impact fee account and are held to the same restrictions as impact fee revenues.
Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 5 of Appendix E - Service Area B.

Pre Credit Recoverable Cost for Impact Fee

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the Impact Fee Statute was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund impact fee eligible projects for which the new service units were charged an impact fee. The intent of this amendment is to avoid double-charging the new service units for impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 8 of Appendix E - Service Area B.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues.
This is the maximum cost that can be recovered through impact fees.

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area C

Recoverable Impact Fee CIP Costs	\$ 21,542,049	Line 11, Max Fee Calculation Table
Principal Paid on Existing Debt Funded Project Costs	(157,544)	Page 4 of Appendix E - Service Area C
Financing Costs	9,115,235	See Detail Below
Existing Fund Balance	(502,053)	Page 1 of Appendix E - Service Area C
Interest Earnings	(1,069,842)	Page 5 of Appendix E - Service Area C
Pre Credit Recoverable Cost for Impact Fee	\$ 28,927,845	Sum of Above
Credit for Ad Valorem Revenues	(85,047)	Page 8 of Appendix E - Service Area C
Maximum Recoverable Cost for Impact Fee	\$ 28,842,799	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through impact fees.
Reference is Service Area C column, line 11 on the Max Fee Calculation Table.

Principal Paid on Existing Debt Funded Project Costs:

Represents the portion of principal already paid for existing debt funded projects from a detailed project funding list and debt service schedules provided by the City. (Page 4 of Appendix E - Service Area C)

Financing Costs:

Represents the interest costs associated with debt financing the new impact fee project costs. It is assumed 80% of the new impact fee project costs will be funded through new debt issues (Page 7 of Appendix E - Service Area C). Interest costs are derived from forecasted debt issues.

New Annual Debt Service	\$ 23,557,919	(Page 3 of Appendix E - Service Area C)
Existing Annual Debt Service	2,473,171	(Page 3 of Appendix E - Service Area C)
Principal Component	(16,915,855)	(Page 4 of Appendix E - Service Area C)
Financing Costs	<u>\$ 9,115,235</u>	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended.
To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Appendix E - Service Area C.

Interest Earnings:

Represents the interest earned on cash flows. Assumes a 0.451% annual interest rate based on the City's GO Interest and Sinking Fund yield as of June 30, 2016. The Impact Fee Statute states that interest earnings are funds of the impact fee account and are held to the same restrictions as impact fee revenues.
Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 5 of Appendix E - Service Area C.

Pre Credit Recoverable Cost for Impact Fee

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the Impact Fee Statute was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund impact fee eligible projects for which the new service units were charged an impact fee. The intent of this amendment is to avoid double-charging the new service units for impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 8 of Appendix E - Service Area C.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues.
This is the maximum cost that can be recovered through impact fees.

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area D

Recoverable Impact Fee CIP Costs	\$ 16,428,715	Line 11, Max Fee Calculation Table
Principal Paid on Existing Debt Funded Project Costs	(184,293)	Page 4 of Appendix E - Service Area D
Financing Costs	6,799,841	See Detail Below
Existing Fund Balance	(1,113,622)	Page 1 of Appendix E - Service Area D
Interest Earnings	(788,751)	Page 5 of Appendix E - Service Area D
Pre Credit Recoverable Cost for Impact Fee	\$ 21,141,890	Sum of Above
Credit for Ad Valorem Revenues	(88,284)	Page 8 of Appendix E - Service Area D
Maximum Recoverable Cost for Impact Fee	\$ 21,053,606	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through impact fees.
Reference is Service Area D column, line 11 on the Max Fee Calculation Table.

Principal Paid on Existing Debt Funded Project Costs:

Represents the portion of principal already paid for existing debt funded projects from a detailed project funding list and debt service schedules provided by the City. (Page 4 of Appendix E - Service Area D)

Financing Costs:

Represents the interest costs associated with debt financing the new impact fee project costs. It is assumed 80% of the new impact fee project costs will be funded through new debt issues (Page 7 of Appendix E - Service Area D). Interest costs are derived from forecasted debt issues.

New Annual Debt Service	\$ 16,289,926	(Page 3 of Appendix E - Service Area D)
Existing Annual Debt Service	3,508,652	(Page 3 of Appendix E - Service Area D)
Principal Component	(12,998,737)	(Page 4 of Appendix E - Service Area D)
Financing Costs	<u>\$ 6,799,841</u>	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended.
To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Appendix E - Service Area D.

Interest Earnings:

Represents the interest earned on cash flows. Assumes a 0.451% annual interest rate based on the City's GO Interest and Sinking Fund yield as of June 30, 2016. The Impact Fee Statute states that interest earnings are funds of the impact fee account and are held to the same restrictions as impact fee revenues.
Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 5 of Appendix E - Service Area D.

Pre Credit Recoverable Cost for Impact Fee

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the Impact Fee Statute was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund impact fee eligible projects for which the new service units were charged an impact fee. The intent of this amendment is to avoid double-charging the new service units for impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 8 of Appendix E - Service Area D.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues.
This is the maximum cost that can be recovered through impact fees.

**Appendix E – Plan for Awarding the
Transportation Impact Fee Credit Supporting Exhibits**
(as prepared by NewGen Strategies.)

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area A

I. General Assumptions

Annual Interest Rate on Deposits ⁽¹⁾	0.451%
Annual Service Unit Growth ⁽²⁾	3,083
Existing Fund Balance ⁽³⁾	1,259,298
Portion of Projects Funded by Existing Debt ⁽³⁾	\$ 1,296,765
Non-debt Funded New Project Cost ⁽⁴⁾	4,587,929
New Project Cost Funded Through New Debt ⁽⁵⁾	18,288,358
Total Recoverable Project Cost⁽⁶⁾	\$ 24,173,052

II. New Debt Issues Assumptions

<u>Year</u>	<u>Principal⁽⁷⁾</u>	<u>Interest⁽⁸⁾</u>	<u>Term</u>
1	\$ 1,828,836	3.02%	20
2	1,828,836	3.77%	20
3	1,828,836	4.02%	20
4	1,828,836	4.27%	20
5	1,828,836	4.52%	20
6	1,828,836	4.77%	20
7	1,828,836	5.02%	20
8	1,828,836	5.27%	20
9	1,828,836	5.52%	20
10	1,828,836	5.77%	20
Total	\$ 18,288,358		

III. Capital Expenditure Assumptions

<u>Year</u>	<u>Annual Capital Expenditures⁽⁹⁾</u>
1	\$ 1,715,722
2	2,287,629
3	2,287,629
4	2,287,629
5	2,287,629
6	2,287,629
7	2,287,629
8	2,287,629
9	2,287,629
10	2,859,536
Total	\$ 22,876,287

(1) Current Yield for GO Interest and Sinking Fund as of June 30, 2016

(2) Derived from the 10-year Growth Projections Report, Table 7

(3) Totals provided by City Staff on September 23, 2016

(4) Assumes 20% of new project costs funded through sources other than debt unless otherwise specified

(5) Assumes 80% of new project costs funded through new debt issues unless otherwise specified

(6) Line 11 of the Max Fee Table Report

(7) Assumes new debt issued in equal annual amounts

(8) Estimated interest cost provided by City's Financial Advisor on September 28, 2016

(9) Assumes new debt proceeds expended over a 2-year timeframe with Year 10 bond proceeds spent fully in tenth year; Non-debt funded capital expenditures made in equal annual amounts

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area A

I. New Debt Service Detail

<u>Year</u>	<u>Series 1</u>	<u>Series 2</u>	<u>Series 3</u>	<u>Series 4</u>	<u>Series 5</u>	<u>Series 6</u>	<u>Series 7</u>	<u>Series 8</u>	<u>Series 9</u>	<u>Series 10</u>	<u>Total Annual New Debt Service</u>
1	\$ 123,154	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 123,154
2	123,154	131,843	-	-	-	-	-	-	-	-	254,996
3	123,154	131,843	134,807	-	-	-	-	-	-	-	389,804
4	123,154	131,843	134,807	137,806	-	-	-	-	-	-	527,610
5	123,154	131,843	134,807	137,806	140,838	-	-	-	-	-	668,447
6	123,154	131,843	134,807	137,806	140,838	143,902	-	-	-	-	812,350
7	123,154	131,843	134,807	137,806	140,838	143,902	146,999	-	-	-	959,349
8	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	-	-	1,109,478
9	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	-	1,262,768
10	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
11	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
12	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
13	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
14	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
15	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
16	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
17	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
18	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
19	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
20	123,154	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,419,250
21	-	131,843	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,296,096
22	-	-	134,807	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,164,253
23	-	-	-	137,806	140,838	143,902	146,999	150,129	153,290	156,482	1,029,446
24	-	-	-	-	140,838	143,902	146,999	150,129	153,290	156,482	891,640
25	-	-	-	-	-	143,902	146,999	150,129	153,290	156,482	750,802
26	-	-	-	-	-	-	146,999	150,129	153,290	156,482	606,900
27	-	-	-	-	-	-	-	150,129	153,290	156,482	459,901
28	-	-	-	-	-	-	-	-	153,290	156,482	309,772
29	-	-	-	-	-	-	-	-	-	156,482	156,482
	\$ 2,463,078	\$ 2,636,852	\$ 2,696,147	\$ 2,756,117	\$ 2,816,752	\$ 2,878,046	\$ 2,939,990	\$ 3,002,576	\$ 3,065,796	\$ 3,129,642	\$ 28,384,994

City of Garland 2016 Roadway Impact Fee Study
Capital Improvement Plan for Impact Fees
Appendix E - Impact Fee Calculation Assumptions

II. Summary of Annual Expenses

Year	New Annual Debt Service⁽¹⁾	Annual Capital Expenditures⁽²⁾	Annual Bond Proceeds⁽²⁾	Existing Annual Debt Service⁽³⁾	Annual Credit⁽⁴⁾	Total Expense
1	\$ 123,154	\$ 1,715,722	\$ (1,828,836)	\$ 91,112	\$ (1,006)	\$ 100,146
2	254,996	2,287,629	(1,828,836)	108,941	(3,401)	819,330
3	389,804	2,287,629	(1,828,836)	108,830	(6,956)	950,471
4	527,610	2,287,629	(1,828,836)	108,814	(11,783)	1,083,433
5	668,447	2,287,629	(1,828,836)	108,889	(17,907)	1,218,222
6	812,350	2,287,629	(1,828,836)	108,925	(25,351)	1,354,716
7	959,349	2,287,629	(1,828,836)	108,807	(34,135)	1,492,814
8	1,109,478	2,287,629	(1,828,836)	108,834	(44,293)	1,632,812
9	1,262,768	2,287,629	(1,828,836)	108,839	(55,846)	1,774,554
10	1,419,250	2,859,536	(1,828,836)	105,432	(68,666)	2,486,716
11	1,419,250	-	-	105,443	-	1,524,693
12	1,419,250	-	-	105,504	-	1,524,754
13	1,419,250	-	-	61,925	-	1,481,175
14	1,419,250	-	-	62,072	-	1,481,322
15	1,419,250	-	-	61,929	-	1,481,179
16	1,419,250	-	-	62,112	-	1,481,361
17	1,419,250	-	-	62,052	-	1,481,302
18	1,419,250	-	-	61,942	-	1,481,192
19	1,419,250	-	-	-	-	1,419,250
20	1,419,250	-	-	-	-	1,419,250
21	1,296,096	-	-	-	-	1,296,096
22	1,164,253	-	-	-	-	1,164,253
23	1,029,446	-	-	-	-	1,029,446
24	891,640	-	-	-	-	891,640
25	750,802	-	-	-	-	750,802
26	606,900	-	-	-	-	606,900
27	459,901	-	-	-	-	459,901
28	309,772	-	-	-	-	309,772
29	156,482	-	-	-	-	156,482
	\$ 28,384,994	\$ 22,876,287	\$ (18,288,358)	\$ 1,650,403	\$ (269,345)	\$ 34,353,982

City of Garland 2016 Roadway Impact Fee Study
Capital Improvement Plan for Impact Fees
Appendix E - Impact Fee Calculation Assumptions

III. Summary of Principal Paid to Date for Existing Debt⁽³⁾

	Principal Paid on Issuance <u>2005</u>	Principal Paid on Debt <u>2008</u>	Principal Paid on Debt <u>2011</u>	Principal Paid on Debt <u>2015</u>	Total Principal Paid to Date
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	-	-	-
2009	-	874	-	-	874
2010	-	1,243	-	-	1,243
2011	-	1,313	-	-	1,313
2012	-	1,888	-	-	1,888
2013	-	1,975	-	-	1,975
2014	-	2,068	8,096	-	10,164
2015	-	2,148	8,096	12,620	22,863
2016	-	2,254	8,096	29,383	39,733
	\$ -	\$ 13,764	\$ 24,287	\$ 42,003	\$ 80,054

IV. Summary of Debt Financing

Existing Debt Funded Project Costs ⁽⁵⁾	\$ 1,296,765
-Less Principal Paid to Date	80,054
Outstanding Debt Principal	1,216,710
New Project Costs Debt Principal ⁽⁵⁾	18,288,358
Principal Component	\$ 19,505,068

(1) Appendix E - Service Area A, Page 2

(2) Appendix E - Service Area A, Page 1

(3) Prior Debt Funding Provided by City Staff

(4) Appendix E - Service Area A, Page 8

(5) Appendix E - Service Area A, Page 1

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area A

<u>Year</u>	<u>Impact Fee</u>	<u>Service Units</u>	<u>Impact Fee Revenue</u>	<u>Annual Expenses</u>	<u>Sub-Total</u>	<u>Accumulated Interest</u>	<u>Estimated Fund Balance</u>
Initial							\$ 1,259,298
1	\$ 1,032	3,083	\$ 3,182,070	\$ 100,146	\$ 3,081,924	\$ 12,629	4,353,851
2	1,032	3,083	3,182,070	819,330	2,362,740	24,964	6,741,555
3	1,032	3,083	3,182,070	950,471	2,231,599	35,437	9,008,591
4	1,032	3,083	3,182,070	1,083,433	2,098,637	45,361	11,152,589
5	1,032	3,083	3,182,070	1,218,222	1,963,848	54,727	13,171,164
6	1,032	3,083	3,182,070	1,354,716	1,827,354	63,523	15,062,041
7	1,032	3,083	3,182,070	1,492,814	1,689,256	71,739	16,823,036
8	1,032	3,083	3,182,070	1,632,812	1,549,258	79,365	18,451,660
9	1,032	3,083	3,182,070	1,774,554	1,407,516	86,391	19,945,567
10	1,032	3,083	3,182,070	2,486,716	695,354	91,523	20,732,443
11	-	-	-	1,524,693	(1,524,693)	90,065	19,297,815
12	-	-	-	1,524,754	(1,524,754)	83,595	17,856,656
13	-	-	-	1,481,175	(1,481,175)	77,193	16,452,674
14	-	-	-	1,481,322	(1,481,322)	70,861	15,042,214
15	-	-	-	1,481,179	(1,481,179)	64,500	13,625,535
16	-	-	-	1,481,361	(1,481,361)	58,111	12,202,285
17	-	-	-	1,481,302	(1,481,302)	51,692	10,772,675
18	-	-	-	1,481,192	(1,481,192)	45,245	9,336,728
19	-	-	-	1,419,250	(1,419,250)	38,908	7,956,386
20	-	-	-	1,419,250	(1,419,250)	32,683	6,569,819
21	-	-	-	1,296,096	(1,296,096)	26,707	5,300,431
22	-	-	-	1,164,253	(1,164,253)	21,280	4,157,457
23	-	-	-	1,029,446	(1,029,446)	16,429	3,144,440
24	-	-	-	891,640	(891,640)	12,171	2,264,971
25	-	-	-	750,802	(750,802)	8,522	1,522,690
26	-	-	-	606,900	(606,900)	5,499	921,289
27	-	-	-	459,901	(459,901)	3,118	464,506
28	-	-	-	309,772	(309,772)	1,396	156,131
29	-	-	-	156,482	(156,482)	351	(0)
			\$ 31,820,700	\$ 34,353,982		\$ 1,273,984	

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area A

<u>Year</u>	<u>Number of Years to End of Period</u>	<u>Future Value Escalation</u>		<u>Annual Service Units</u>		<u>Annual Expense</u>	
		<u>Interest Rate Factor</u>	<u>Recovery Fee Factor</u>	<u>Actual</u>	<u>Escalated</u>	<u>Actual</u>	<u>Escalated</u>
1	29	1.1368	1.0000	3,083	3,505	\$ 100,146	\$ 113,849
2	28	1.1317	1.0000	3,083	3,489	819,330	927,261
3	27	1.1267	1.0000	3,083	3,474	950,471	1,070,848
4	26	1.1216	1.0000	3,083	3,458	1,083,433	1,215,170
5	25	1.1166	1.0000	3,083	3,443	1,218,222	1,360,213
6	24	1.1115	1.0000	3,083	3,427	1,354,716	1,505,825
7	23	1.1066	1.0000	3,083	3,412	1,492,814	1,651,877
8	22	1.1016	1.0000	3,083	3,397	1,632,812	1,798,680
9	21	1.0966	1.0000	3,083	3,381	1,774,554	1,946,044
10	20	1.0917	1.0000	3,083	3,366	2,486,716	2,714,785
11	19	1.0868	1.0000	-	-	1,524,693	1,657,057
12	18	1.0819	1.0000	-	-	1,524,754	1,649,683
13	17	1.0771	1.0000	-	-	1,481,175	1,595,338
14	16	1.0722	1.0000	-	-	1,481,322	1,588,333
15	15	1.0674	1.0000	-	-	1,481,179	1,581,049
16	14	1.0626	1.0000	-	-	1,481,361	1,574,145
17	13	1.0579	1.0000	-	-	1,481,302	1,567,014
18	12	1.0531	1.0000	-	-	1,481,192	1,559,863
19	11	1.0484	1.0000	-	-	1,419,250	1,487,920
20	10	1.0437	1.0000	-	-	1,419,250	1,481,240
21	9	1.0390	1.0000	-	-	1,296,096	1,346,634
22	8	1.0343	1.0000	-	-	1,164,253	1,204,219
23	7	1.0297	1.0000	-	-	1,029,446	1,060,004
24	6	1.0251	1.0000	-	-	891,640	913,985
25	5	1.0205	1.0000	-	-	750,802	766,163
26	4	1.0159	1.0000	-	-	606,900	616,536
27	3	1.0113	1.0000	-	-	459,901	465,105
28	2	1.0068	1.0000	-	-	309,772	311,871
29	1	1.0023	1.0000	-	-	156,482	156,835
				34,352		\$ 34,353,982	\$ 36,887,546

Total Escalated Expense for Entire Period	\$ 36,887,546
Total Escalated Service Units	34,352
Impact Fee for Service Area A	\$ 1,032

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area A

<u>Impact Fee Project Name⁽¹⁾</u>	<u>Impact Fee Project No. ⁽¹⁾</u>	<u>Total Project Cost ⁽¹⁾</u>	<u>Percent in Service Area ⁽¹⁾</u>	<u>Cost in Service Area⁽¹⁾</u>	<u>Impact Fee Recoverable Cost⁽²⁾</u>	<u>Debt Funded⁽³⁾</u>	<u>Existing</u>	<u>Proposed</u>	<u>Non-Debt Funded⁽³⁾</u>	<u>Impact Fee Recoverable Cost</u>
Arapaho Rd (1)	A-1	\$ 1,383,000	100%	\$ 1,383,000	\$ 385,973	\$ -	\$ 308,778	\$ 77,195	\$ 385,973	
Arapaho Rd (2)	A-2	1,210,000	100%	1,210,000	337,691	-	270,153	67,538	337,691	
Brand Rd (1)	A-3	4,092,000	100%	4,092,000	1,142,011	-	913,609	228,402	1,142,011	
Brand Rd (2)	A-4	8,172,000	100%	8,172,000	2,280,673	-	1,824,538	456,135	2,280,673	
Brand Rd (3)	A-5	3,590,000	100%	3,590,000	1,001,911	-	801,529	200,382	1,001,911	
Campbell Rd (1)	A-6	1,901,000	100%	1,901,000	530,538	-	424,431	106,108	530,538	
Campbell Rd (2)	A-7	740,000	100%	740,000	206,522	-	165,218	41,304	206,522	
Campbell Rd (3)	A-8	1,065,000	100%	1,065,000	297,224	-	237,779	59,445	297,224	
Campbell Rd (4)	A-9	1,150,000	100%	1,150,000	320,946	-	256,757	64,189	320,946	
Campbell Rd (5)	A-10	929,000	100%	929,000	259,269	-	207,415	51,854	259,269	
Campbell Rd (6)	A-11	11,065,000	100%	11,065,000	3,088,063	-	2,470,450	617,613	3,088,063	
Ferris Rd	A-12	2,258,000	100%	2,258,000	630,171	-	504,137	126,034	630,171	
Firewheel Parkway (1)	A-13	824,000	100%	824,000	229,965	-	183,972	45,993	229,965	
Holford Rd (1)	A-14	5,347,000	100%	5,347,000	1,492,261	-	1,193,809	298,452	1,492,261	
Holford Rd (2)	A-15	2,717,000	100%	2,717,000	758,271	-	606,617	151,654	758,271	
Holford Rd (3)	A-16	8,118,000	100%	8,118,000	2,265,602	-	1,812,482	453,120	2,265,602	
Lookout Dr (1)	A-17	201,000	50%	100,500	28,048	-	22,438	5,610	28,048	
Lookout Dr (2)	A-18	1,428,000	50%	714,000	199,266	-	159,413	39,853	199,266	
Lookout Dr (3)	A-19	1,107,000	100%	1,107,000	308,946	-	247,157	61,789	308,946	
Mapleridge (Future) (1)	A-20	384,000	100%	384,000	107,168	-	85,735	21,434	107,168	
Mapleridge (Future) (2)	A-21	3,513,000	100%	3,513,000	980,421	-	784,337	196,084	980,421	
Garland Ave (1)	A-22	2,313,000	100%	2,313,000	645,521	-	516,417	129,104	645,521	
Garland Ave (2)	A-23	2,044,000	100%	2,044,000	570,447	-	456,358	114,089	570,447	
Garland Ave (3)	A-24	1,421,000	100%	1,421,000	396,578	-	317,262	79,316	396,578	
Garland Ave (4)	A-25	1,732,000	100%	1,732,000	483,373	-	386,699	96,675	483,373	
Shiloh Rd (1)	A-26	657,000	100%	657,000	183,358	-	146,686	36,672	183,358	
Shiloh Rd (2)	A-27	733,000	100%	733,000	204,568	-	163,655	40,914	204,568	
Shiloh Rd (3)	A-28	1,065,000	100%	1,065,000	297,224	-	237,779	59,445	297,224	
Shiloh Rd (4)	A-29	1,836,000	100%	1,836,000	512,398	-	409,918	102,480	512,398	
Shiloh Rd (5)	A-30	1,714,000	100%	1,714,000	478,350	-	382,680	95,670	478,350	
Naaman Forest Blvd	A-31	2,079,000	100%	2,079,000	580,215	207,086	298,503	74,626	580,215	
Naaman School Rd	A-32	6,047,000	100%	6,047,000	1,687,620	-	1,350,096	337,524	1,687,620	
Naaman Forest Blvd	A-33	3,904,483	100%	3,904,483	1,089,678	1,089,678	-	-	1,089,678	
Bottleneck Study Improvements - Service Area A	Various	634,000	100%	634,000	176,939	-	141,551	35,388	176,939	
Study Costs		15,840	100%	15,840	15,840	-	-	15,840	15,840	
Total		\$ 87,389,323		\$ 86,574,823	\$ 24,173,052	\$ 1,296,765	\$ 18,288,358	\$ 4,587,929	\$ 24,173,052	

(1) 2016 Roadway Impact Fee Study As Assigned to Service Area, Appendix A

(2) Line 11 of the Max Fee Table Report

(3) Based on Contributions by Project and Planned Future Debt Financing

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area A

2016 Vehicle Miles (All Service Areas) ⁽¹⁾	653,797
Ten Year Growth in Vehicle Miles (Service Area A) ⁽²⁾	30,833
	<u>10 years</u>
Annual Growth in Vehicle Miles	3,083

	1	2	3	4	5	6	7	8	9	10	Total
Total Debt Service Eligible for Impact Fees	\$ 214,266	\$ 363,937	\$ 498,634	\$ 636,423	\$ 777,336	\$ 921,274	\$ 1,068,156	\$ 1,218,312	\$ 1,371,607	\$ 1,524,682	\$ 8,594,628
2016 Vehicle Miles plus Service Area A Growth	656,881	659,964	663,047	666,131	669,214	672,297	675,380	678,464	681,547	684,630	
Total Debt Service Eligible for Impact Fees per Vehicle Mile	\$ 0.33	\$ 0.55	\$ 0.75	\$ 0.96	\$ 1.16	\$ 1.37	\$ 1.58	\$ 1.80	\$ 2.01	\$ 2.23	
Annual Growth in Service Area A Vehicle Miles (Cumulative)	3,083	6,167	9,250	12,333	15,417	18,500	21,583	24,666	27,750	30,833	
Annual Ad Valorem Revenue Generated by Vehicle Miles for Debt Service Eligible for Impact Fees	\$ 1,006	\$ 3,401	\$ 6,956	\$ 11,783	\$ 17,907	\$ 25,351	\$ 34,135	\$ 44,293	\$ 55,846	\$ 68,666	\$ 269,345
Credit Amount	\$ 269,345										

(1) Engineer's calculation

(2) Line 8 of the Max Fee Table Report

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area B

I. General Assumptions

Annual Interest Rate on Deposits ⁽¹⁾	0.451%
Annual Service Unit Growth ⁽²⁾	1,187
Existing Fund Balance ⁽³⁾	908,960
Non-debt Funded New Project Cost ⁽⁴⁾	3,718,167
New Project Cost Funded Through New Debt ⁽⁵⁾	14,809,308
Total Recoverable Project Cost⁽⁶⁾	\$ 18,527,475

II. New Debt Issues Assumptions

<u>Year</u>	<u>Principal⁽⁷⁾</u>	<u>Interest⁽⁸⁾</u>	<u>Term</u>
1	\$ 1,480,931	3.02%	20
2	1,480,931	3.77%	20
3	1,480,931	4.02%	20
4	1,480,931	4.27%	20
5	1,480,931	4.52%	20
6	1,480,931	4.77%	20
7	1,480,931	5.02%	20
8	1,480,931	5.27%	20
9	1,480,931	5.52%	20
10	1,480,931	5.77%	20
Total	\$ 14,809,308		

III. Capital Expenditure Assumptions

<u>Year</u>	<u>Annual Capital Expenditures⁽⁹⁾</u>
1	\$ 1,389,561
2	1,852,748
3	1,852,748
4	1,852,748
5	1,852,748
6	1,852,748
7	1,852,748
8	1,852,748
9	1,852,748
10	2,315,934
Total	\$ 18,527,475

(1) Current Yield for GO Interest and Sinking Fund as of June 30, 2016

(2) Derived from the 10-year Growth Projections Report, Table 7

(3) Totals provided by City Staff on September 23, 2016

(4) Assumes 20% of new project costs funded through sources other than debt unless otherwise specified

(5) Assumes 80% of new project costs funded through new debt issues unless otherwise specified

(6) Line 11 of the Max Fee Table Report

(7) Assumes new debt issued in equal annual amounts

(8) Estimated interest cost provided by City's Financial Advisor on September 28, 2016

(9) Assumes new debt proceeds expended over a 2-year timeframe with Year 10 bond proceeds spent fully in tenth year; Non-debt funded capital expenditures made in equal annual amounts

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area B

I. New Debt Service Detail

<u>Year</u>	<u>Series 1</u>	<u>Series 2</u>	<u>Series 3</u>	<u>Series 4</u>	<u>Series 5</u>	<u>Series 6</u>	<u>Series 7</u>	<u>Series 8</u>	<u>Series 9</u>	<u>Series 10</u>	<u>Total Annual New Debt Service</u>
1	\$ 99,726	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 99,726
2	99,726	106,762	-	-	-	-	-	-	-	-	206,488
3	99,726	106,762	109,163	-	-	-	-	-	-	-	315,650
4	99,726	106,762	109,163	111,591	-	-	-	-	-	-	427,241
5	99,726	106,762	109,163	111,591	114,046	-	-	-	-	-	541,287
6	99,726	106,762	109,163	111,591	114,046	116,527	-	-	-	-	657,814
7	99,726	106,762	109,163	111,591	114,046	116,527	119,035	-	-	-	776,849
8	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	-	-	898,418
9	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	-	1,022,547
10	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
11	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
12	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
13	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
14	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
15	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
16	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
17	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
18	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
19	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
20	99,726	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,149,262
21	-	106,762	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	1,049,536
22	-	-	109,163	111,591	114,046	116,527	119,035	121,569	124,129	126,714	942,774
23	-	-	-	111,591	114,046	116,527	119,035	121,569	124,129	126,714	833,611
24	-	-	-	-	114,046	116,527	119,035	121,569	124,129	126,714	722,021
25	-	-	-	-	-	116,527	119,035	121,569	124,129	126,714	607,975
26	-	-	-	-	-	-	119,035	121,569	124,129	126,714	491,448
27	-	-	-	-	-	-	-	121,569	124,129	126,714	372,412
28	-	-	-	-	-	-	-	-	124,129	126,714	250,843
29	-	-	-	-	-	-	-	-	-	126,714	126,714
	\$ 1,994,519	\$ 2,135,235	\$ 2,183,251	\$ 2,231,812	\$ 2,280,913	\$ 2,330,546	\$ 2,380,706	\$ 2,431,387	\$ 2,482,580	\$ 2,534,280	\$ 22,985,230

City of Garland 2016 Roadway Impact Fee Study
Capital Improvement Plan for Impact Fees
Appendix E - Impact Fee Calculation Assumptions

II. Summary of Annual Expenses

Year	New Annual Debt Service⁽¹⁾	Annual Capital Expenditures⁽²⁾	Annual Bond Proceeds⁽²⁾	Existing Annual Debt Service⁽³⁾	Annual Credit⁽⁴⁾	Total Expense
1	\$ 99,726	\$ 1,389,561	\$ (1,480,931)	\$ -	\$ (181)	\$ 8,175
2	206,488	1,852,748	(1,480,931)	-	(747)	577,557
3	315,650	1,852,748	(1,480,931)	-	(1,710)	685,757
4	427,241	1,852,748	(1,480,931)	-	(3,081)	795,977
5	541,287	1,852,748	(1,480,931)	-	(4,870)	908,233
6	657,814	1,852,748	(1,480,931)	-	(7,090)	1,022,541
7	776,849	1,852,748	(1,480,931)	-	(9,750)	1,138,915
8	898,418	1,852,748	(1,480,931)	-	(12,864)	1,257,371
9	1,022,547	1,852,748	(1,480,931)	-	(16,442)	1,377,922
10	1,149,262	2,315,934	(1,480,931)	-	(20,497)	1,963,769
11	1,149,262	-	-	-	-	1,149,262
12	1,149,262	-	-	-	-	1,149,262
13	1,149,262	-	-	-	-	1,149,262
14	1,149,262	-	-	-	-	1,149,262
15	1,149,262	-	-	-	-	1,149,262
16	1,149,262	-	-	-	-	1,149,262
17	1,149,262	-	-	-	-	1,149,262
18	1,149,262	-	-	-	-	1,149,262
19	1,149,262	-	-	-	-	1,149,262
20	1,149,262	-	-	-	-	1,149,262
21	1,049,536	-	-	-	-	1,049,536
22	942,774	-	-	-	-	942,774
23	833,611	-	-	-	-	833,611
24	722,021	-	-	-	-	722,021
25	607,975	-	-	-	-	607,975
26	491,448	-	-	-	-	491,448
27	372,412	-	-	-	-	372,412
28	250,843	-	-	-	-	250,843
29	126,714	-	-	-	-	126,714
	\$ 22,985,230	\$ 18,527,475	\$ (14,809,308)	\$ -	\$ (77,232)	\$ 26,626,165

City of Garland 2016 Roadway Impact Fee Study
Capital Improvement Plan for Impact Fees
Appendix E - Impact Fee Calculation Assumptions

III. Summary of Principal Paid to Date for Existing Debt⁽³⁾

The projects related to this area have not been previously funded with debt.

IV. Summary of Debt Financing

Existing Debt Funded Project Costs ⁽⁵⁾	\$	-
-Less Principal Paid to Date		-
Outstanding Debt Principal		-
New Project Costs Debt Principal ⁽⁵⁾		14,809,308
Principal Component	\$	14,809,308

(1) Appendix E - Service Area B, Page 2

(2) Appendix E - Service Area B, Page 1

(3) Not applicable for this service area

(4) Appendix E - Service Area B, Page 8

(5) Appendix E - Service Area B, Page 1

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area B

<u>Year</u>	<u>Impact Fee</u>	<u>Service Units</u>	<u>Impact Fee Revenue</u>	<u>Annual Expenses</u>	<u>Sub-Total</u>	<u>Accumulated Interest</u>	<u>Estimated Fund Balance</u>
Initial							\$ 908,960
1	\$ 2,081	1,187	\$ 2,470,474	\$ 8,175	\$ 2,462,298	\$ 9,652	3,380,910
2	2,081	1,187	2,470,474	577,557	1,892,916	19,516	5,293,343
3	2,081	1,187	2,470,474	685,757	1,784,717	27,898	7,105,957
4	2,081	1,187	2,470,474	795,977	1,674,497	35,824	8,816,278
5	2,081	1,187	2,470,474	908,233	1,562,241	43,284	10,421,803
6	2,081	1,187	2,470,474	1,022,541	1,447,933	50,267	11,920,003
7	2,081	1,187	2,470,474	1,138,915	1,331,558	56,762	13,308,323
8	2,081	1,187	2,470,474	1,257,371	1,213,103	62,756	14,584,182
9	2,081	1,187	2,470,474	1,377,922	1,092,552	68,238	15,744,972
10	2,081	1,187	2,470,474	1,963,769	506,705	72,152	16,323,829
11	-	-	-	1,149,262	(1,149,262)	71,029	15,245,596
12	-	-	-	1,149,262	(1,149,262)	66,166	14,162,501
13	-	-	-	1,149,262	(1,149,262)	61,281	13,074,521
14	-	-	-	1,149,262	(1,149,262)	56,375	11,981,634
15	-	-	-	1,149,262	(1,149,262)	51,446	10,883,818
16	-	-	-	1,149,262	(1,149,262)	46,494	9,781,051
17	-	-	-	1,149,262	(1,149,262)	41,521	8,673,310
18	-	-	-	1,149,262	(1,149,262)	36,525	7,560,574
19	-	-	-	1,149,262	(1,149,262)	31,507	6,442,819
20	-	-	-	1,149,262	(1,149,262)	26,466	5,320,023
21	-	-	-	1,049,536	(1,049,536)	21,627	4,292,114
22	-	-	-	942,774	(942,774)	17,231	3,366,571
23	-	-	-	833,611	(833,611)	13,303	2,546,264
24	-	-	-	722,021	(722,021)	9,855	1,834,099
25	-	-	-	607,975	(607,975)	6,901	1,233,024
26	-	-	-	491,448	(491,448)	4,453	746,029
27	-	-	-	372,412	(372,412)	2,525	376,142
28	-	-	-	250,843	(250,843)	1,131	126,430
29	-	-	-	126,714	(126,714)	284	(0)
			\$ 24,704,735	\$ 26,626,165		\$ 1,012,470	

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area B

<u>Year</u>	<u>Number of Years to End of Period</u>	<u>Future Value Escalation</u>		<u>Annual Service Units</u>		<u>Annual Expense</u>	
		<u>Interest Rate Factor</u>	<u>Recovery Fee Factor</u>	<u>Actual</u>	<u>Escalated</u>	<u>Actual</u>	<u>Escalated</u>
1	29	1.1368	1.0000	1,187	1,350	\$ 8,175	\$ 9,294
2	28	1.1317	1.0000	1,187	1,344	577,557	653,640
3	27	1.1267	1.0000	1,187	1,338	685,757	772,608
4	26	1.1216	1.0000	1,187	1,332	795,977	892,761
5	25	1.1166	1.0000	1,187	1,326	908,233	1,014,093
6	24	1.1115	1.0000	1,187	1,320	1,022,541	1,136,598
7	23	1.1066	1.0000	1,187	1,314	1,138,915	1,260,270
8	22	1.1016	1.0000	1,187	1,308	1,257,371	1,385,100
9	21	1.0966	1.0000	1,187	1,302	1,377,922	1,511,082
10	20	1.0917	1.0000	1,187	1,296	1,963,769	2,143,875
11	19	1.0868	1.0000	-	-	1,149,262	1,249,033
12	18	1.0819	1.0000	-	-	1,149,262	1,243,425
13	17	1.0771	1.0000	-	-	1,149,262	1,237,842
14	16	1.0722	1.0000	-	-	1,149,262	1,232,285
15	15	1.0674	1.0000	-	-	1,149,262	1,226,752
16	14	1.0626	1.0000	-	-	1,149,262	1,221,244
17	13	1.0579	1.0000	-	-	1,149,262	1,215,761
18	12	1.0531	1.0000	-	-	1,149,262	1,210,303
19	11	1.0484	1.0000	-	-	1,149,262	1,204,869
20	10	1.0437	1.0000	-	-	1,149,262	1,199,459
21	9	1.0390	1.0000	-	-	1,049,536	1,090,459
22	8	1.0343	1.0000	-	-	942,774	975,137
23	7	1.0297	1.0000	-	-	833,611	858,356
24	6	1.0251	1.0000	-	-	722,021	740,115
25	5	1.0205	1.0000	-	-	607,975	620,413
26	4	1.0159	1.0000	-	-	491,448	499,250
27	3	1.0113	1.0000	-	-	372,412	376,626
28	2	1.0068	1.0000	-	-	250,843	252,543
29	1	1.0023	1.0000	-	-	126,714	127,000
				13,227		\$ 26,626,165	\$ 28,560,194

Total Escalated Expense for Entire Period	\$ 28,560,194
Total Escalated Service Units	13,227
Impact Fee for Service Area B	\$ 2,081

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area B

<u>Impact Fee Project Name⁽¹⁾</u>	<u>Impact Fee Project No.⁽¹⁾</u>	<u>Total Project Cost⁽¹⁾</u>	<u>Percent in Service Area⁽¹⁾</u>	<u>Cost in Service Area⁽¹⁾</u>	<u>Impact Fee Recoverable Cost⁽²⁾</u>	<u>Debt Funded⁽³⁾</u>		<u>Non-Debt Funded⁽³⁾</u>	<u>Impact Fee Recoverable Cost</u>
						<u>Existing</u>	<u>Proposed</u>		
Kings Rd (Future)	B-1	\$ 551,000	100%	\$ 551,000	\$ 238,533	\$ -	\$ 190,826	\$ 47,707	\$ 238,533
Leon Rd (1)	B-2	959,000	100%	959,000	415,160	-	332,128	83,032	415,160
Leon Rd (2)	B-3	212,000	100%	212,000	91,777	-	73,421	18,355	91,777
Marketplace ext (1)	B-4	1,398,000	100%	1,398,000	605,207	-	484,166	121,041	605,207
Marketplace ext (2)	B-5	666,000	100%	666,000	288,318	-	230,654	57,664	288,318
Millay Blvd (Future)	B-6	1,180,000	100%	1,180,000	510,833	-	408,666	102,167	510,833
Shiloh Rd (6)	B-7	1,784,000	100%	1,784,000	772,310	-	617,848	154,462	772,310
Shiloh Rd (7)	B-8	4,590,000	100%	4,590,000	1,987,054	-	1,589,643	397,411	1,987,054
Shiloh Rd (8)	B-9	8,552,000	100%	8,552,000	3,702,240	-	2,961,792	740,448	3,702,240
Shiloh Rd (9)	B-10	9,087,000	100%	9,087,000	3,933,847	-	3,147,078	786,769	3,933,847
Shiloh Rd (10)	B-11	4,129,000	100%	4,129,000	1,787,483	-	1,429,986	357,497	1,787,483
Shiloh Rd (11)	B-12	2,368,000	100%	2,368,000	1,025,129	-	820,103	205,026	1,025,129
New road east of Industrial Ln	B-13	2,260,000	100%	2,260,000	978,375	-	782,700	195,675	978,375
Saturn Rd (Future)	B-14	2,215,000	100%	2,215,000	958,894	-	767,115	191,779	958,894
Sherwin (Future)	B-15	2,432,000	100%	2,432,000	1,052,835	-	842,268	210,567	1,052,835
Bottleneck Study Improvements - Service Area B	Various	378,000	100%	378,000	163,640	-	130,912	32,728	163,640
Study Costs		15,840	100%	15,840	15,840	-	-	15,840	15,840
Total		\$ 42,776,840		\$ 42,776,840	\$ 18,527,475	\$ -	\$ 14,809,308	\$ 3,718,167	\$ 18,527,475

(1) 2016 Roadway Impact Fee Study As Assigned to Service Area, Appendix A

(2) Line 11 of the Max Fee Table Report

(3) Based on Contributions by Project and Planned Future Debt Financing

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area B

2016 Vehicle Miles (All Service Areas) ⁽¹⁾	653,797
Ten Year Growth in Vehicle Miles (Service Area B) ⁽²⁾	11,872
	<u>10 years</u>
Annual Growth in Vehicle Miles	1,187

	1	2	3	4	5	6	7	8	9	10	Total
Total Debt Service Eligible for Impact Fees	\$ 99,726	\$ 206,488	\$ 315,650	\$ 427,241	\$ 541,287	\$ 657,814	\$ 776,849	\$ 898,418	\$ 1,022,547	\$ 1,149,262	\$ 6,095,282
2016 Vehicle Miles plus Service Area B Growth	654,984	656,172	657,359	658,546	659,733	660,920	662,108	663,295	664,482	665,669	
Total Debt Service Eligible for Impact Fees per Vehicle Mile	\$ 0.15	\$ 0.31	\$ 0.48	\$ 0.65	\$ 0.82	\$ 1.00	\$ 1.17	\$ 1.35	\$ 1.54	\$ 1.73	
Annual Growth in Service Area B Vehicle Miles (Cumulative)	1,187	2,374	3,562	4,749	5,936	7,123	8,310	9,498	10,685	11,872	
Annual Ad Valorem Revenue Generated by Vehicle Miles for Debt Service Eligible for Impact Fees	\$ 181	\$ 747	\$ 1,710	\$ 3,081	\$ 4,870	\$ 7,090	\$ 9,750	\$ 12,864	\$ 16,442	\$ 20,497	\$ 77,232
Credit Amount	\$ 77,232										

(1) Engineer's calculation

(2) Line 8 of the Max Fee Table Report

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area C

I. General Assumptions

Annual Interest Rate on Deposits ⁽¹⁾	0.451%
Annual Service Unit Growth ⁽²⁾	1,084
Existing Fund Balance ⁽³⁾	502,053
Portion of Projects Funded by Existing Debt ⁽³⁾	\$ 1,895,110
Non-debt Funded New Project Cost ⁽⁴⁾	4,468,650
New Project Cost Funded Through New Debt ⁽⁵⁾	15,178,290
Total Recoverable Project Cost⁽⁶⁾	\$ 21,542,049

II. New Debt Issues Assumptions

<u>Year</u>	<u>Principal⁽⁷⁾</u>	<u>Interest⁽⁸⁾</u>	<u>Term</u>
1	\$ 1,517,829	3.02%	20
2	1,517,829	3.77%	20
3	1,517,829	4.02%	20
4	1,517,829	4.27%	20
5	1,517,829	4.52%	20
6	1,517,829	4.77%	20
7	1,517,829	5.02%	20
8	1,517,829	5.27%	20
9	1,517,829	5.52%	20
10	1,517,829	5.77%	20
Total	\$ 15,178,290		

III. Capital Expenditure Assumptions

<u>Year</u>	<u>Annual Capital Expenditures⁽⁹⁾</u>
1	\$ 1,473,520
2	1,964,694
3	1,964,694
4	1,964,694
5	1,964,694
6	1,964,694
7	1,964,694
8	1,964,694
9	1,964,694
10	2,455,867
Total	\$ 19,646,939

(1) Current Yield for GO Interest and Sinking Fund as of June 30, 2016

(2) Derived from the 10-year Growth Projections Report, Table 7

(3) Totals provided by City Staff on September 23, 2016

(4) Assumes 20% of new project costs funded through sources other than debt unless otherwise specified

(5) Assumes 80% of new project costs funded through new debt issues unless otherwise specified

(6) Line 11 of the Max Fee Table Report

(7) Assumes new debt issued in equal annual amounts

(8) Estimated interest cost provided by City's Financial Advisor on September 28, 2016

(9) Assumes new debt proceeds expended over a 2-year timeframe with Year 10 bond proceeds spent fully in tenth year; Non-debt funded capital expenditures made in equal annual amounts

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area C

I. New Debt Service Detail

<u>Year</u>	<u>Series 1</u>	<u>Series 2</u>	<u>Series 3</u>	<u>Series 4</u>	<u>Series 5</u>	<u>Series 6</u>	<u>Series 7</u>	<u>Series 8</u>	<u>Series 9</u>	<u>Series 10</u>	<u>Total Annual New Debt Service</u>
1	\$ 102,211	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 102,211
2	102,211	109,422	-	-	-	-	-	-	-	-	211,632
3	102,211	109,422	111,882	-	-	-	-	-	-	-	323,515
4	102,211	109,422	111,882	114,371	-	-	-	-	-	-	437,886
5	102,211	109,422	111,882	114,371	116,887	-	-	-	-	-	554,773
6	102,211	109,422	111,882	114,371	116,887	119,431	-	-	-	-	674,204
7	102,211	109,422	111,882	114,371	116,887	119,431	122,001	-	-	-	796,205
8	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	-	-	920,803
9	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	-	1,048,025
10	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
11	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
12	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
13	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
14	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
15	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
16	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
17	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
18	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
19	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
20	102,211	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,177,896
21	-	109,422	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	1,075,685
22	-	-	111,882	114,371	116,887	119,431	122,001	124,598	127,222	129,871	966,263
23	-	-	-	114,371	116,887	119,431	122,001	124,598	127,222	129,871	854,381
24	-	-	-	-	116,887	119,431	122,001	124,598	127,222	129,871	740,010
25	-	-	-	-	-	119,431	122,001	124,598	127,222	129,871	623,123
26	-	-	-	-	-	-	122,001	124,598	127,222	129,871	503,692
27	-	-	-	-	-	-	-	124,598	127,222	129,871	381,691
28	-	-	-	-	-	-	-	-	127,222	129,871	257,093
29	-	-	-	-	-	-	-	-	-	129,871	129,871
	\$ 2,044,214	\$ 2,188,436	\$ 2,237,648	\$ 2,287,419	\$ 2,337,743	\$ 2,388,613	\$ 2,440,023	\$ 2,491,966	\$ 2,544,435	\$ 2,597,423	\$ 23,557,919

City of Garland 2016 Roadway Impact Fee Study
Capital Improvement Plan for Impact Fees
Appendix E - Impact Fee Calculation Assumptions

II. Summary of Annual Expenses

Year	New Annual Debt Service⁽¹⁾	Annual Capital Expenditures⁽²⁾	Annual Bond Proceeds⁽²⁾	Existing Annual Debt Service⁽³⁾	Annual Credit⁽⁴⁾	Total Expense
1	\$ 102,211	\$ 1,473,520	\$ (1,517,829)	\$ 143,934	\$ (407)	\$ 201,429
2	211,632	1,964,694	(1,517,829)	145,060	(1,179)	802,379
3	323,515	1,964,694	(1,517,829)	144,744	(2,318)	912,807
4	437,886	1,964,694	(1,517,829)	144,702	(3,838)	1,025,614
5	554,773	1,964,694	(1,517,829)	144,940	(5,753)	1,140,825
6	674,204	1,964,694	(1,517,829)	144,923	(8,069)	1,257,923
7	796,205	1,964,694	(1,517,829)	144,798	(10,796)	1,377,072
8	920,803	1,964,694	(1,517,829)	144,833	(13,950)	1,498,551
9	1,048,025	1,964,694	(1,517,829)	132,776	(17,361)	1,610,304
10	1,177,896	2,455,867	(1,517,829)	132,710	(21,376)	2,227,269
11	1,177,896	-	-	132,769	-	1,310,665
12	1,177,896	-	-	132,840	-	1,310,736
13	1,177,896	-	-	130,521	-	1,308,417
14	1,177,896	-	-	130,831	-	1,308,727
15	1,177,896	-	-	130,529	-	1,308,425
16	1,177,896	-	-	130,914	-	1,308,810
17	1,177,896	-	-	130,789	-	1,308,685
18	1,177,896	-	-	130,557	-	1,308,453
19	1,177,896	-	-	-	-	1,177,896
20	1,177,896	-	-	-	-	1,177,896
21	1,075,685	-	-	-	-	1,075,685
22	966,263	-	-	-	-	966,263
23	854,381	-	-	-	-	854,381
24	740,010	-	-	-	-	740,010
25	623,123	-	-	-	-	623,123
26	503,692	-	-	-	-	503,692
27	381,691	-	-	-	-	381,691
28	257,093	-	-	-	-	257,093
29	129,871	-	-	-	-	129,871
	\$ 23,557,919	\$ 19,646,939	\$ (15,178,290)	\$ 2,473,171	\$ (85,047)	\$ 30,414,693

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions

III. Summary of Principal Paid to Date for Existing Debt⁽³⁾

	Principal Paid on Issuance <u>2005</u>	Principal Paid on Debt <u>2008</u>	Principal Paid on Debt <u>2011</u>	Principal Paid on Debt <u>2015</u>	Total Principal Paid to Date
2005	1,408	-	-	-	1,408
2006	4,625	-	-	-	4,625
2007	4,876	-	-	-	4,876
2008	5,128	-	-	-	5,128
2009	5,379	7	-	-	5,386
2010	5,630	10	-	-	5,640
2011	5,932	11	-	-	5,942
2012	6,234	15	-	-	6,249
2013	6,585	16	-	-	6,601
2014	6,937	17	396	-	7,350
2015	7,289	17	396	26,599	34,302
2016	7,691	18	396	61,932	70,038
	\$ 67,714	\$ 110	\$ 1,189	\$ 88,531	\$ 157,544

IV. Summary of Debt Financing

Existing Debt Funded Project Costs ⁽⁵⁾	\$ 1,895,110
-Less Principal Paid to Date	157,544
Outstanding Debt Principal	1,737,565
New Project Costs Debt Principal ⁽⁵⁾	15,178,290
Principal Component	\$ 16,915,855

(1) Appendix E - Service Area C, Page 2

(2) Appendix E - Service Area C, Page 1

(3) Prior Debt Funding Provided by City Staff

(4) Appendix E - Service Area C, Page 8

(5) Appendix E - Service Area C, Page 1

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area C

<u>Year</u>	<u>Impact Fee</u>	<u>Service Units</u>	<u>Impact Fee Revenue</u>	<u>Annual Expenses</u>	<u>Sub-Total</u>	<u>Accumulated Interest</u>	<u>Estimated Fund Balance</u>
Initial							\$ 502,053
1	\$ 2,661	1,084	\$ 2,884,280	\$ 201,429	\$ 2,682,851	\$ 8,314	3,193,218
2	2,661	1,084	2,884,280	802,379	2,081,901	19,096	5,294,215
3	2,661	1,084	2,884,280	912,807	1,971,473	28,323	7,294,011
4	2,661	1,084	2,884,280	1,025,614	1,858,666	37,087	9,189,764
5	2,661	1,084	2,884,280	1,140,825	1,743,455	45,377	10,978,597
6	2,661	1,084	2,884,280	1,257,923	1,626,356	53,181	12,658,134
7	2,661	1,084	2,884,280	1,377,072	1,507,208	60,487	14,225,829
8	2,661	1,084	2,884,280	1,498,551	1,385,729	67,283	15,678,841
9	2,661	1,084	2,884,280	1,610,304	1,273,975	73,584	17,026,401
10	2,661	1,084	2,884,280	2,227,269	657,011	78,271	17,761,683
11	-	-	-	1,310,665	(1,310,665)	77,150	16,528,167
12	-	-	-	1,310,736	(1,310,736)	71,586	15,289,018
13	-	-	-	1,308,417	(1,308,417)	66,003	14,046,604
14	-	-	-	1,308,727	(1,308,727)	60,399	12,798,276
15	-	-	-	1,308,425	(1,308,425)	54,770	11,544,621
16	-	-	-	1,308,810	(1,308,810)	49,115	10,284,925
17	-	-	-	1,308,685	(1,308,685)	43,434	9,019,674
18	-	-	-	1,308,453	(1,308,453)	37,728	7,748,949
19	-	-	-	1,177,896	(1,177,896)	32,292	6,603,345
20	-	-	-	1,177,896	(1,177,896)	27,125	5,452,574
21	-	-	-	1,075,685	(1,075,685)	22,165	4,399,054
22	-	-	-	966,263	(966,263)	17,661	3,450,451
23	-	-	-	854,381	(854,381)	13,635	2,609,705
24	-	-	-	740,010	(740,010)	10,101	1,879,796
25	-	-	-	623,123	(623,123)	7,073	1,263,746
26	-	-	-	503,692	(503,692)	4,564	764,617
27	-	-	-	381,691	(381,691)	2,588	385,514
28	-	-	-	257,093	(257,093)	1,159	129,580
29	-	-	-	129,871	(129,871)	292	0
			\$ 28,842,799	\$ 30,414,693		\$ 1,069,842	

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area C

<u>Year</u>	<u>Number of Years to End of Period</u>	<u>Future Value Escalation</u>		<u>Annual Service Units</u>		<u>Annual Expense</u>	
		<u>Interest Rate Factor</u>	<u>Recovery Fee Factor</u>	<u>Actual</u>	<u>Escalated</u>	<u>Actual</u>	<u>Escalated</u>
1	29	1.1368	1.0000	1,084	1,232	\$ 201,429	\$ 228,991
2	28	1.1317	1.0000	1,084	1,227	802,379	908,077
3	27	1.1267	1.0000	1,084	1,221	912,807	1,028,414
4	26	1.1216	1.0000	1,084	1,216	1,025,614	1,150,321
5	25	1.1166	1.0000	1,084	1,210	1,140,825	1,273,795
6	24	1.1115	1.0000	1,084	1,205	1,257,923	1,398,236
7	23	1.1066	1.0000	1,084	1,200	1,377,072	1,523,802
8	22	1.1016	1.0000	1,084	1,194	1,498,551	1,650,781
9	21	1.0966	1.0000	1,084	1,189	1,610,304	1,765,922
10	20	1.0917	1.0000	1,084	1,183	2,227,269	2,431,543
11	19	1.0868	1.0000	-	-	1,310,665	1,424,448
12	18	1.0819	1.0000	-	-	1,310,736	1,418,129
13	17	1.0771	1.0000	-	-	1,308,417	1,409,265
14	16	1.0722	1.0000	-	-	1,308,727	1,403,270
15	15	1.0674	1.0000	-	-	1,308,425	1,396,648
16	14	1.0626	1.0000	-	-	1,308,810	1,390,786
17	13	1.0579	1.0000	-	-	1,308,685	1,384,410
18	12	1.0531	1.0000	-	-	1,308,453	1,377,949
19	11	1.0484	1.0000	-	-	1,177,896	1,234,889
20	10	1.0437	1.0000	-	-	1,177,896	1,229,344
21	9	1.0390	1.0000	-	-	1,075,685	1,117,629
22	8	1.0343	1.0000	-	-	966,263	999,433
23	7	1.0297	1.0000	-	-	854,381	879,742
24	6	1.0251	1.0000	-	-	740,010	758,555
25	5	1.0205	1.0000	-	-	623,123	635,871
26	4	1.0159	1.0000	-	-	503,692	511,689
27	3	1.0113	1.0000	-	-	381,691	386,010
28	2	1.0068	1.0000	-	-	257,093	258,835
29	1	1.0023	1.0000	-	-	129,871	130,164
				12,077		\$ 30,414,693	\$ 32,706,948

Total Escalated Expense for Entire Period	\$ 32,706,948
Total Escalated Service Units	12,077
Impact Fee for Service Area C	\$ 2,661

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area C

<u>Impact Fee Project Name⁽¹⁾</u>	<u>Impact Fee Project No.⁽¹⁾</u>	<u>Total Project Cost⁽¹⁾</u>	<u>Percent in Service Area⁽¹⁾</u>	<u>Cost in Service Area⁽¹⁾</u>	<u>Impact Fee Recoverable Cost⁽²⁾</u>	<u>Debt Funded⁽³⁾</u>		<u>Non-Debt Funded⁽³⁾</u>	<u>Impact Fee Recoverable Cost</u>
						<u>Existing</u>	<u>Proposed</u>		
Castle Dr (1)	C-1	\$ 953,000	100%	\$ 953,000	\$ 489,096	\$ -	\$ 391,277	\$ 97,819	\$ 489,096
Castle Dr (2)	C-2	2,390,000	100%	2,390,000	1,226,589	-	981,271	245,318	1,226,589
Castle Dr (3)	C-3	2,424,000	100%	2,424,000	1,244,038	-	995,230	248,808	1,244,038
Castle Dr (4)	C-4	5,536,000	100%	5,536,000	2,841,169	-	2,272,935	568,234	2,841,169
Castle Dr (5)	C-5	2,659,000	50%	1,329,500	682,322	-	545,858	136,464	682,322
Castle Dr (6)	C-6	4,433,000	50%	2,216,500	1,137,545	-	910,036	227,509	1,137,545
Crist Rd	C-7	4,436,000	100%	4,436,000	2,276,631	-	1,821,304	455,326	2,276,631
Firewheel Parkway (2)	C-8	6,292,000	100%	6,292,000	3,229,161	-	2,583,329	645,832	3,229,161
Pleasant Valley Rd (1)	C-9	10,773,000	100%	10,773,000	5,528,887	-	4,423,109	1,105,777	5,528,887
E. Miller Rd	C-10,D-5	955,000	50%	477,500	245,061	-	196,049	49,012	245,061
Pleasant Valley Rd (2)	C-11	3,603,239	100%	3,603,239	1,849,243	1,822,042	-	27,202	1,849,243
Miller Rd Bridge	C-12,D-21	2,743,883	50%	1,371,942	704,104	73,068	-	631,036	704,104
Bottleneck Study Improvements - Service Area C		141,000	100%	141,000	72,364	-	57,891	14,473	72,364
Study Costs		15,840	100%	15,840	15,840	-	-	15,840	15,840
Total		\$ 47,354,962		\$ 41,959,521	\$ 21,542,049	\$ 1,895,110	\$ 15,178,290	\$ 4,468,650	\$ 21,542,049

(1) 2016 Roadway Impact Fee Study As Assigned to Service Area, Appendix A

(2) Line 11 of the Max Fee Table Report

(3) Based on Contributions by Project and Planned Future Debt Financing

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area C

2016 Vehicle Miles (All Service Areas) ⁽¹⁾	653,797
Ten Year Growth in Vehicle Miles (Service Area C) ⁽²⁾	10,840
	<u>10 years</u>
Annual Growth in Vehicle Miles	1,084

	1	2	3	4	5	6	7	8	9	10	Total
Total Debt Service Eligible for Impact Fees	\$ 246,145	\$ 356,693	\$ 468,259	\$ 582,588	\$ 699,713	\$ 819,127	\$ 941,003	\$ 1,065,636	\$ 1,180,801	\$ 1,310,606	\$ 7,670,569
2016 Vehicle Miles plus Service Area C Growth	654,881	655,965	657,049	658,133	659,217	660,301	661,385	662,469	663,553	664,637	
Total Debt Service Eligible for Impact Fees per Vehicle Mile	\$ 0.38	\$ 0.54	\$ 0.71	\$ 0.89	\$ 1.06	\$ 1.24	\$ 1.42	\$ 1.61	\$ 1.78	\$ 1.97	
Annual Growth in Service Area C Vehicle Miles (Cumulative)	1,084	2,168	3,252	4,336	5,420	6,504	7,588	8,672	9,756	10,840	
Annual Ad Valorem Revenue Generated by Vehicle Miles for Debt Service Eligible for Impact Fees	\$ 407	\$ 1,179	\$ 2,318	\$ 3,838	\$ 5,753	\$ 8,069	\$ 10,796	\$ 13,950	\$ 17,361	\$ 21,376	\$ 85,047
Credit Amount	\$ 85,047										

(1) Engineer's calculation

(2) Line 8 of the Max Fee Table Report

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area D

I. General Assumptions

Annual Interest Rate on Deposits ⁽¹⁾	0.451%
Annual Service Unit Growth ⁽²⁾	1,417
Existing Fund Balance ⁽³⁾	1,113,622
Portion of Projects Funded by Existing Debt ⁽³⁾	\$ 2,687,484
Non-debt Funded New Project Cost ⁽⁴⁾	3,245,686
New Project Cost Funded Through New Debt ⁽⁵⁾	10,495,546
Total Recoverable Project Cost⁽⁶⁾	\$ 16,428,715

II. New Debt Issues Assumptions

<u>Year</u>	<u>Principal⁽⁷⁾</u>	<u>Interest⁽⁸⁾</u>	<u>Term</u>
1	\$ 1,049,555	3.02%	20
2	1,049,555	3.77%	20
3	1,049,555	4.02%	20
4	1,049,555	4.27%	20
5	1,049,555	4.52%	20
6	1,049,555	4.77%	20
7	1,049,555	5.02%	20
8	1,049,555	5.27%	20
9	1,049,555	5.52%	20
10	1,049,555	5.77%	20
Total	\$ 10,495,546		

III. Capital Expenditure Assumptions

<u>Year</u>	<u>Annual Capital Expenditures⁽⁹⁾</u>
1	\$ 1,030,592
2	1,374,123
3	1,374,123
4	1,374,123
5	1,374,123
6	1,374,123
7	1,374,123
8	1,374,123
9	1,374,123
10	1,717,654
Total	\$ 13,741,231

(1) Current Yield for GO Interest and Sinking Fund as of June 30, 2016

(2) Derived from the 10-year Growth Projections Report, Table 7

(3) Totals provided by City Staff on September 23, 2016

(4) Assumes 20% of new project costs funded through sources other than debt unless otherwise specified

(5) Assumes 80% of new project costs funded through new debt issues unless otherwise specified

(6) Line 11 of the Max Fee Table Report

(7) Assumes new debt issued in equal annual amounts

(8) Estimated interest cost provided by City's Financial Advisor on September 28, 2016

(9) Assumes new debt proceeds expended over a 2-year timeframe with Year 10 bond proceeds spent fully in tenth year; Non-debt funded capital expenditures made in equal annual amounts

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area D

I. New Debt Service Detail

<u>Year</u>	<u>Series 1</u>	<u>Series 2</u>	<u>Series 3</u>	<u>Series 4</u>	<u>Series 5</u>	<u>Series 6</u>	<u>Series 7</u>	<u>Series 8</u>	<u>Series 9</u>	<u>Series 10</u>	<u>Total Annual New Debt Service</u>
1	\$ 70,677	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 70,677
2	70,677	75,663	-	-	-	-	-	-	-	-	146,340
3	70,677	75,663	77,365	-	-	-	-	-	-	-	223,705
4	70,677	75,663	77,365	79,086	-	-	-	-	-	-	302,791
5	70,677	75,663	77,365	79,086	80,826	-	-	-	-	-	383,617
6	70,677	75,663	77,365	79,086	80,826	82,584	-	-	-	-	466,201
7	70,677	75,663	77,365	79,086	80,826	82,584	84,362	-	-	-	550,563
8	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	-	-	636,721
9	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	-	724,692
10	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
11	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
12	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
13	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
14	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
15	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
16	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
17	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
18	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
19	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
20	70,677	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	814,496
21	-	75,663	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	743,819
22	-	-	77,365	79,086	80,826	82,584	84,362	86,158	87,972	89,804	668,156
23	-	-	-	79,086	80,826	82,584	84,362	86,158	87,972	89,804	590,791
24	-	-	-	-	80,826	82,584	84,362	86,158	87,972	89,804	511,705
25	-	-	-	-	-	82,584	84,362	86,158	87,972	89,804	430,880
26	-	-	-	-	-	-	84,362	86,158	87,972	89,804	348,295
27	-	-	-	-	-	-	-	86,158	87,972	89,804	263,933
28	-	-	-	-	-	-	-	-	87,972	89,804	177,776
29	-	-	-	-	-	-	-	-	-	89,804	89,804
	\$ 1,413,541	\$ 1,513,268	\$ 1,547,298	\$ 1,581,714	\$ 1,616,512	\$ 1,651,688	\$ 1,687,237	\$ 1,723,155	\$ 1,759,436	\$ 1,796,077	\$ 16,289,926

City of Garland 2016 Roadway Impact Fee Study
Capital Improvement Plan for Impact Fees
Appendix E - Impact Fee Calculation Assumptions

II. Summary of Annual Expenses

Year	New Annual Debt Service⁽¹⁾	Annual Capital Expenditures⁽²⁾	Annual Bond Proceeds⁽²⁾	Existing Annual Debt Service⁽³⁾	Annual Credit⁽⁴⁾	Total Expense
1	\$ 70,677	\$ 1,030,592	\$ (1,049,555)	\$ 200,319	\$ (586)	\$ 251,448
2	146,340	1,374,123	(1,049,555)	200,676	(1,498)	670,088
3	223,705	1,374,123	(1,049,555)	200,218	(2,739)	745,754
4	302,791	1,374,123	(1,049,555)	200,178	(4,323)	823,214
5	383,617	1,374,123	(1,049,555)	200,499	(6,262)	902,422
6	466,201	1,374,123	(1,049,555)	200,496	(8,559)	982,707
7	550,563	1,374,123	(1,049,555)	200,293	(11,222)	1,064,203
8	636,721	1,374,123	(1,049,555)	200,340	(14,267)	1,147,363
9	724,692	1,374,123	(1,049,555)	190,489	(17,511)	1,222,240
10	814,496	1,717,654	(1,049,555)	190,434	(21,319)	1,651,711
11	814,496	-	-	190,521	-	1,005,017
12	814,496	-	-	190,622	-	1,005,119
13	814,496	-	-	190,347	-	1,004,844
14	814,496	-	-	190,799	-	1,005,295
15	814,496	-	-	190,359	-	1,004,855
16	814,496	-	-	190,921	-	1,005,417
17	814,496	-	-	190,738	-	1,005,235
18	814,496	-	-	190,400	-	1,004,896
19	814,496	-	-	-	-	814,496
20	814,496	-	-	-	-	814,496
21	743,819	-	-	-	-	743,819
22	668,156	-	-	-	-	668,156
23	590,791	-	-	-	-	590,791
24	511,705	-	-	-	-	511,705
25	430,880	-	-	-	-	430,880
26	348,295	-	-	-	-	348,295
27	263,933	-	-	-	-	263,933
28	177,776	-	-	-	-	177,776
29	89,804	-	-	-	-	89,804
	\$ 16,289,926	\$ 13,741,231	\$ (10,495,546)	\$ 3,508,652	\$ (88,284)	\$ 22,955,979

City of Garland 2016 Roadway Impact Fee Study
Capital Improvement Plan for Impact Fees
Appendix E - Impact Fee Calculation Assumptions

III. Summary of Principal Paid to Date for Existing Debt⁽³⁾

	Principal Paid on Issuance <u>2005</u>	Principal Paid on Debt <u>2008</u>	Principal Paid on Debt <u>2011</u>	Principal Paid on Debt <u>2015</u>	Total Principal Paid to Date
2005	1,147	-	-	-	1,147
2006	3,769	-	-	-	3,769
2007	3,974	-	-	-	3,974
2008	4,179	-	-	-	4,179
2009	4,384	-	-	-	4,384
2010	4,588	-	-	-	4,588
2011	4,834	-	-	-	4,834
2012	5,080	-	-	-	5,080
2013	5,367	-	-	-	5,367
2014	5,653	-	-	-	5,653
2015	5,940	-	-	38,791	44,731
2016	6,268	-	-	90,319	96,587
	<u>\$ 55,183</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 129,110</u>	<u>\$ 184,293</u>

IV. Summary of Debt Financing

Existing Debt Funded Project Costs ⁽⁵⁾	\$ 2,687,484
-Less Principal Paid to Date	184,293
Outstanding Debt Principal	2,503,191
New Project Costs Debt Principal ⁽⁵⁾	10,495,546
Principal Component	\$ 12,998,737

(1) Appendix E - Service Area D, Page 2

(2) Appendix E - Service Area D, Page 1

(3) Prior Debt Funding Provided by City Staff

(4) Appendix E - Service Area D, Page 8

(5) Appendix E - Service Area D, Page 1

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area D

<u>Year</u>	<u>Impact Fee</u>	<u>Service Units</u>	<u>Impact Fee Revenue</u>	<u>Annual Expenses</u>	<u>Sub-Total</u>	<u>Accumulated Interest</u>	<u>Estimated Fund Balance</u>
Initial							\$ 1,113,622
1	\$ 1,486	1,417	\$ 2,105,361	\$ 251,448	\$ 1,853,913	\$ 9,203	2,976,738
2	1,486	1,417	2,105,361	670,088	1,435,273	16,662	4,428,672
3	1,486	1,417	2,105,361	745,754	1,359,607	23,039	5,811,318
4	1,486	1,417	2,105,361	823,214	1,282,146	29,100	7,122,565
5	1,486	1,417	2,105,361	902,422	1,202,939	34,835	8,360,339
6	1,486	1,417	2,105,361	982,707	1,122,654	40,237	9,523,229
7	1,486	1,417	2,105,361	1,064,203	1,041,157	45,298	10,609,684
8	1,486	1,417	2,105,361	1,147,363	957,998	50,010	11,617,692
9	1,486	1,417	2,105,361	1,222,240	883,121	54,387	12,555,200
10	1,486	1,417	2,105,361	1,651,711	453,649	57,647	13,066,496
11	-	-	-	1,005,017	(1,005,017)	56,664	12,118,142
12	-	-	-	1,005,119	(1,005,119)	52,386	11,165,410
13	-	-	-	1,004,844	(1,004,844)	48,090	10,208,656
14	-	-	-	1,005,295	(1,005,295)	43,774	9,247,135
15	-	-	-	1,004,855	(1,004,855)	39,439	8,281,718
16	-	-	-	1,005,417	(1,005,417)	35,083	7,311,385
17	-	-	-	1,005,235	(1,005,235)	30,708	6,336,858
18	-	-	-	1,004,896	(1,004,896)	26,313	5,358,275
19	-	-	-	814,496	(814,496)	22,329	4,566,108
20	-	-	-	814,496	(814,496)	18,756	3,770,368
21	-	-	-	743,819	(743,819)	15,327	3,041,876
22	-	-	-	668,156	(668,156)	12,212	2,385,932
23	-	-	-	590,791	(590,791)	9,428	1,804,570
24	-	-	-	511,705	(511,705)	6,985	1,299,849
25	-	-	-	430,880	(430,880)	4,891	873,860
26	-	-	-	348,295	(348,295)	3,156	528,721
27	-	-	-	263,933	(263,933)	1,789	266,577
28	-	-	-	177,776	(177,776)	801	89,602
29	-	-	-	89,804	(89,804)	202	0
			\$ 21,053,606	\$ 22,955,979		\$ 788,751	

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area D

<u>Year</u>	<u>Number of Years to End of Period</u>	<u>Future Value Escalation</u>		<u>Annual Service Units</u>		<u>Annual Expense</u>	
		<u>Interest Rate Factor</u>	<u>Recovery Fee Factor</u>	<u>Actual</u>	<u>Escalated</u>	<u>Actual</u>	<u>Escalated</u>
1	29	1.1368	1.0000	1,417	1,611	\$ 251,448	\$ 285,855
2	28	1.1317	1.0000	1,417	1,604	670,088	758,359
3	27	1.1267	1.0000	1,417	1,597	745,754	840,203
4	26	1.1216	1.0000	1,417	1,589	823,214	923,311
5	25	1.1166	1.0000	1,417	1,582	902,422	1,007,605
6	24	1.1115	1.0000	1,417	1,575	982,707	1,092,321
7	23	1.1066	1.0000	1,417	1,568	1,064,203	1,177,597
8	22	1.1016	1.0000	1,417	1,561	1,147,363	1,263,917
9	21	1.0966	1.0000	1,417	1,554	1,222,240	1,340,355
10	20	1.0917	1.0000	1,417	1,547	1,651,711	1,803,198
11	19	1.0868	1.0000	-	-	1,005,017	1,092,266
12	18	1.0819	1.0000	-	-	1,005,119	1,087,472
13	17	1.0771	1.0000	-	-	1,004,844	1,082,293
14	16	1.0722	1.0000	-	-	1,005,295	1,077,918
15	15	1.0674	1.0000	-	-	1,004,855	1,072,609
16	14	1.0626	1.0000	-	-	1,005,417	1,068,390
17	13	1.0579	1.0000	-	-	1,005,235	1,063,400
18	12	1.0531	1.0000	-	-	1,004,896	1,058,269
19	11	1.0484	1.0000	-	-	814,496	853,906
20	10	1.0437	1.0000	-	-	814,496	850,072
21	9	1.0390	1.0000	-	-	743,819	772,822
22	8	1.0343	1.0000	-	-	668,156	691,092
23	7	1.0297	1.0000	-	-	590,791	608,328
24	6	1.0251	1.0000	-	-	511,705	524,529
25	5	1.0205	1.0000	-	-	430,880	439,695
26	4	1.0159	1.0000	-	-	348,295	353,825
27	3	1.0113	1.0000	-	-	263,933	266,920
28	2	1.0068	1.0000	-	-	177,776	178,980
29	1	1.0023	1.0000	-	-	89,804	90,006
				15,788		\$ 22,955,979	\$ 24,725,516

Total Escalated Expense for Entire Period	\$ 24,725,516
Total Escalated Service Units	15,788
Impact Fee for Service Area D	\$ 1,486

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees

Appendix E - Impact Fee Calculation Assumptions

Service Area D

<u>Impact Fee Project Name⁽¹⁾</u>	<u>Impact Fee Project No.⁽¹⁾</u>	<u>Total Project Cost⁽¹⁾</u>	<u>Percent in Service Area⁽¹⁾</u>	<u>Cost in Service Area⁽¹⁾</u>	<u>Impact Fee Recoverable Cost⁽²⁾</u>	<u>Debt Funded⁽³⁾</u>		<u>Non-Debt Funded⁽³⁾</u>	<u>Impact Fee Recoverable Cost</u>
						<u>Existing</u>	<u>Proposed</u>		
Bobtown Rd (1)	D-1	\$ 929,000	100%	\$ 929,000	\$ 388,547	\$ -	\$ 310,838	\$ 77,709	\$ 388,547
Bobtown Rd (2)	D-2	1,779,000	100%	1,779,000	744,053	-	595,243	148,811	744,053
Bobtown Rd (3)	D-3	1,995,000	100%	1,995,000	834,394	-	667,515	166,879	834,394
Bobtown Rd (4)	D-4	2,654,000	50%	1,327,000	555,008	-	444,006	111,002	555,008
E. Miller Rd	C-10,D-5	955,000	50%	477,500	199,711	-	159,769	39,942	199,711
E. Oates Rd (Future)	D-6	3,219,000	100%	3,219,000	1,346,323	-	1,077,058	269,265	1,346,323
La Prada Dr	D-7	567,000	50%	283,500	118,572	-	94,857	23,714	118,572
Locust Grove Rd	D-8	2,859,000	100%	2,859,000	1,195,755	-	956,604	239,151	1,195,755
Lyons Rd (1)	D-9	5,014,000	100%	5,014,000	2,097,068	-	1,677,654	419,414	2,097,068
Lyons Rd (2)	D-10	1,366,000	100%	1,366,000	571,319	-	457,055	114,264	571,319
Lyons Rd (Future) (3)	D-11	2,811,000	100%	2,811,000	1,175,680	-	940,544	235,136	1,175,680
Rosehill Rd (1)	D-12	1,364,000	100%	1,364,000	570,483	-	456,386	114,097	570,483
Rosehill Rd (2)	D-13	513,000	100%	513,000	214,558	-	171,647	42,912	214,558
Rowlett Rd (1)	D-14	1,254,000	100%	1,254,000	524,476	-	419,581	104,895	524,476
Rowlett Rd (2)	D-15	1,781,000	100%	1,781,000	744,890	-	595,912	148,978	744,890
Rowlett Rd (3)	D-16	2,486,000	100%	2,486,000	1,039,751	-	831,801	207,950	1,039,751
S. Country Club Rd	D-17	599,000	100%	599,000	250,527	-	200,422	50,105	250,527
Zion Rd	D-18	1,075,000	100%	1,075,000	449,611	-	359,689	89,922	449,611
Northwest Hwy	D-19	2,904,782	100%	2,904,782	1,214,903	1,214,903	-	-	1,214,903
Dairy Rd	D-20	3,597,758	100%	3,597,758	1,504,735	1,413,035	-	91,701	1,504,735
Miller Rd Bridge	C-12,D-21	2,743,883	50%	1,371,942	573,804	59,546	-	514,258	573,804
Bottleneck Study Improvements - Service Area D	Various	236,000	100%	236,000	98,705	-	78,964	19,741	98,705
Study Costs		15,840	100%	15,840	15,840	-	-	15,840	15,840
Total		\$ 42,718,263		\$ 39,258,322	\$ 16,428,715	\$ 2,687,484	\$ 10,495,546	\$ 3,245,686	\$ 16,428,715

(1) 2016 Roadway Impact Fee Study As Assigned to Service Area, Appendix A

(2) Line 11 of the Max Fee Table Report

(3) Based on Contributions by Project and Planned Future Debt Financing

City of Garland 2016 Roadway Impact Fee Study

Capital Improvement Plan for Impact Fees Appendix E - Impact Fee Calculation Assumptions Service Area D

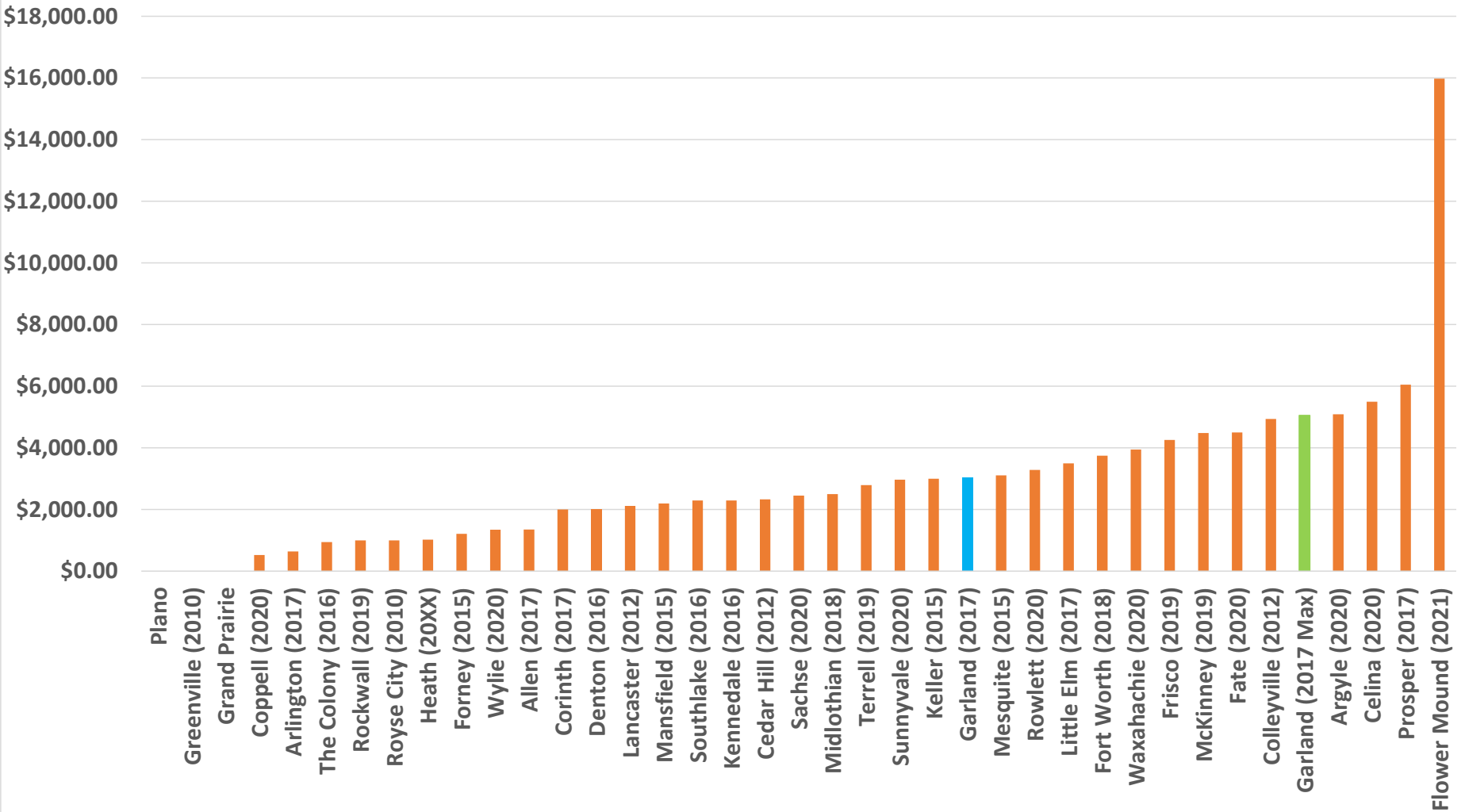
2016 Vehicle Miles (All Service Areas) ⁽¹⁾	653,797
Ten Year Growth in Vehicle Miles (Service Area D) ⁽²⁾	14,170
	<u>10 years</u>
Annual Growth in Vehicle Miles	1,417

	1	2	3	4	5	6	7	8	9	10	Total
Total Debt Service Eligible for Impact Fees	\$ 270,996	\$ 347,017	\$ 423,924	\$ 502,969	\$ 584,116	\$ 666,697	\$ 750,856	\$ 837,061	\$ 915,182	\$ 1,004,931	\$ 6,303,748
2016 Vehicle Miles plus Service Area D Growth	655,214	656,631	658,048	659,465	660,882	662,300	663,717	665,134	666,551	667,968	
Total Debt Service Eligible for Impact Fees per Vehicle Mile	\$ 0.41	\$ 0.53	\$ 0.64	\$ 0.76	\$ 0.88	\$ 1.01	\$ 1.13	\$ 1.26	\$ 1.37	\$ 1.50	
Annual Growth in Service Area D Vehicle Miles (Cumulative)	1,417	2,834	4,251	5,668	7,085	8,502	9,919	11,336	12,753	14,170	
Annual Ad Valorem Revenue Generated by Vehicle Miles for Debt Service Eligible for Impact Fees	\$ 586	\$ 1,498	\$ 2,739	\$ 4,323	\$ 6,262	\$ 8,559	\$ 11,222	\$ 14,267	\$ 17,511	\$ 21,319	\$ 88,284
Credit Amount	\$ 88,284										

(1) Engineer's calculation

(2) Line 8 of the Max Fee Table Report

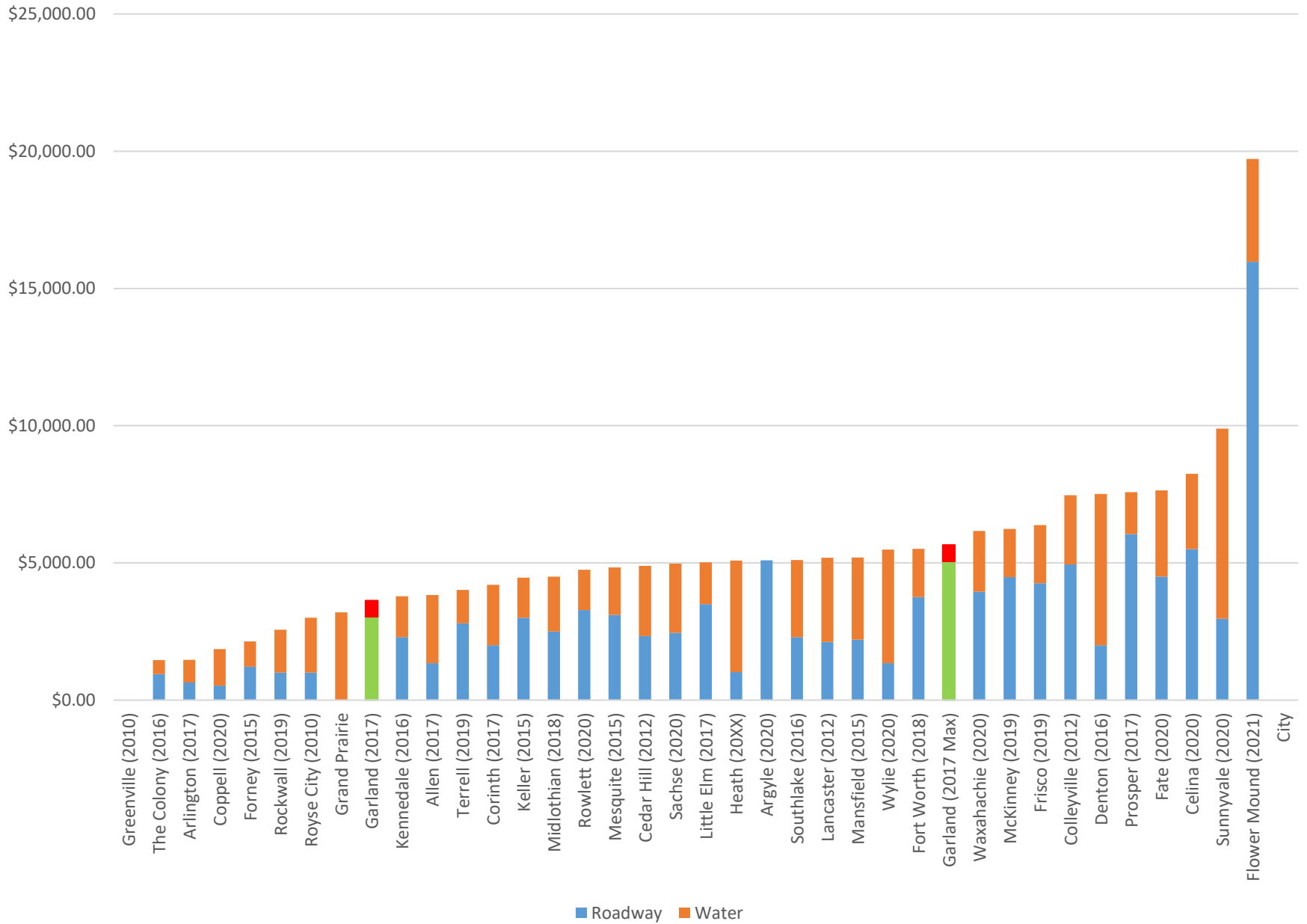
Roadway Impact Fees Comparison - Single Family



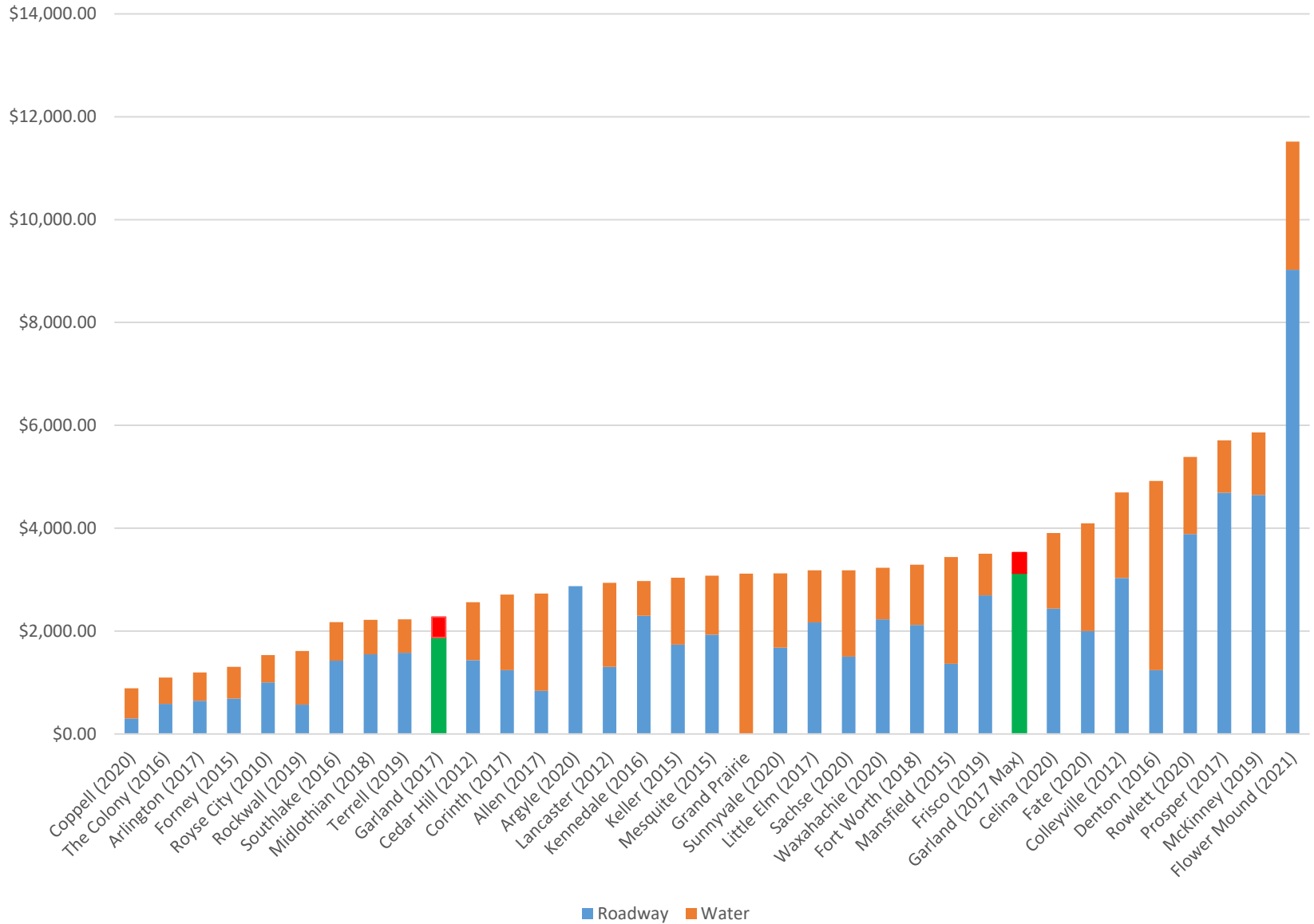
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Roadway + Water Impact Fee Comparison - Single Family



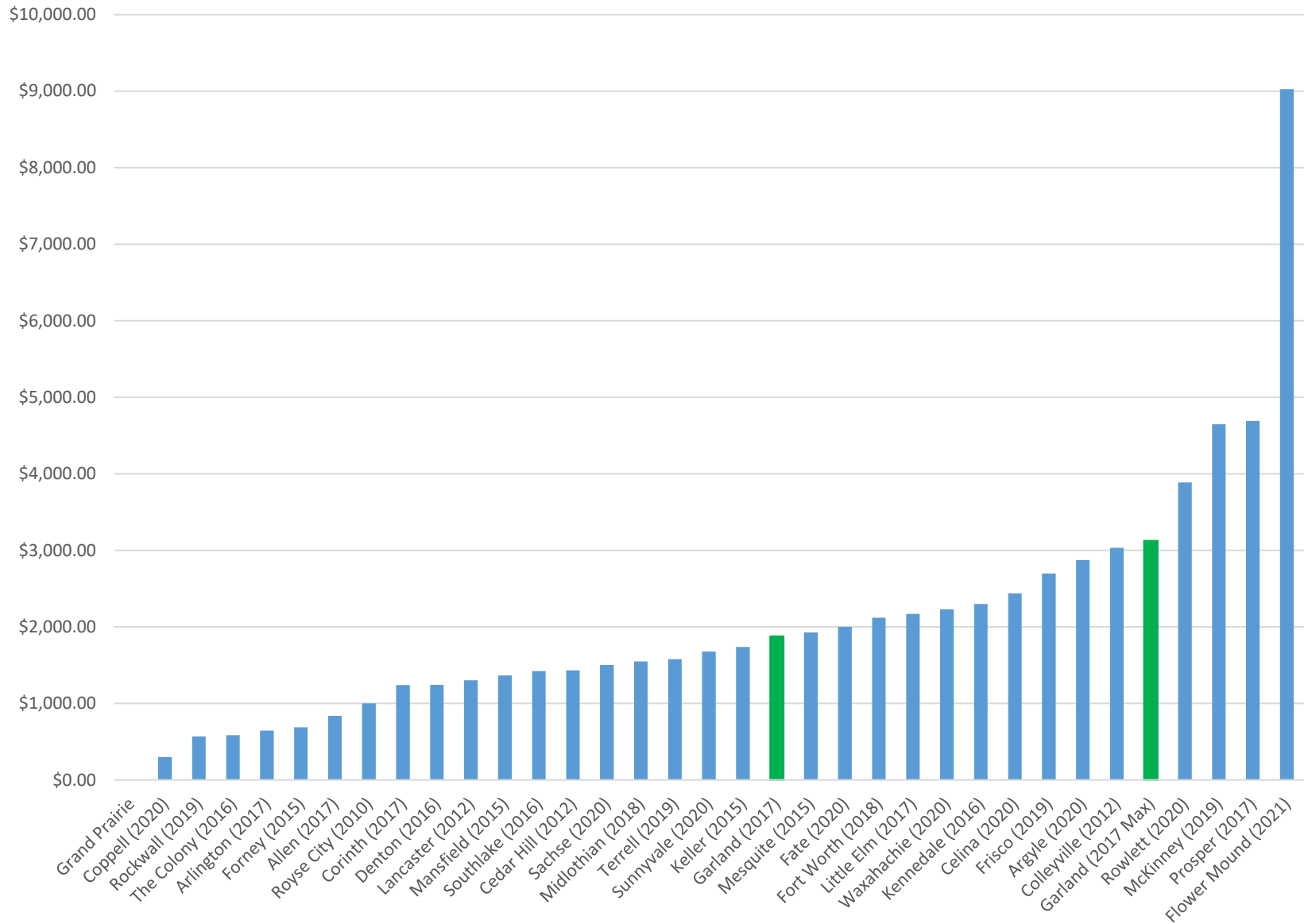
Roadway + Water Impact Fee Comparison - Apartment



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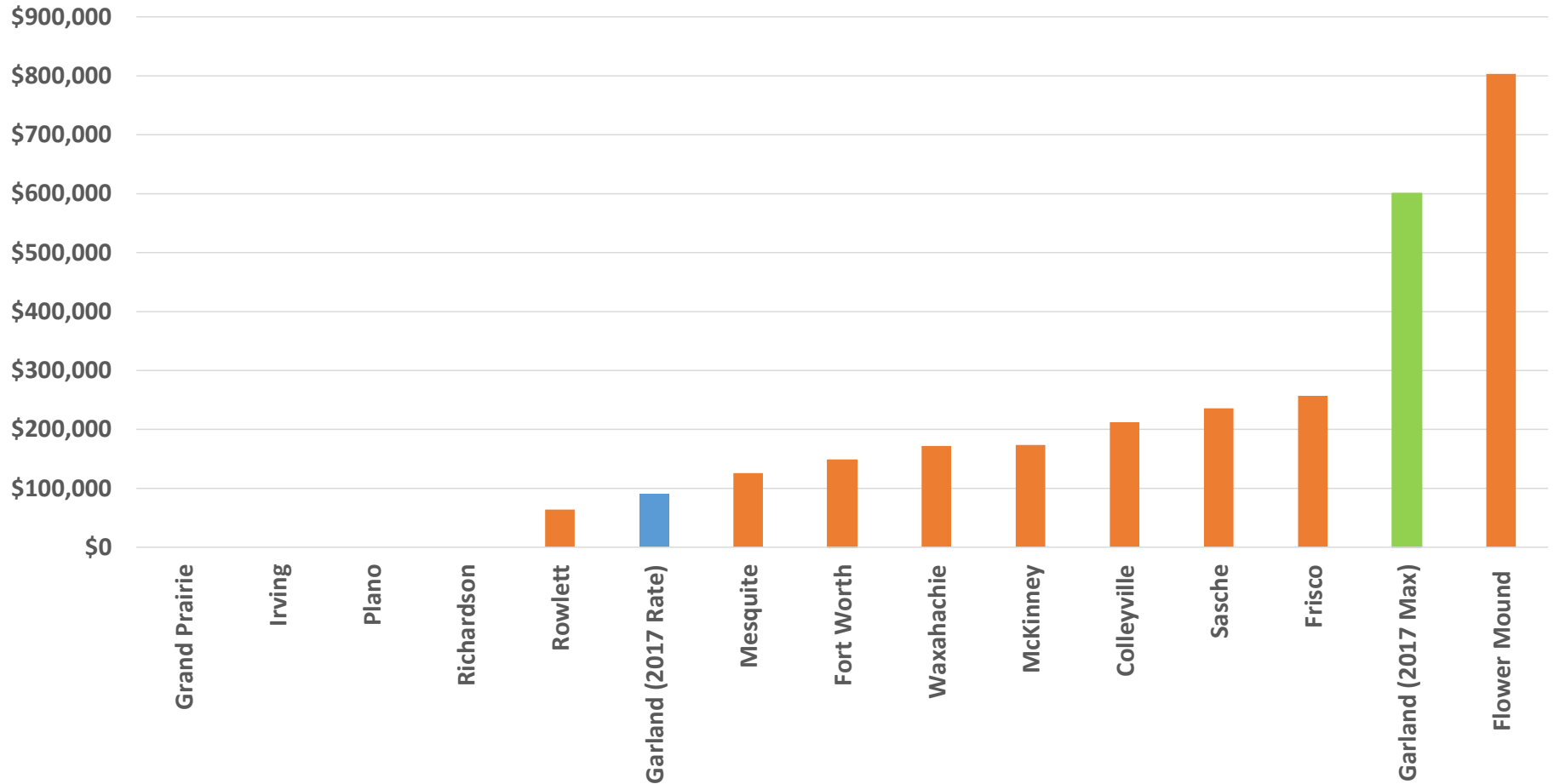
Roadway Impact Fee Comparison - Apartment



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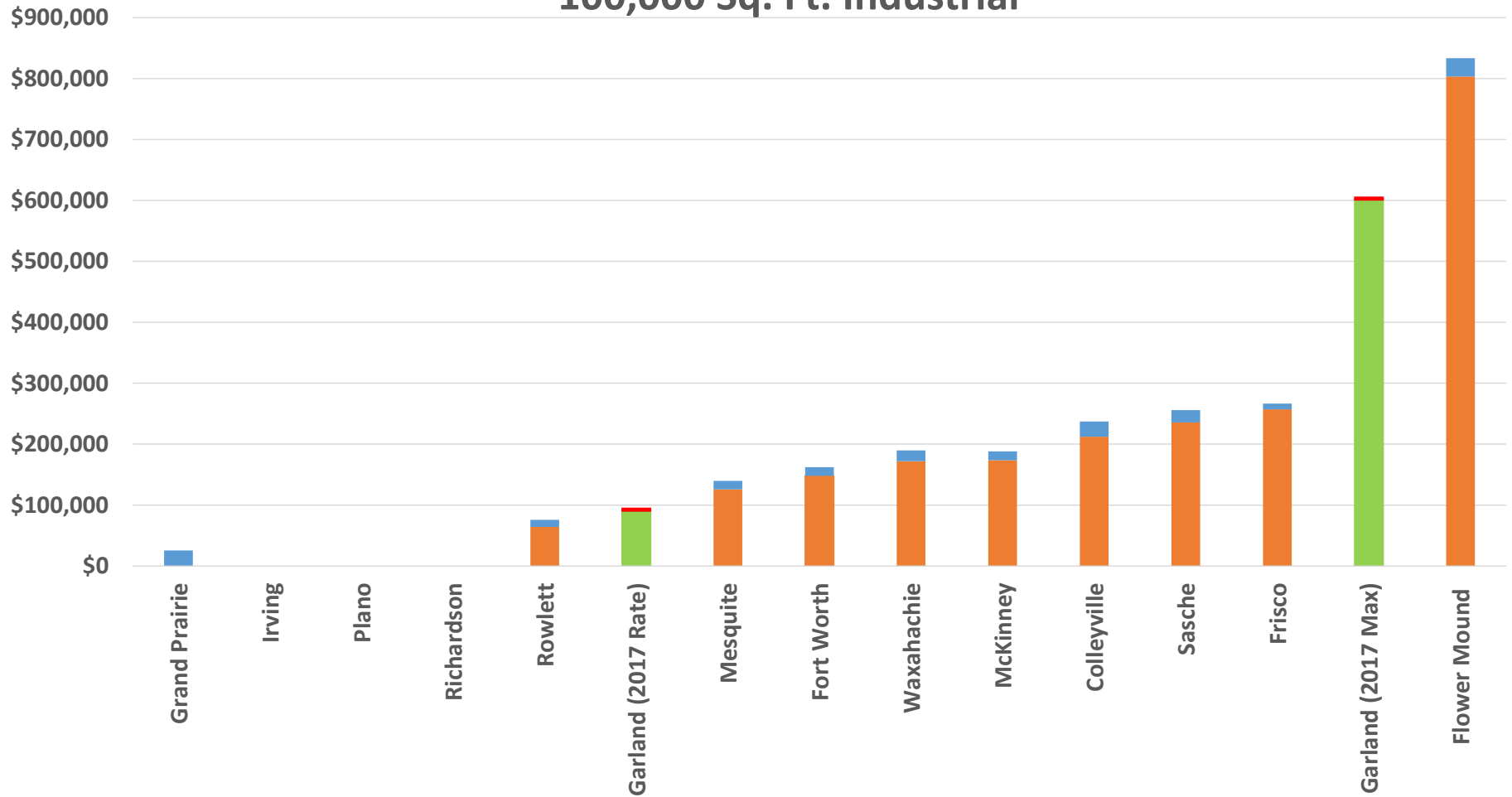
Roadway Impact Fees Comparison - 100,000 Sq. Ft. Industrial



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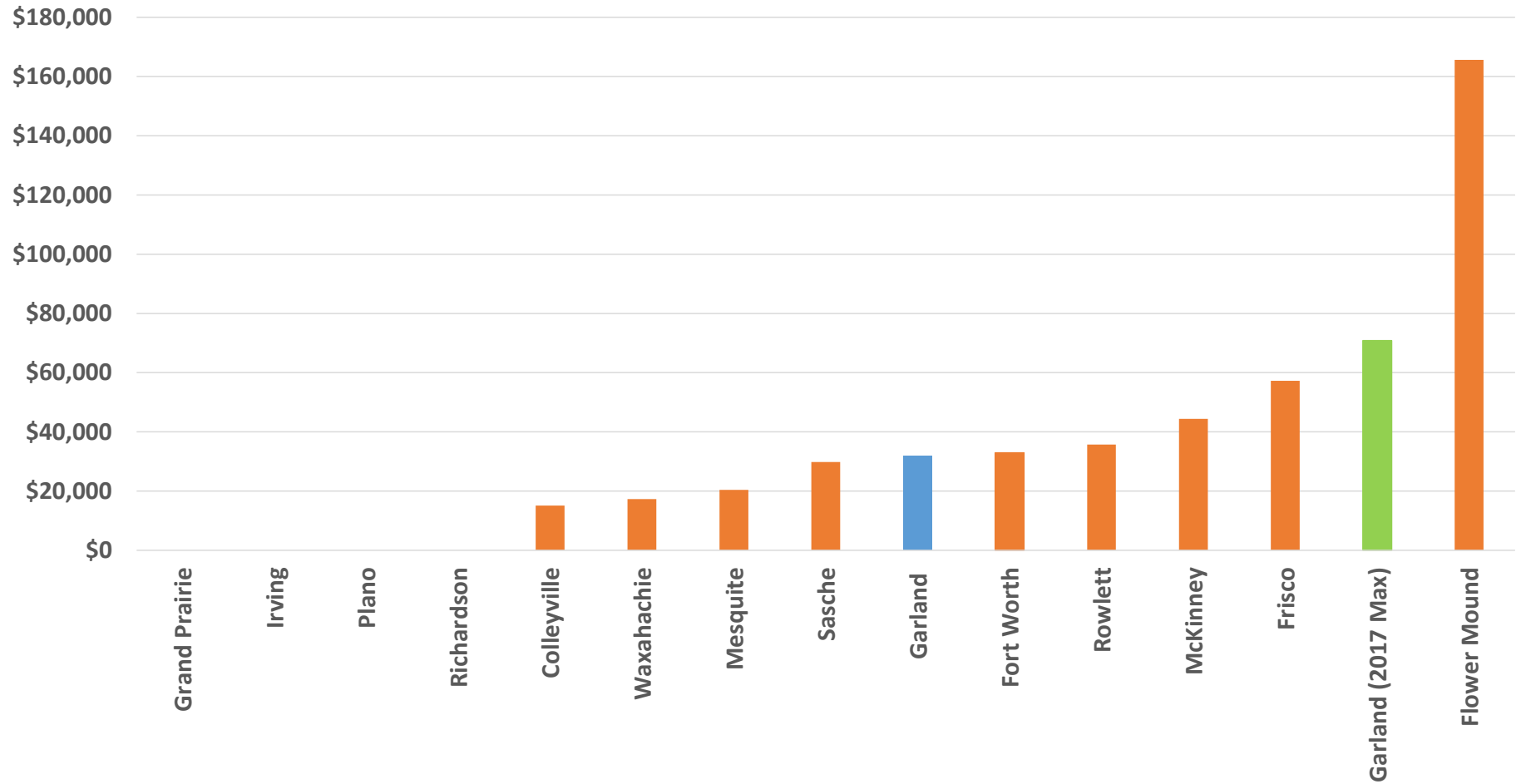
Roadway + Water Impact Fees Comparison - 100,000 Sq. Ft. Industrial



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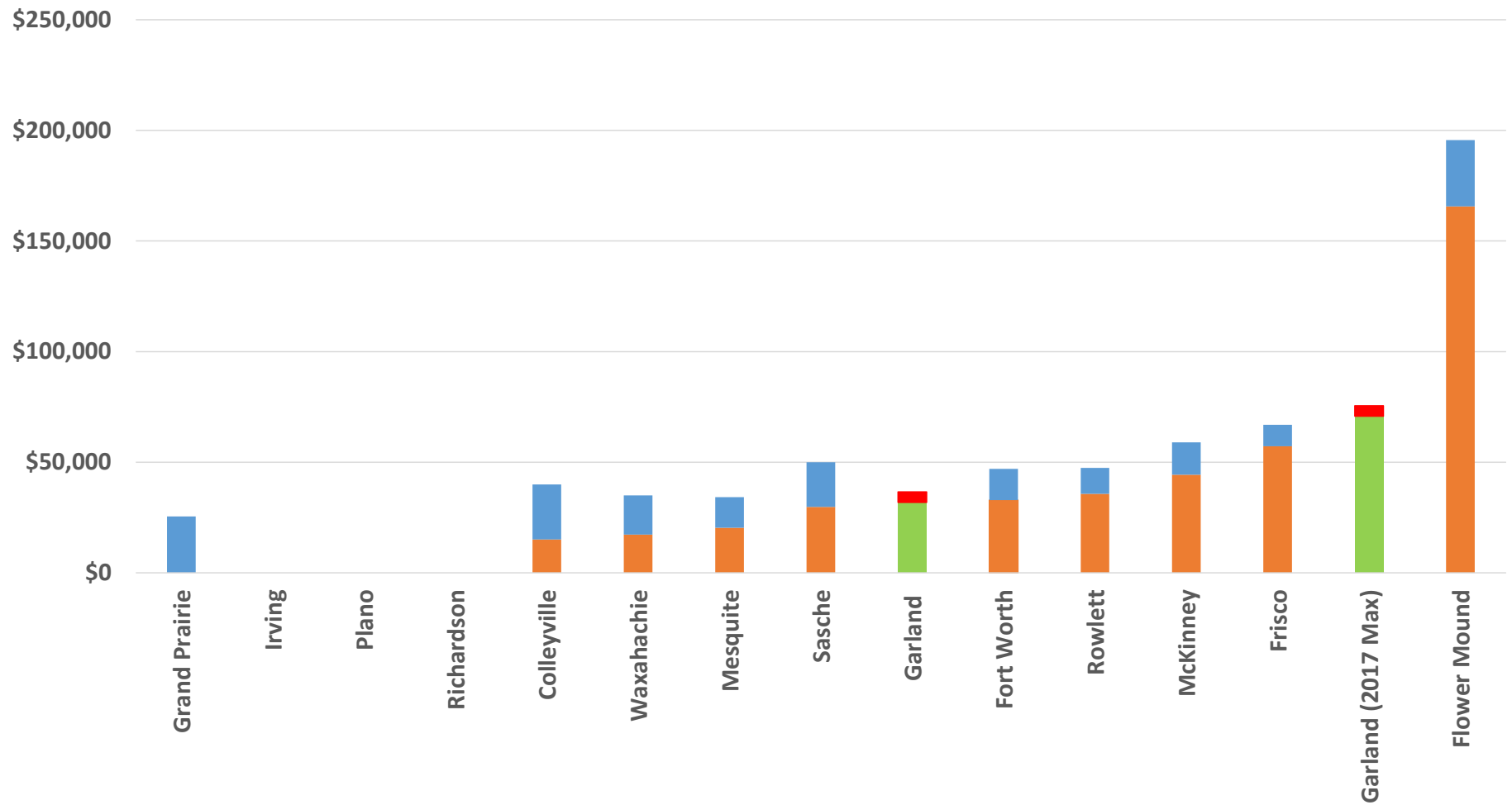
Roadway Impact Fees Comparison - 10,000 Sq. Ft. Retail



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Roadway + Water Impact Fees Comparison - 10,000 Sq. Ft. Retail



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