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FIRST AMENDED AND RESTATED
DEVELOPMENT AGREEMENT BETWEEN
CITY OF NEW BRAUNFELS AND
SOUTHSTAR AT MAYFAIR, LP
FOR MAYFAIR DEVELOPMENT

Full Execution Date:
May 6, 2024

STATE OF TEXAS	§	FIRST AMENDED AND RESTATED
	§	DEVELOPMENT AGREEMENT
	§	BETWEEN
COUNTY OF COMAL	§	CITY OF NEW BRAUNFELS
	§	AND SOUTHSTAR AT MAYFAIR,
	§	LP
CITY OF NEW BRAUNFELS	§	FOR MIXED USE DEVELOPMENT

THIS FIRST AMENDED AND RESTATED DEVELOPMENT AGREEMENT, (this "Agreement") effective as of the Effective Date, is entered into by and between The City of New Braunfels, a Texas Home Rule Municipal Corporation (the "City"), and Southstar at Mayfair, LLC, a Texas limited liability company (the "Owner"), pursuant to the authority granted to the City by its powers as a home rule municipal corporation and the general laws of the State of Texas including § 212.172 of the Texas Local Government Code.

RECITALS

- A. Capitalized terms in these recitals have the meaning set forth in Section 2 of this Agreement.
- B. The Owner is a party to certain agreements that give the Owner options to purchase the Property, which is located in the ETJ and wholly within the boundaries of the District;
- C. By Consent Resolution entitled "Resolution of City of New Braunfels, Texas Consenting to the Creation of Comal County Water Improvement District No. 3, which is in the Extraterritorial Jurisdiction of the City," the City consented to the creation of the District and the inclusion of the Property within the District;
- D. Pursuant to Chapters 212 and 232 of the Texas Local Government Code, the City and Comal County, Texas are parties to that certain Interlocal Cooperation Agreement Between Comal County and City of New Braunfels For Subdivision Regulation Within the Extraterritorial Jurisdiction of the City of New Braunfels, dated January 18, 2008, whereby the County assigned and delegated to the City the County's authority to approve subdivision plats and issue related permits for property within the ETJ pursuant to the terms and conditions therein;
- E. The City has established the Comprehensive Plan to guide the City in future growth and development, and the City and the Owner have determined that it is in the best interest of the City and the Owner for the Property to be developed in accordance with this Agreement;
- F. This Agreement is entered into pursuant to Chapter 380 of the Texas Local Government Code to promote state or local economic development and to stimulate business and commercial activity in accordance with § 380.001, and this Agreement is further authorized by § 212.172 of the Texas Local Government Code and § 118-4 of the Code of Ordinances, which allow the City to enter agreements affecting land in the ETJ;
- G. The City and Owner desire to enter into this Agreement establishing a structure for development of the Property, as well as the regulations that will govern such development;

including but not limited to provision of emergency services; provision of solid waste collection; traffic and roadway impacts; debt to be issued by the District, plan for division of the District; fire flow; prohibition against certain retail utilities; an agreement to comply with the City's building codes and ordinances, public health and safety codes and ordinances, and environmental regulation codes and ordinances; and an agreement to comply with the City's land use regulations as described hereunder;

H. The Landowner has executed this Agreement to evidence its consent to have the Property developed in accordance with this Agreement;

I. Pursuant to Section 8489.109 of the Creation Statute, upon the Full Execution Date, the ETJ of the City may be extended in accordance with Section 42.021(2) of the Texas Local Government Code; and

J. The City Council approved the initial Development Agreement on February 9, 2022 and approved this First Amended and Restated Agreement on March 25, 2024.

NOW, THEREFORE, for and in consideration of the promises and the mutual agreements set forth herein, the City and the Owner hereby agree as follows:

1. **FINDINGS AND RECITALS.** The facts and recitations contained in the preamble of this Agreement are hereby found and declared to be true and correct and are incorporated by reference herein and expressly made a part hereof, as if copied verbatim. The City Council hereby finds that this Agreement is consistent with the policies and objectives of the City's Comprehensive Plan.
2. **DEFINITIONS.** For the purposes of this Agreement, all capitalized terms used herein but not otherwise defined herein shall have the respective meanings ascribed in this Section 2. All terms used herein, whether used in singular or plural form, shall be deemed to refer to the object of such term whether such is singular or plural in nature, as the context may suggest or require.
 - 2.1. **Agreement** – This Development Agreement, including any and all exhibits attached to this Agreement, which are incorporated by reference and expressly made part of this Agreement as if copied verbatim.
 - 2.2. **Alternative Development Standard(s)** – A standard above the Minimum Development Standard that is based upon design principles or objectives that cannot be fully measured until an Application is submitted. An Applicant may elect to submit an Application using Alternative Development Standards, provided that if the Planning Director does not recommend approval of any Alternative Development Standard (if the Planning Director is designated to provide Approval) or the City Council does not approve the Alternative Development Standard (if the City Council is designated to provide Approval), the Applicant may revert to the Minimum Development Standard and the Application will then be measured solely on the grounds of whether it satisfies the applicable Minimum Development Standard.

- 2.3. Applicant – An individual or entity that (a) applies for approval of a Major or Minor Amendment to the Master Framework Plan, Sector Plan, Sector Plan TIA, Major or Minor Amendment to a Sector Plan, Preliminary Plat, Final Plat, Final Plat TIA, Building Permit or any other City approval or permit applicable to the Project, or (b) is the Owner, as applicable.
- 2.4. Applicant's Notice of Amendment – The notice described in Section 4.1.2(C)(2).
- 2.5. Application – An application for a Major or Minor Amendment to the Master Framework Plan, Sector Plan, Major or Minor Amendment to Approved Sector Plan, Preliminary Plat (if any), Final Plat, Building Permit, and/or any other City application applicable to the Project.
- 2.6. Approval – An Approved Sector Plan, an Approved Sector Plan TIA, an Approved Preliminary Plat, an Approved Final Plat, an Approved Final Plat TIA, an Approved Building Permit, and/or any other City approval or permit applicable to the Project.
- 2.7. Approved Building Permit – A Building Permit within the Project, or required by the City in connection with the Project, that has been approved in accordance with Section 4.2 below and the City Code of Ordinances at the time the Final Plat is submitted.
- 2.8. Approved Final Plat – A Final Plat within the Project that has been approved in accordance with Section 4.1.4 below and the City Code of Ordinances at the time the Final Plat is submitted.
- 2.9. Approved TIA – TIA within the Project that has been approved by the City Engineer.
- 2.10. Approved Preliminary Plat – A Preliminary Plat within the Project that has been approved in accordance with Section 4.1.3 below and the City Code of Ordinances at the time the Preliminary Plat is submitted.
- 2.11. Approved Sector Plan – A Sector Plan within the Project that has been approved by the Planning Director in accordance with Section 4.1.2.
- 2.12. Approved Sector Plan TIA – A Sector Plan TIA within the Project that has been approved in accordance with Section 6.2 by the City Engineer.
- 2.13. BMP – a Best Management Practice: a schedule of activities, prohibitions, practices, maintenance procedures, and other management practices to prevent or reduce the pollution of water in the state or other BMPs that may be allowed from time to time by the TCEQ or in amendments to Texas Administrative Code Volume 30, TCEQ Chapter 213 or the TCEQ technical guidance. BMPs are those measures that are reasonable and necessary to protect groundwater and surface water quality, as provided in technical guidance prepared by the

executive director of the TCEQ or other BMPs described or allowed in the Development Standards.

- 2.14. Building Code – the set of International Building Codes most recently adopted by the City and currently referenced in Chapter 14 of the City Code of Ordinances, as such codes may change from time to time.
- 2.15. Building Official – The Building Official or Chief Building Official or his/her designee of the City.
- 2.16. Building Permit – A Building Permit application submitted in accordance with Section 4.2 and the City Code of Ordinances as it exists on the date of the application.
- 2.17. Build-Out – The permanent completion of all sales and development activities relating to the Project by the Owner.
- 2.18. CC&Rs - Covenants, Conditions and Restrictions or other deed restrictions imposed on any portion of the Property and recorded in the real property records of Comal County by the Owner and establishing one or more Homeowners Associations.
- 2.19. Charter – The City Charter of the City.
- 2.20. City – The City of New Braunfels, a Texas Home Rule Municipal Corporation, located in Comal and Guadalupe Counties, Texas.
- 2.21. City Council – The elective body of the City, as such term is defined in Section 1.02 of the Charter.
- 2.22. City Engineer – The designated City Engineer for the City.
- 2.23. City Sector Plan Determinations – Determinations made by the Planning Director as to whether the Sector Plan meets the Conforming Standards.
- 2.24. City Code of Ordinances – The City of New Braunfels Code of Ordinances, as may be amended from time to time; and, with regard to Applications, as in effect at the time of each Application.
- 2.25. Comprehensive Plan – The Comprehensive Plan adopted by the City Council, as amended from time to time.
- 2.26. Conforming Standards – The collective requirement that a Sector Plan conforms to the Master Framework Plan, (ii) identifies any Alternative Development Standards, and (iii) is consistent with all terms of Agreement.
- 2.27. Creation Statute – Chapter 8489, Texas Special District Local Laws.

- 2.28.** Cure Period – A period of thirty (30) days after written notice to a party from the other party of the failure to perform or otherwise act in accordance with any term or provision of this Agreement; provided, however, that if the failure or delay is such that more than thirty (30) days would reasonably be required to perform such action or comply with any term or provision hereof, then such party shall have an additional period of time up to one hundred twenty (120) days so long as such party commences performance or compliance within said thirty (30)-day period and diligently proceeds to complete such performance or fulfill such obligation within the additional one hundred twenty (120) day period.
- 2.29.** Development Standards – The development standards applicable to the Property attached to this Agreement as **Exhibit D**, and any amendments or addendum to such **Exhibit D** that may be approved by the City Council pursuant to the terms of Section 4, provided that for purposes of any Approvals under an Approved Sector Plan, the term “Development Standards” shall be deemed to include any Alternative Development Standards approved by the City Council as part of an Approved Sector Plan.
- 2.30.** District – The Comal County Water Improvement District Number 3, created by Chapter 8489, Texas Special Districts and Local Laws.
- 2.31.** Effective Date – The date on which this Agreement is recorded in the real property records of Comal County, Texas pursuant to the terms of Section 24.14.
- 2.32.** End Users – An entity or individual that purchases a subdivided lot reflected on an Approved Final Plat.
- 2.33.** ESD – Emergency Services District.
- 2.34.** ETJ –The extraterritorial jurisdiction of the City, as determined by Chapter 42 of the Texas Local Government Code.
- 2.35.** Event of Default – The failure of either party to comply with the terms of this Agreement after the expiration of the Cure Period.
- 2.36.** External Access Point – A ROW connection at the boundary of the Project intended to facilitate vehicular access to the thoroughfare network external to the Project.
- 2.37.** Fees – The list of fees contemplated in Section 15, as they may be adjusted by the City from time to time.
- 2.38.** Final Plat – A Final Plat application submitted in accordance with Section 4.14 below and the City Code of Ordinances as it exists on the date of the application.
- 2.39.** Homeowners Association – An incorporated or unincorporated association, whether one or more, owned by or whose members consist primarily of the owners of the residential or commercial property covered by the dedicatory

instrument and through which the owners, or the board of directors or similar governing body, manage or regulate the residential or commercial subdivision or similar planned development. This definition includes any Property Owner's Association.

- 2.40. Initial Term – The period beginning on the Effective Date of the Initial Development Agreement and continuing until the fifteenth (15th) annual anniversary of that Effective Date.
- 2.41. Issuing District - The District whose board of directors approves the issuance or sale of bonds by such District.
- 2.42. LUE – A Living Unit Equivalent, being the standardized unit of measure for water and wastewater services as defined in Section 130-336 of Code of Ordinances.
- 2.43. Major Amendment to an Approved Sector Plan – A proposed change to an Approved Sector Plan that is not a Minor Amendment to an Approved Sector Plan.
- 2.44. Major Amendment to the Master Framework Plan – A proposed change to the Master Framework Plan that is not a Minor Amendment to the Master Framework Plan.
- 2.45. Master Framework Plan – The Master Framework Plan described in the Development Standards and in Section 4.1.1, attached as **Exhibit E**, as amended from time to time in accordance with the terms of Section 4.3.
- 2.46. Minimum Development Standards – The minimum standards an Application is required to achieve in order to be approved by the City, as set forth in the Development Standards.
- 2.47. Minor Amendment to an Approved Sector Plan – A proposed change to an Approved Sector Plan is considered minor if it meets all of the following criteria, as determined by the Planning Director:
 - 2.47.1. Criteria 1: Master Framework Plan. The change does not require a Major Amendment to the Master Framework Plan and is consistent with this Agreement;
 - 2.47.2. Criteria 2: Land Area. The land/boundary area of the Approved Sector Plan does not change (grow or decrease) by more than ten percent (10%), excluding the amount of Sector Plan acreage that is added as a Park that is open to the public;
 - 2.47.3. Criteria 3: Residential Density. Dwelling unit density within the Approved Sector Plan does not increase by more than ten percent (10%), except if a change of more than ten percent (10%) is a result of:

- (A) ROW dedication or placement (public or private streets);
- (B) dedication of land for Parks that are open to the public; or
- (C) a Minor Amendment to the Master Framework Plan;

2.47.4. Criteria 4: Non-Residential Density. Density of non-residential land uses in the Approved Sector Plan does not change (increase or decrease) by more than ten percent (10%);

2.47.5. Criteria 5: Realignment of Minor Roadways – The change does not require modifications to the Minor Roadways shown on the Approved Sector Plan in a manner that moves any such street by more than one hundred fifty feet (150') or in a manner that causes the density of any block to increase by more than ten percent (10%);

2.47.6. Criteria 6: Traffic. The AM peak hour site trips, the PM peak hour site trips, or daily trips in the Approved Sector Plan do not increase by more than ten (10%); and

2.47.7. Criteria 7: No Other Substantial Changes. The change does not propose any change to any criteria in the Approved Sector Plan not specifically covered by the terms of Sections 2.47.1-2.47.6 above.

2.48. Minor Amendment to the Master Framework Plan – A proposed change to the Master Framework Plan is considered minor if it meets all of the following criteria, as determined by the Planning Director:

2.48.1. Criteria 1: Land Use. A change in the amount of acreage dedicated to a specific land use by not more than ten percent (10%);

2.48.2. Criteria 2: Residential Density. The proposed change results in a total of 6,000 or fewer dwelling units within the Project;

2.48.3. Criteria 3: External Access Points – If the proposed change requires moving External Access Points, it does so in a manner that meets state and City access management plans (as reflected in Chapters 114 and 118 of the City Code of Ordinances and TxDOT's access management policy, as each may be amended from time to time) and does not cause an amendment to the Regional Transportation Plan (as reflected in the Comprehensive Plan);

2.48.4. Criteria 4: Realignment of Major Roadways. If the proposed change realigns a roadway designated on the Master Framework Plan, it does so within the allowable five hundred foot (500') buffer for such as depicted on the Master Framework Plan;

- 2.48.5. Criteria 5: Traffic. The proposed change does not result in an increase of more than ten percent (10%) in the total number of peak hour trips or daily trips attributed to the Project under the TIA, using the same methodology for calculating peak hour trips and daily trips as recommended by the then current ITE Manual and utilized in the TIA;
- 2.48.6. Criteria 6: Total Park Acreage – The proposed change does not result in a reduction of the combined total acreage of all parks that are open to the public to below three hundred (300) acres;
- 2.48.7. Criteria 7: No Other Substantial Change. The change does not propose any change to any criteria in the Master Framework Plan not specifically covered by the terms of Sections 2.48.1-2.48.6 above.
- 2.49. Minor Roadway – has the meaning stated in the Development Standards.
- 2.50. NBU – New Braunfels Utilities.
- 2.51. Owner – Southstar at Mayfair, LLC, a Texas limited liability company, its successors or assigns.
- 2.52. Park(s) – a Community Park, Greenbelt/Conservation Parks/Trails, Natural/Conservation Area, Neighborhood Park, Regional Park, Pocket Park, Trail Heads, or a Recreation Center as described below. For further description of each type of Park, please see the Development Standards **Exhibit D** attached hereto.
 - 2.52.1. Community Park – A Park intended to be accessible to multiple neighborhoods and focusing on meeting community-based recreational needs. Community parks are generally larger in scale than Neighborhood Parks or Pocket Parks, but smaller than Regional Parks and are designed typically for residents within a three (3)-mile radius, co-located with a school, where possible. Additional details on Park Classification and Park Design Principles for Community Parks are set forth in the Development Standards.
 - 2.52.2. Greenbelt/Conservation Parks/Trails – Park land that connects people and places, including paved or unpaved trails, and is aligned with the City's Hike and Bike Trail Plan. These Parks typically connect to Natural/Conservation Areas, and other Parks as defined herein. Greenbelt/Conservation Parks/Trails include paved or unpaved trails for walking, biking, running, and equestrian activities. Additional details on Park Classification and Park Design Principles for Greenbelt/Conservation Parks/Trails are set forth in the Development.
 - 2.52.3. Natural/Conservation Area – Park land that consists of floodplain, natural drainage and stormwater runoff capture infrastructure that also provides features for the community. These Parks are typically larger

than twenty (20) acres and serve multiple communities. Natural/Conservation Areas can include natural features such as reestablished forest or grass/prairie lands, ponds, and creekways. Recreational features typically include, pavilions, tables, campsites, trails (paved and unpaved), dog parks, pump tracks or other acceptable features in floodplains. Natural/Conservation Areas may include Natural Areas/Easements.

- 2.52.4. Neighborhood Park** – Serves the recreational and social focus of adjoining neighborhoods and contributes to a distinct neighborhood identity. Neighborhood Parks should be three (3) to ten (10) acres with a service radius of up to one mile. Such Parks may be owned and maintained by one or more Homeowners Associations.
- 2.52.5. Pocket Park** – A small outdoor space, usually less than a quarter (0.25) of an acre up to three (3) acres, most often located in urban areas surrounded by commercial buildings or mixed land uses. The service area for a pocket park is usually less than a quarter of a mile and is intended for uses within close walking distance of the park. Such Parks may be owned and maintained by one or more Homeowners Associations. Additional detail on Park Classification and Park Design Principles for Pocket Parks are set forth the Development Standards.
- 2.52.6. Regional Park** – Serves a large area of several communities, residents within a city or county or across multiple counties. Typical size for a Regional Park is seventy-five (75) to one thousand (1,000) acres. Regional parks focus on activities and natural features not included in most types of parks and often based on specific scenic or recreation opportunity. Service area is three-miles or greater.
- 2.52.7. Trail Heads** – Facilities providing shade, seating, restrooms, trash/recycling receptacles, drinking fountains, and parking as set forth in the Development Standards.
- 2.52.8. Recreation Center** – Private facilities, such as clubhouses, gyms, swimming pools, tennis courts, etc., which are intended to function as private parks under the Development Standards.
- 2.53. Park Development Fees** – Refers to park development fees stated in the City Code of Ordinances.
- 2.54. Parks and Recreation Department** – the Parks and Recreation Department of the City.
- 2.55. Parks and Recreation Strategic Master Plan** – the City’s 2017 Parks and Recreation Strategic Master Plan as may be amended or renamed from time to time.

- 2.56. Parks Director – The Parks Director of the City.
- 2.57. Parties – Together, the City and the Owner.
- 2.58. Planning Level TIA – The Planning Level TIA referenced in Section 6 of the Agreement.
- 2.59. Planning Commission – The Planning Commission of the City, as provided for in Section 10.01 of the Charter.
- 2.60. Planning and Development Services Department – The Planning and Development Services Department of the City or any successor department.
- 2.61. Planning Director – The Planning and Development Services Director or his/her designee for the City. The Planning Director may designate any team member at his/her discretion to make determinations as noted in this agreement for purposes of expediency.
- 2.62. Preliminary Plat – A Preliminary Plat application submitted in accordance with the City Code of Ordinances as it exists on the date of the application.
- 2.63. Private Park – park land that developed as part of the Project, but not generally open to the public, including Pocket Parks and Recreation Centers.
- 2.64. Project – The master-planned, mixed-use development with commercial and residential uses to be developed by the Owner on the Property as contemplated by this Agreement.
- 2.65. Property – Approximately 1,888 acres of real property in Comal County, Texas, more particularly described in **Exhibit B**, which is located in the ETJ, and all of which can be included within the District as contemplated herein.
- 2.66. Public Park – a Neighborhood Park, Community Park, Greenbelts/Conservation Parks/Trails, Natural/Conservation Area, or Regional Park, as provided for in this Agreement.
- 2.67. Recreation Center – a private recreation facility developed in accordance with this Agreement for use by the Project's residents.
- 2.68. Renewal Term – The period beginning upon the expiration of the Initial Term and continuing for so long as this Agreement remains in effect under Section 1913.
- 2.69. Regional Transportation Plan – The Regional Transportation Plan as adopted by the City on March 12, 2012, and as amended or renamed from time to time.
- 2.70. ROW – The right-of-way for roadways, as determined by the City Engineer.

- 2.71. Section – A numbered or lettered section of this Agreement, as well as all subsections of said Section.
 - 2.72. Sector – The land area subject to a Sector Plan.
 - 2.73. Sector Plan – A Sector Plan application submitted in accordance with the Development Standards and Section 4.1.2 below. The minimum size of a Sector Plan must be at least one hundred (100) acres.
 - 2.74. Sector Plan Completeness Notice – The notice from the Planning Director required by Section 4.1.2 as to the Planning Director's decision as to completeness of a proposed Sector Plan.
 - 2.75. Sector Plan TIA – Any Sector Plan TIA submitted in accordance with Section 6 of the Agreement.
 - 2.76. Strategic Partnership Agreement – The Strategic Partnership Agreement that will be entered into by and between the City and the District in the form attached as **Exhibit G**, as amended from time to time.
 - 2.77. TCEQ – The Texas Commission on Environmental Quality, or any successor agency.
 - 2.78. Term – The period including the Initial Term and the Renewal Term, if any.
 - 2.79. TIA – Any TIA submitted pursuant to Section 6 of the Agreement.
 - 2.80. TIA Worksheet – The TIA Worksheet to be submitted in accordance with Section 6.3 below by the Applicant with each Final Plat and Building Permit detailing the total peak hour trips and daily trips to be generated by the land uses reflected on the Final Plat or Building Permit, and showing the cumulative peak hour trips and daily trips generated to date by all Approved Final Plats and Building Permits from the same Sector Plan and all other Final Plats and Building Permits from the same Sector Plan that have been submitted but have not been finally approved or disapproved by the Planning Director, City Engineer, Planning Commission or the City Council.
 - 2.81. TxDOT – The Texas Department of Transportation, or any successor organization.
 - 2.82. Utility Agreement – The Utility Construction Cost Sharing Agreement required to be entered into by and between NBU, the Owner, and the City (limited joinder for purposes of Section 8489.004(a)(2) of the Creation Statute), as amended from time to time.
3. **THE PROJECT**. The Owner plans to develop the Project and, in conjunction therewith, shall obtain the Approvals for the Project in accordance with this Agreement.

- 3.1 Land Uses. The designated land uses within the Property may include any or all allowed land uses, provided that any land use requiring a special use permit under the Development Standards must obtain such a permit before establishing such a use.
- 3.2 Development Standards. The only standards applicable to the Property and governing the approval of Applications for the Property under this Agreement are the Development Standards and the City Code of Ordinances. In the event of a conflict between the City Code of Ordinances and the Development Standards, the Development Standards shall control.
- 3.3 Maximum Number of Dwelling Units. Subject to the Owner's compliance with this Agreement, the City approves a maximum number of 6,000 residential units on the Property.
- 3.4 Vesting of Rights. The City and the Owner acknowledge that the Owner has vested authority to develop the Project only in accordance with this Agreement. For purposes of determining such vested authority, the City and the Owner agree that (a) the terms of this Section 3.4 and the other terms of this Agreement shall fully govern and determine all aspects of the Owner's vested rights and (b) without limiting the generality of the foregoing, the Owner (i) hereby waives any and all right pursuant to Section 212.172(g) and Section 245.002(b) of the Texas Local Government Code that are not consistent with the terms of this Section 3.4 and (ii) acknowledges and agrees that such waiver and the terms of this Section 3.4 are material to the City in entering into this Agreement.
- 3.5 Enforcement Jurisdiction of the City. Notwithstanding any language in this Agreement to the contrary, the Owner and the City agree that the City is authorized to enforce the Code Chapter 14 (Buildings and Building Regulations); Article I (Building Standards Commission) of Chapter 50 (Environment); Chapter 62 (Health and Sanitation); Division I (Substandard Structures) of Article II (Nuisance Abatement) of Chapter 50 (Environment); and Division III (Abandoned Property) of Article II (Nuisance Abatement) of Chapter 50 (Environment) in their entirety, as each may be amended or reorganized from time to time, provided any such amendments (a) are effective Citywide or to all or all similarly situated land in the City as of the Effective Date, (b) do not conflict with this Agreement, (c) do not affect landscaping, tree preservation, open space or park dedication, lot size, lot dimensions, lot coverage, building size, impervious cover, setbacks, or purport to reduce the total developable area of the Property, and (d) do not affect or alter the stormwater drainage or stormwater managements requirements set forth in this Agreement. This list of specific ordinances in this Section 3.5 may be amended in the future upon mutual agreement of the Parties reflected in a written amendment to this Agreement.

4. **DEVELOPMENT APPROVAL PROCESS.**

4.1. General Framework for Development Approval Process. All development in the Project must comply with the following multi-step approval process:

4.1.1. Master Framework Plan. The first step in the approval process is approval of the Master Framework Plan by the City Council. The Master Framework Plan is attached hereto as **Exhibit E** to this Agreement and is approved contemporaneously with this Agreement.

4.1.2. Sector Plan. The second step in the approval process is approval of a Sector Plan. Each Sector Plan must conform to the Master Framework Plan and this Agreement, and must be approved by the Planning Director. A Sector Plan shall be submitted to the Planning and Development Services Department.

(A) Completeness. The Planning Director shall determine within thirty (30) days if the application is complete and will notify the Applicant in writing of its decision with regard to completeness of the Sector Plan (the “**Sector Plan Completeness Notice**”). The Sector Plan shall be deemed complete if the Planning Director fails to notify the Applicant of its decision within such thirty (30)-day period. If a submitted Sector Plan is deemed incomplete by the Planning Director, the Applicant shall have thirty (30) days from receipt of the Sector Plan Completeness Notice to submit a supplement(s) to complete the application. The Planning Director shall have five (5) business days from receipt of the supplement to notify the Applicant in writing of its decision with regard to completeness of the supplemented Sector Plan; or, if no notice is provided within the five (5) day period, the supplemented Sector Plans shall be deemed complete.

(B) Administrative Approval of Sector Plan That Meets Conforming Standards:

(1) Within thirty (30) days after issuance of the Sector Plan Completeness Notice, the Planning Director shall determine if the Sector Plan (i) conforms to the Master Framework Plan, (ii) contains any Alternative Development Standards; and (iii) is consistent with all the terms of this Agreement (the “**Conforming Standards**”).

(2) If the Planning Director determines that a Sector Plan meets the Conforming Standards, the Planning Director shall approve the Sector Plan.

(C) Discretionary Approval of Sector Plan That Does Not Meet Conforming Standards:

- (1) If the Planning Director determines that the submitted Sector Plan does not meet the Conforming Standards, then the Sector Plan shall be processed in accordance with this Section 4.1.2(C).
- (2) Within thirty (30) days after issuance of the Sector Plan Completeness Notice, the Planning Director shall deliver written notice to the Applicant specifying each item that does not meet the Conforming Standards. If the Applicant wishes to proceed with the Sector Plan despite this determination, then the Applicant shall notify the Planning Director in writing within sixty (60) days of the notice of nonconformance sent by the Planning Director to the Applicant specified above (the **"Applicant's Notice of Amendment"**).
- (3) If the Applicant timely notifies the Planning Director of its desire to proceed with the Sector Plan as contemplated in Section 4.1.2(C)(1) above, the Sector Plan shall not be further reviewed by the Planning Director unless and until (i) a Minor Amendment to the Master Framework Plan or a Major Amendment to the Master Framework Plan, as applicable, is submitted pursuant to Section 4.3 below, or (ii) a proposed amendment to this Agreement is submitted, in such a manner that all such issues raised by the Planning Director are addressed to the reasonable satisfaction of the Planning Director. If Applicant fails to submit the necessary amendment(s) described above within sixty (60) days from the delivery of the Applicant's Notice of Amendment, the proposed Sector Plan shall be considered null and void and a new Sector Plan submittal shall be required.
- (4) If the Applicant satisfies all of the matters described in the Planning Director's notice described in Section 4.1.2(C)(1) above, the Planning Director will consider: (i) whether the Sector Plan conforms to the Master Framework Plan or whether an acceptable Minor Amendment to the Master Framework or a Major Amendment to the Master Framework Plan has been submitted, (ii) whether any proposed Alternative Development Standards are acceptable, and (iii) whether the Sector Plan is consistent with all terms of the Agreement or an acceptable amendment to this Agreement has been submitted; and make a City Sector Plan Determination.

- (D) Failure to Provide Timely Notice. If the Planning Director does not deliver the written notice described in 4.1.2(C)(2) within the thirty (30) day period provided for, then the Applicant must notify the Planning Director in writing of its failure to do so and the Planning Director shall have an additional fifteen (15) days in order to respond in the manner described above. If the Planning Director does not respond within the additional fifteen (15) day period, then it shall be deemed that the Planning Director has determined that the Sector Plan meets the Conforming Standards.
- (E) Sector Plans Incorporating Alternative Development Standards. If the Sector Plan incorporates any Alternative Development Standards, the acceptability of such Alternative Development Standards as proposed by the Applicant shall be a decision for the Planning Director. If the Planning Director approves any Alternative Development Standards as part of an Approved Sector Plan, for all purposes hereunder, those approved Alternative Development Standards shall be considered to be Development Standards for all further Approvals for that Approved Sector Plan. Any Alternative Development Standards approved in connection with an Approved Sector Plan shall be applicable to that Sector Plan only, and shall not be applicable to any other Sector Plan unless specifically so indicated by the Planning Director.
- (F) Rejected Sector Plans. The Applicant shall have the right to submit a new Sector Plan covering all or part of the Property covered by a rejected Sector Plan, and such new Sector Plan, at Applicant's request, be shall be reviewed by the City Council for approval. If a Sector Plan is rejected by City Council, no Sector Plan shall be submitted which is substantially the same as the rejected Sector Plan, as determined by the Planning Director, within twelve (12) months of such rejection.
- (G) Expired Approved Sector Plans. An Approved Sector Plan shall expire and be of no further effect if the Owner or any Applicant does not record a Final Plat in the real property records of Comal County within five (5) years of the date of approval of the Approved Sector Plan.

4.1.3. Preliminary Plat. An Applicant may, following an approval of a Sector Plan, and before submitting a Final Plat, file a Preliminary Plat. The process for submittal, review and approval of a Preliminary Plat shall be the same as the process provided in the City Code of Ordinances at the time of the City's receipt of the Preliminary Plat. Filing of a Preliminary Plat is optional, not required.

4.1.4. Final Plat. Unless the Applicant elects to file a Preliminary Plat, the third step in the approval process is approval of a Final Plat. Except as otherwise approved by the City Council, each Final Plat must conform to the Master Framework Plan, the applicable Sector Plan containing the portion of the Property covered by the Final Plat, and all other terms of this Agreement.

(A) Rejected Final Plat. The Applicant shall have the right to appeal any Final Plat that is rejected by the Planning Commission to the City Council, but only to the extent of the decision of the Planning Director that the Final Plat does not meet the Conforming Standards. In such event, the City Council shall consider whether the Final Plat meets the Conforming Standards; provided, however, the decision of the Planning Commission shall be final with respect to whether the Final Plat conforms to the Code of Ordinances. Additionally, the Applicant shall have the right to submit a new Final Plat covering all or part of the Property covered by a rejected Final Plat, and such new Final Plat shall be processed in accordance with the terms of this Section 4; provided, however, no Final Plat shall be submitted in the same form as the rejected Final Plat, as determined by the Planning Director, within twelve (12) months of such rejection.

(B) Waiver. Any waiver in a Preliminary Plat, Final Plat, or Building Permit from the Development Standards or Approved Sector Plans shall be submitted to the Planning Commission for approval using the process and procedures generally found in the plat waiver provision of the City Code of Ordinances, § 118-11, or as may be reorganized from time to time. A waiver may be granted where the Planning Commission finds that undue hardships will result from strict compliance with certain provision(s) of the Development Standards, or where the purposes of the Development Standards may be served to a greater extent by an alternative proposal. The findings required by Sections 118-11(a)(1)-(a)(2) shall also be met, and waivers may be approved, disapproved, or approved with conditions.

4.2. Building Permits. The final step in the approval process is the issuance of a Building Permit. Each Building Permit must conform to an Approved Sector Plan, an Approved Final Plat, and all other terms of this Agreement, including, without limitation, the terms of the Building Code. The process for submittal, review and approval of a Building Permit for non-residential and multifamily uses shall be the same process provided in the City Code of Ordinances at the time of receipt of the Building Permit application by the City.

4.3. Amendments to Master Framework Plan. Proposed Major Amendments to the Master Framework Plan shall be submitted to the City Council for approval

unless such change meets the criteria for a Minor Amendment to the Master Framework Plan. Any Minor Amendment to the Master Framework Plan shall be reflected in an updated Master Framework Plan, containing the information set forth in the original Master Framework Plan. A Minor Amendment to the Master Framework Plan shall be approved by the Planning Director.

- 4.4. Amendments to Approved Sector Plans. Proposed amendments to an Approved Sector Plan shall be submitted to the Planning Director for approval. Any Minor Amendment to an Approved Sector Plan shall be reflected in an updated Sector Plan, containing all the information set forth in the original Sector Plan. A Minor Amendment to an Approved Sector Plan shall be approved by the Planning Director. Without limiting the generality of this Section 4.4 or the provisions of the definitions in Section 2, any change to a specific condition placed on the development within a Sector Plan at the time of approval of such Sector Plan shall not be considered a Minor Amendment to such Approved Sector Plan.
- 4.5. Amendments to Approved Final Plats. Any amendments to a Final Plat shall be submitted to the Planning Commission for approval unless the change meets the criteria for a Minor Amendment to an Approved Final Plat, in which case the change shall be considered and approved by the Planning Director as provided for in the City Code of Ordinances.
- 4.6. Amendments to Building Permits. In all instances, the process for approval or rejection of a proposed amendment to an Approved Building Permit shall be consistent with the process for consideration of amendments to building permits in the planning jurisdiction of the City at the time of the proposed amendment.
- 4.7. Determination of Minor or Major Amendment. Whenever in this Agreement there is a reference to a percentage change or other type of change that is determinative as to whether a proposed amendment to a document is a Major Amendment or Minor Amendment, the comparison shall be to the most recently approved version of the document, provided that if an amendment is proposed that, if considered cumulatively with prior minor amendments previously approved within the prior six (6) months, would have constituted a Major Amendment as compared to the first approved version of the document, then the Planning Director may, in its reasonable discretion, determine that the proposed amendment constitutes a Major Amendment. For purpose of clarity, it is agreed that if the Planning Director determines that a series of Minor Amendments was prepared for the purpose of avoiding Major Amendment review and that cumulatively the series of Minor Amendments cause a change to the original version of the applicable document that would have constituted a Major Amendment, then the Planning Director may declare that the proposed Minor Amendment is, in fact, a Major Amendment. However, if the Planning Director determines that the Minor Amendments were not coordinated and each represents a unique Minor Amendment consistent with the spirit of this Agreement, then the Planning Director may conclude each is a Minor Amendment.

- 4.8. Incorporation of Exhibits. The Parties agree that wherever in this Section 4 there is any reference to compliance with this Agreement, such reference shall mean all terms of this Agreement, including, without limitation, all exhibits attached hereto, the Development Standards, and the applicable portion of the Code of Ordinances.
- 4.9. Recording/Filing Fees. The Applicant shall be responsible for paying recording fees and other administrative fees at the time of recording for any plan, document or plat, and any amendment to any of the foregoing, and any easements, option agreements, or other documents contemplated herein or reasonably requested by the City in connection with this Agreement.
- 4.10. Form of Application, Building Permit, or other permits. The Applicant shall utilize any then-current City form in making an Application of any kind, unless this Agreement specifically provides differently.
5. **STORMWATER MANAGEMENT.** The Owner shall be fully obligated to comply with all requirements in the City Code of Ordinances and Development Standards relating to stormwater, including without limitation, the detention and treatment of same and riparian buffer protection. Additionally, the Owner acknowledges and agrees the Owner must at all times comply with all applicable federal or state laws regarding the Property, or development thereon, including without limitation any federal or state laws regarding flood plains, stormwater drainage, management detention, or water quality, and nothing herein shall be interpreted as either (i) removing or minimizing such obligation on behalf of the Owner or (ii) requiring the City to determine what the Owner's obligations are in that regard. There shall be no Event of Default arising from a breach of this Section 5 or in relation to an alleged breach of state or federal laws until and unless the relevant governmental authority enforcing such state or federal laws notifies Owner that Owner is in violation of such law and Owner fails to cure such violation within the cure period allowed by such governmental authority or, if none is specified, within thirty (30) days of Owner's receipt of such notice of violation; provided, however, the limitation in this sentence shall not be applicable if the action or inaction causing the failure to comply with federal or state laws otherwise causes an Event of Default under the terms this Agreement.
6. **TRAFFIC AND ROADWAY IMPACTS.** The terms of this Section 6 shall supplement any provisions of the City Code of Ordinances relating to traffic improvements, traffic mitigation, and traffic impact fees.
- 6.1. Approval of Planning Level TIA. The Planning Level TIA shall be submitted with and approved with the Master Framework Plan.
- 6.2. Sector Plan TIA. With each Sector Plan, the Owner or Applicant shall submit a Sector Plan TIA in the form specified by the City Engineer. Each Sector Plan TIA shall follow the requirements of the Development Standards and must be approved by the City Engineer. Subsequent submittals of each Preliminary Plat, Final Plat and Building Permit within the Sector Plan shall include a running

summary of land use, size, AM and PM peak hour traffic, and daily traffic generated by all approved Preliminary Plats, Final Plats and Building Permits within the Sector. The summary shall be in a form acceptable to the City Engineer.

- 6.3. TIA Worksheet/TIA. Following Sector Plan Approval, with each Preliminary Plat, Final Plat and Building Permit, if applicable, submitted for any portion of that Sector, the Owner or Applicant shall submit a TIA Worksheet in the form specified in the Development Standards. In the event that any TIA Worksheet is inconsistent with the applicable Approved Sector Plan TIA, the City Engineer may require a TIA and an updated comparison between the Preliminary Plat, Final Plat, Sector Plan, and developments approved/constructed to date. Each TIA must be approved by the City Engineer.
- 6.4. Traffic Mitigation. The Owner shall be responsible for all dedications of land and transportation improvements, whether on-site or off-site, described in each Approved Sector Plan TIA and, if applicable, each Approved TIA.
- 6.5. Regional Transportation Plan. The City agrees to amend the Regional Transportation Plan so that it is consistent with the Master Framework Plan and, to the extent that the City agrees to any amendments to the Master Framework Plan pursuant to the processes established herein, then the City shall thereafter further amend the Regional Transportation Plan so that it is consistent with such approved amendments to the Master Framework Plan.
- 6.6. ROW. The ROW for all streets and roads shall be in accordance with the Regional Transportation Plan, the Development Standards, the Planning Level TIA, the applicable Sector Plan TIA, and the applicable Final Plat TIA.
- 6.7. Wayfinding. A community wayfinding plan facilitating non-vehicular travel shall be submitted and approved by the City Engineer prior to installation of any wayfinding signage.

7. **PARKS AND COMMUNITY FACILITIES.** The Parties agree to the “Park Schedule” attached as Schedule 7, including (i) Public Parks (comprised of a combination of Community Parks, Greenbelts/Conservation Parks/Trails and Natural/Conservation Areas); and (ii) Private Parks (comprised of Pocket Parks and Recreation Centers). The Parks will be improved, maintained, and programmed in accordance with Section 7.2.

7.1. Park Schedule. The Park Schedule (attached as Schedule 7) outlines (i) the minimum acreage of dedicated land for Parks (including Public Parks and Private Parks and as measured by the total Park Schedule, not by Sector Plan); (ii) the minimum investment for Community Parks; and (iii) an estimated schedule for such investment based on single family units developed. The Park Schedule, along with the requirements provided in this Section 7, represent the Owner’s minimum obligations with regard to Parks. The Owner may satisfy its obligations under Section 7.2.1 in the Park Schedule in advance of the schedule.

7.2. Park Fees.

7.2.1. Park Development Fees. The Park Schedule modifies Park Development Fee obligations required by the City Code of Ordinances.

(A) Onsite Fee Credit. To the extent Owner complies with the minimum investment in Parks according to the schedule provided for in the Park Schedule, Owner will be credited with having paid seventy-five percent (75%) percent of required Park Development Fees under the City Code of Ordinances. But if the Owner fails to satisfy the minimum investment in Parks according to the schedule provided for in the Park Schedule, Owner agrees that the Owner or the District shall, within fifteen (15) business days of notice by the City, escrow, for Park purposes, the balance of the investment required under the schedule for Parks. Such escrowed funds shall be expended on Parks in accordance with an amendment to the Park Schedule agreed to by the City and the Owner.

(B) Offsite Fees. Owner shall be required to pay the remaining twenty-five percent (25%) of required Park Development Fees under the City Code of Ordinances. For the avoidance of doubt, such fees are required irrespective of Owner's compliance with the minimum investment in Parks according to the schedule provided for in the Park Schedule.

7.2.2. Park Maintenance. For any Park proposed to be dedicated to the District, the relevant Sector Plan shall include a three (3)-year rolling maintenance schedule to be made available to the public online and to be included in the annual report of the District. The schedule will be updated at three (3)-year intervals to reflect the dedication of Parks to the District and whether the Owner or District is correspondingly responsible for such maintenance. The Owner or the District must meet or exceed the maintenance standards provided in the Parks Operations Maintenance Plan designated by the City, as amended from time to time. For any Park, the Parties agree that they may negotiate in their sole and absolute discretion a maintenance agreement that allows the City to maintain all or a portion of a Park if the Parties agree that such maintenance agreement is in the best interests of the Parties. In such event, the Owner or District shall pay for relevant costs for such maintenance activities upon terms mutually satisfactory to the Parties.

7.3. Public Parks.

7.3.1. Neighborhood Parks. Neighborhood Parks, if any, will be included in an amended Master Framework Plan and will be included in an applicable Sector Plan. Neighborhood Parks shall be open to the public and maintained by the District, until such time, if any, as the land on

which such parks are located is annexed for park purposes by the City, at which time the City may assume the ownership of, and obligation to maintain the Neighborhood Parks. Neighborhood Parks, if any, shall be designed in accordance with the Development Standards and the City's Parks and Recreation Strategic Master Plan.

7.3.2. Community Parks. Community Parks are reflected in the Park Schedule and the Master Framework Plan. Community Parks will be included in the applicable Sector Plan. The District shall maintain Community Parks open to the public until the land on which such parks are located is annexed for park purposes by the City, at which time the City shall assume the ownership of, and obligation to maintain the Community Parks, unless the City and District mutually agree otherwise. Community Parks shall be designed in accordance with the Development Standards.

7.3.3. Greenbelts/Conservation Parks/Trails and Natural/Conservation Areas. Greenbelts/Conservation Parks/Trails and Natural/Conservation Areas are reflected in the Park Schedule and the Master Framework Plan. The District shall maintain Greenbelts/Conservation Parks/Trails and Natural/Conservation Areas open to the public until the land on which the is annexed for full purposes by the City under this Agreement, at which time the City shall assume the ownership of, and obligation to maintain, the Greenbelts/Conservation Parks/Trails and Natural/Conservation Areas, unless the City and the District mutually agree otherwise. Greenbelts/Conservation Parks/Trails and Natural/Conservation Areas shall be designed in accordance with the Development Standards.

7.3.4. Regional Parks. Regional Parks, if any, will be included in an amended Master Framework Plan and will be included in an applicable Sector Plan. The District shall maintain Regional Parks, if any, open to the public until the land on which such parks are located is annexed for park purposes by the City under this Agreement, at which time the City shall assume the ownership of, and obligation to maintain, the Regional Parks, unless the City and the District mutually agree otherwise. Any Regional Parks shall be designed in accordance with the Development Standards and the City's Parks and Recreation Strategic Master Plan.

7.4 Private Parks.

2.83.1. Pocket Parks. All Pocket Parks will be reflected in applicable Sector Plans, as well as each applicable Final Plat. Seven (7) Pocket Parks are anticipated for the Project. Pocket Parks will be developed in accordance with the Development Standards and each will be privately maintained by the appropriate HOA pursuant to the Development Standards.

2.83.2. Recreation Center. The Owner shall develop two (2) Recreation Centers of approximately ten (10) acres combined for use by the residents of the Project. The location of the Recreation Centers shall be designated in the applicable Sector Plan. The Recreation Centers shall be maintained by an HOA and developed in accordance with the Development Standards.

7.5 Other Community Facilities.

2.84.1. Fire Station. If requested by the City or the ESD, the Owner shall donate and convey to the City or the ESD at least two (2) and up to three (3) acres of land within the Project for the construction of a fire station. Provided that the Owner approves of such designation, which shall not unreasonably be withheld, the City shall designate the site for the donated land and the location of the fire station based on various factors, including but not limited to the firefighting industry standards related to response time and the availability of the land in the proposed areas of the Project. The location of the site to be donated for the fire station shall be designated on the Sector Plan containing the site. The Owner shall convey the land to the City within ninety (90) days after the City or the ESD delivers written notice to the Owner that funds are available to construct the fire station and construction is expected to commence within one hundred and eighty (180) days after receipt of the deed for the land and thereafter complete construction and begin operating the fire station within thirty-six (36) months after commencement of construction (the "Construction Period"). The deed to the City may be assigned to the ESD and shall contain a reverter in favor of the Owner providing that if the land ceases to be used for a fire station for twenty-four (24) consecutive months or does not commence to be used as fire station within twelve (12) months after the expiration of the Construction Period, fee simple ownership of the land shall automatically revert to Owner; provided, however, such reverter shall specify that in calculating the time periods above, delays due to events of force majeure shall be excluded. The reverter shall expire upon annexation by the City of the site containing the fire station.

7.6 Restrictive Covenant. For all Public Parks, the Owner must file a restrictive covenant in the form designated by the City for parkland dedication, and as amended from time to time, limiting the Public Parks to recreational and park uses, as defined in the City Code of Ordinances. For all Public Parks, the City shall be a beneficiary of any such covenant and will have the right to enforce it.

7.7. Park Planning. The Owner agrees to collaborate with the City's Parks and Recreation Department on the park planning process, including with regard to any requirement in this Section 7, so that Community Parks and Regional Parks, if any, shall be designed to support the City's Parks and Recreation Strategic Master Plan in effect at the time such park is developed.

8. THE DISTRICT AND INDEBTEDNESS.

- 3.1. Authority of the District to Issue Bonds.** The District and each District created by division of a District shall have the authority to issue, sell, and deliver bonds from time to time, as deemed necessary and appropriate by its board of directors, for the purposes, in such forms and manner, and as permitted or provided by federal law, the general laws of the State of Texas and the Consent Resolution. Unless otherwise agreed by the City:
- 3.1.1.** The aggregate amount of bonds, excluding refunding bonds, the Districts collectively may issue shall not exceed a total of Six Hundred Twenty Million Dollars (\$620,000,000.00) in principal amount;
 - 3.1.2.** No District shall sell bonds unless its financial advisor determines that the bonds and any other indebtedness of such District payable from ad valorem taxes can be amortized with a projected ad valorem tax rate (including debt service on the bonds and all other ad valorem taxes being levied by such District) of \$1.50 per \$100 of assessed valuation or less; and
 - 3.1.3.** Unless approved by resolution of the City in its reasonable discretion, no District shall issue bonds or enter into any contractual obligation with any other District, the State of Texas or any agency or political subdivision thereof, covenanting to make payments in support of bonds later than the earlier of (y) thirty-five (35) years after the Effective Date of the Development Agreement, or (z) twenty-five (25) years after the date such District issued its first series of bonds.
 - 3.1.4.** No less than thirty (30) days prior to selling a series of bonds, an Issuing District (defined below) shall provide the City with a certified copy of the Texas Commission on Environmental Quality Order approving the bond issue (if applicable), a copy of the Preliminary Official Statement for the bonds, and a draft of the District's Order authorizing issuance of the bonds.
- 3.2. Bond Provisions.** To ensure compliance by a District with each applicable condition or restriction imposed in connection with this Agreement, the Consent Resolution, or other applicable agreement, resolution or ordinance, the City Council is entitled to approve the issuance or sale of bonds by a District before such District issues a bid invitation for such bonds. If an Issuing District is in compliance with each applicable condition set forth below, the City shall consent to such issuance or sale within thirty (30) days of written request so long as either (a) during the ninety (90) days preceding the commencement of such thirty (30)-day period, the Issuing District made a presentation to the City Council with a summary of the proposed issuance of bonds, or (b) at least ninety (90) days preceding the commencement of the 30-day period, the Issuing District informed the City Manager in writing that the Issuing District was available to make such

a presentation to the City Council and such presentation was not placed on an agenda of the City Council during the ninety (90)-day period. Unless otherwise agreed by the City, an Issuing District shall not sell, issue or deliver any bonds unless:

- 3.2.1. The terms of such bonds expressly provide that the Issuing District has the right to redeem the bonds no later than on any interest payment date subsequent to the tenth (10th) anniversary of the date of issuance, without premium;
- 3.2.2. The bonds, other than refunding bonds, are sold after the taking of public bids therefor;
- 3.2.3. None of such bonds, other than refunding bonds, are sold for less than ninety-five percent (95%) of par;
- 3.2.4. The net effective interest rate on bonds so sold, taking into account any discount or premium as well as the interest rate borne by such bonds, does not exceed two percent above the highest average interest rate reported by the Daily Bond Buyer in its weekly "20 Bond Index" during the one-month period next preceding the date notice of the sale of such bonds is given and bids for the bonds will be received not more than forty-five (45) days after notice of sale of the bonds is given;
- 3.2.5. Such bonds shall not have a final maturity date more than twenty-five (25) years from the date of issuance;
- 3.2.6. The bonds and the Issuing District's other outstanding bonded indebtedness have a combined level debt service schedule, meaning that the highest year's debt service does not exceed the average year's debt service by more than five percent (5%);
- 3.2.7. Any refunding bonds of a District must provide for a minimum of three percent (3%) net present value savings, and, if such refunding occurs after the last date a District is permitted to issue bonds, the refunding bonds must not mature later than the original, final maturation date of the bonds to be refunded; and
- 3.2.8. No Event of Default has occurred that relates to (a) the improvements or other matters that are the subject of such proposed bonds, (b) the obligations of the District and the Owner pursuant to Section 5, or (c) the obligations of the District and the Owner pursuant to Section 7.

- 3.3. **Distribution of Bond Proceeds.** The proceeds of bonds issued by a District shall be used and may be invested or reinvested, from time to time, as provided in the order or orders of the District authorizing the issuance, sale, and delivery of such bonds and in accordance with the federal, state, and local laws and regulations governing the proceeds of the District's sale of its bonds.

- 3.4. **Division of District.** The plan for dividing the District into new Districts will be submitted in advance of the election of directors to the District. The District may, from time to time, without any further City consent, be divided into two or more Districts in accordance with the provisions of Section 8489.107 of the Creation Statute so long as (i) the division complies with applicable laws and each District created by a division of the original District encompasses a minimum of one hundred (100) acres; (ii) the division does not cause the area within a Final Plat (as defined in the Development Agreement) to be located within more than one District; and (iii) the District shall give the City no less than sixty (60) days advance written notice of the intent to divide and create a new District with such notice including a metes and bounds description of the new District. Owner agrees that the City shall not be required to grant a certificate of occupancy for a structure located within a District unless the District encompassing such structure complies with the preceding limitations. In no event shall the division of the District and creation of one or more new Districts be construed to permit any land use inconsistent with the Master Framework Plan as amended from time to time. The creation of any new District not complying with the above limitations shall require the prior consent of the City.
- 3.5. **Annexation or Exclusion of Land.** The District shall give the City no less than sixty (60) days advance written notice of its intent to realign the boundaries of an existing District through the method of adding land to or excluding land from a District. Unless approved by resolution of the City in its reasonable discretion or consented to by the City in the Development Agreement, no District shall add land to such District that is located outside of the Property initially comprising the District as set forth in the Creation Statute.
- 3.6. **References.** All references to the District in this Section 8 apply equally to each District and any new District created by division, and the terms of this Agreement regarding development on any portion of the Property shall apply to any new Districts.
4. **ANNEXATION.** The City may, at its sole and absolute discretion, choose to annex any District at such time as the City deems annexation is appropriate. Except for limited purpose annexation, as provided for in the Strategic Partnership Agreement, the City may not annex any District unless it annexes the entirety of such District. The City agrees not to annex any District until (a) the City Council by ordinance has assumed, or will assume, all obligations, and performed, or will perform, all actions required by Sections 43.0715 and 43.075 of the Texas Local Government Code, or any other then applicable law, and (b) any one of the following has occurred:
- 4.1. The earlier of (i) the fifteenth (15th) annual anniversary of the confirmation election date of the District to be annexed, such confirmation election being the first election held for the District created pursuant to Section 3.4, but excluding the original confirmation election of the original District, and (ii) the thirtieth (30th) annual anniversary of the Effective Date, provided that, in the event that the Owner validly extends the Term beyond the thirtieth (30th) annual

anniversary date pursuant to the terms of Section 18, such thirtieth (30th) annual anniversary date shall be extended to be equal to the then current Term, not to exceed the forty-fifth (45th) annual anniversary date of the Effective Date.

4.2. At least ninety percent (90%) of the improvements within the District that are eligible for reimbursement in accordance with the rules of the TCEQ have been constructed, provided that, for purposes of the foregoing calculation, (i), except as described in subpart (ii) below, the applicable percentage of the improvements (i.e., 90%) shall be based upon the total value of the eligible improvements, as reasonably estimated by the Owner at the time that the Sector Plan containing such improvements is filed with the City, (ii) the City shall have the right to approve the Owner's estimate of the value of the improvements that are eligible for reimbursement in accordance with the rules of the TCEQ, such approval not to be unreasonably withheld, and (iii) the list of improvements that are eligible for reimbursement in accordance with the rules of the TCEQ, and the value thereof, designated by the Owner and approved as to value by the City in accordance with subpart (ii) above, shall control for all purposes under this Section 4.2, regardless of the actual cost of such improvements or the value placed upon same by any other private entity or public authority, and provided further that the City and the Owner acknowledge that the Owner's estimated value at the time of Sector Plan (A) may not be based upon design engineering and (B) shall in no way limit, restrict or inhibit the Owner's right to seek reimbursement from the District for the actual costs of construction of such improvements; or

4.3. The expiration or termination of this Agreement, as provided herein.

4.4. The Owner and the District acknowledge and agree that, by entering into this Agreement, any such annexation that complies with the requirements listed above in Sections 9.2–9.3 shall be voluntary, and the Owner and District hereby to such annexation as though a petition for such annexation had been tendered by the Owner.

5. **DEED RESTRICTIONS.** Prior to conveying any portion of the Property to an End User, Owner shall encumber the applicable portion of the Property with CC&Rs containing at least the following restrictions or, to the extent approved by the Planning Director, alternative restrictions:

5.1. **Construction and Other Codes.** All buildings or dwellings constructed on the Property must comply with Chapter 14 of the Code of Ordinances (Buildings and Building Regulations), as it may be amended from time to time in accordance with this Agreement, to the same extent as if such buildings or dwellings were located in the corporate limits of the City. City building officials and inspectors may enter into the Property that is subject to the CC&Rs to perform inspections and take other actions under Chapter 14 of the Code of Ordinances to the same extent as if such property were located in the corporate limits of the City. The Homeowners Association may not enforce Article X of

Chapter 14 of the Code of Ordinances (Violations, Penalties, Fee Refund Policy, Board of Appeals and Administrative), or any successor ordinance; provided however that a violation of this Section may be enforced by the Homeowners Association in the same manner as any other violation of the CC&Rs.

- 5.2. Unsafe Buildings and Nuisances.** The Property made subject to the CC&Rs must comply with the sections of Chapter 50 of the Code of Ordinances listed in Sections 5.2.1-5.2.5, as they may be amended from time to time, to the same extent as if the Property was located in the corporate limits of the City. A violation of this Section may be enforced by the Homeowners Association in the same manner as any other violation of the CC&Rs.

5.2.1. Section 50-26 (unsafe buildings);

5.2.2. Section 50-27 (unoccupied buildings);

5.2.3. Section 50-56 (Definitions);

5.2.4. Section 50-57 (Prohibited accumulations; litter, weeds, graffiti, duty of property owner, occupant); and

5.2.5. Chapter 6 (Animals).

- 5.3. Maintenance of BMPs in Easements.** Prior to conveying any portion of the Property to the District or a Homeowners Association, the Owner shall encumber the applicable portion of the Property with CC&Rs requiring that the District or the Homeowners Association, as applicable, shall be responsible for maintenance of BMPs located in easements.

6. WATER AND WASTEWATER.

- 6.1. NBU Agreement.** The Utility Agreement shall govern the provision of water and wastewater services to the Property. The Agreement is contingent on Owner and NBU negotiating and executing the Utility Agreement by March 1, 2022("Utility Agreement Requirement Date"). If the Utility Agreement is not executed by the Utility Agreement Requirement Date, this Agreement shall not be applicable and shall be null and void. The Utility Agreement may be amended from time to time, and the City hereby consents to such amendments and agrees no additional notice or agreement by the City is required to amend the Utility Agreement so long as the amendment does not create a conflict with this Agreement. Amendments to the Utility Agreement shall not be considered to alter, modify or expand the Project or alter the vested rights established by this Agreement. The Owner and NBU separately plan to build and convey an interim wastewater facility, to be managed by NBU; provided that the City approves the plans and specifications of the facility pursuant to Section 8489.105 of the Creation Statute. Notwithstanding any other provision of this Agreement, the Utility Agreement shall not govern the provision of services from this interim facility.

- 6.2. **Prohibition Against Other Retail Public Utilities.** Other than NBU, no retail public utility, as defined by Section 13.002 of the Texas Water Code, may provide retail water or wastewater service to the Property. Notwithstanding the foregoing, the Owner and the District shall at all times retain the right to develop, transmit, sell and otherwise use for its own benefit or the benefit of others non-potable water in, on or under the Property. The Parties agree that the interim waste water treatment facility agreed to in the Utility Agreement is not a retail public utility under this Section 11.2.
7. **CONSTRUCTION STAGING.**
- 7.1. **Construction Staging.** No approvals will be required in connection with the location of customary construction staging areas, storage yards and temporary construction offices so long as they are not located within two hundred fifty feet (250') of inhabited single-family homes, duplexes, or attached townhouses.
8. **ECONOMIC INCENTIVES.**
- 8.1. **Strategic Partnership Agreement.** The City and the District must enter into the Strategic Partnership Agreement.
- 8.2. **Future Additional City Incentives.** The City agrees to consider in good faith applications for economic incentives in the future in connection with the proposed development within the Project that will provide jobs, attract tourism or otherwise stimulate economic activity in the City if the City determines that such requests are consistent with this Agreement and the general policies of the City at such time.
- 8.3. **Other Incentives.** The City agrees not to oppose and to provide reasonable support for the Owner or the District to enter into economic incentive agreements with other governmental entities, including but not limited to the County, so long as the proposed economic incentive agreement is consistent with this Agreement and the general policies of the City at such time; provided, however, notwithstanding the foregoing, it is expressly understood that (a) the City has no authority over the decisions of other governmental or quasi-governmental entities and the City cannot commit other governmental or quasi-governmental entities with respect to any economic incentive agreements.
9. **ECONOMIC PHASING INFORMATION AND ESTIMATES.** Owner agrees to provide to the City copies of any economic phasing information or estimates submitted by Owner to NBU under the Utility Agreement. All economic phasing information and estimates submitted by the Owner in connection with this Agreement or the Utility Agreement is an informational estimate only and subject to revision based on market conditions and actual development activities. The Owner agrees to update its economic phasing information and estimates on a yearly basis in a manner and at a time as may be agreed between the Owner and the Planning Director. The Owner reserves the right at all times to make adjustments or modifications to economic phasing information and estimates

previously supplied by the Owner to reflect changing market or other conditions and any such adjustment or modification shall not be construed as an amendment to this Agreement and shall be effective upon delivery to the City.

10. **FEES.**

10.1. **No Impact Fees.** No impact fees, including roadway impact fees, shall be assessed by the City on the Owner or any Applicant; provided, however, nothing herein shall in any way modify the other provisions of this Agreement that specifically require the payment of fees or the funding of costs.

10.2. **Other Development Fees.** The only other development fees imposed in relation to the Project shall be the Fees. Development Fees are to be calculated based on rules in place at the time of Final Plat.

10.3. **Consultant Reimbursement.** Unless the Parties agree otherwise, the Owner shall have no obligation to reimburse the City for its consultant fees incurred following the Full Execution Date; provided, however, the Owner shall be responsible for reimbursing the City for its consultant fees related to the consideration of Development Standards, including the Original Development Standards whether such consideration occurs prior to the Effective Date, at the time of a Sector Plan, as long as there is a prior written agreement between the City and the Owner with respect to the scope and fees for consultant work.

11. **ADDITIONAL LANDS.** The Owner may subject lands contiguous to the Project to this Agreement only upon approval by the City Council of an amended Master Framework Plan reflecting such additional lands, and such other requirements as shall be imposed by the Planning Director or the City Council, provided that the City shall not unreasonably withhold its approval to the annexation to the Project and the District of roadways or other lands immediately adjacent to the Project containing (or planned to contain) infrastructure intended to be owned and operated by the District, so long as such annexation (a) does not increase the LUEs allocated to the Project under the Utility Agreement, (b) does not otherwise cause a Major Amendment to the Master Framework Plan and (c) is legally allowed at such time pursuant to applicable provisions of the Texas Local Government Code.

12. **COORDINATION OF CITY REVIEWS OF FUTURE SUBDIVISION APPROVALS AND INSPECTIONS.** City agrees to use good faith in accepting and reviewing all Applications relating to the Project and to provide adequate human and other resources to the Application review processes applicable to the Project, including any applicable inspections and document reviews, such that all Project Applications are accepted and reviewed by the City in a timely manner and in the same manner and timeliness as other applications in the City.

13. **EMERGENCY AND OTHER SERVICES.**

13.1. **Fire and EMS Services.** Fire and emergency medical services shall be provided through a written agreement by and between the District and Emergency

Services District. This agreement shall be in place in advance of the election of directors to the District.

13.2. Public Safety and Police Services. Public Safety and Police services shall be provided in the District. The City may in its sole and absolute discretion enter into a written agreement with the District to be the provider of Public Safety and Police Services. The District may alternatively enter into such a written agreement with Comal County. This agreement shall be in place in advance of the election of directors to the District.

13.3. Solid Waste Services. Solid Waste Collection Services shall be provided in the District. The City may in its sole and absolute discretion enter into a written agreement with the District to be the provider of Solid Waste Services in the District. Upon the City's approval, which shall not be unreasonably withheld, the District may alternatively enter into such a written agreement with a private provider of Solid Waste Services. This agreement shall be in place in advance of the election of directors to the District.

14. TERM OF AGREEMENT. This Agreement shall be in effect during the Term. If the Build-Out of the Project has not occurred within the Initial Term, the Owner may (a) upon written notice to the City prior to expiration of the then-current Term, and (b) compliance with all other applicable provisions of this Agreement that must be satisfied in order for the Owner to extend the Initial Term, elect to extend the Initial Term for up to two (2) additional fifteen (15) year terms; provided, however, in no event shall (i) the Initial Term be extended, nor shall any Term be extended beyond thirty (30) years if the Owner is in default under the terms of this Agreement at the time of such extension, and (ii) the Term of this Agreement be extended under any circumstances beyond the forty-fifth (45th) annual anniversary of the Effective Date.

15. EVENT OF DEFAULT BY THE OWNER. In the event of an Event of Default by Owner or the District with respect to the District Obligations, the City shall have the following rights and the right to pursue the remedies set forth in this Section 20.

15.1. Rights of City.

15.1.1. Entry. To enter upon the Property, or any portion thereof, by and through the City's authorized employees or enforcement agents, at reasonable times in order to monitor compliance with and otherwise enforce the terms of this Agreement; provided that, except in cases where the City reasonably determines that immediate entry is required to prevent, terminate, or mitigate a violation of this Agreement causing immediate and irreparable harm, such entry shall be upon prior reasonable notice to the owner of the portion of the Property upon which the City is to enter, and the City will not in any case unreasonably interfere with such owner's use and quiet enjoyment of such portion of the Property. No entry onto an occupied platted single

family residential or duplex residential lot will be authorized by this Section 15.1.1 which is not otherwise authorized by law; and

15.1.2. Prevent Activity. To prevent any activity on, or use of, any portion of the Property that is inconsistent with the terms of this Agreement and to require the restoration of such areas or features of such portions of the surface of the Property that may be damaged by any activity or use which is inconsistent with the terms of this Agreement, pursuant to the remedies set forth in Section 15.2 of this Agreement.

15.1.3. Reimbursement. The Owner shall reimburse the City all reasonable costs or expenses incurred by the City in exercising its rights set forth in Section 15.1, if any.

15.2. City's Remedies. Following an Event of Default by Owner, or the District with respect to the District Obligations, the City's remedies shall include, without limitation, any one or more of the following remedies:

15.2.1. bring an action at law or in equity to enforce the terms of this Agreement, as applicable, including seeking a temporary restraining order, temporary injunction and/or permanent injunction to enjoin the non-compliance;

15.2.2. bring an action to require the restoration of the surface of the affected Property to its previous condition;

15.2.3. bring an action for specific enforcement of this Agreement;

15.2.4. recover any damages arising from the non-compliance;

15.2.5. terminate this Agreement in full without thereby incurring any liability to the Owner whatsoever;

15.2.6. refuse to accept, process, continue to process, or approve any Application for any portion of the Property;

15.2.7. annex any portion or all portions of the Property, notwithstanding any limitation to the contrary in this Agreement; and

15.2.8. refuse to consent to the sale or issuance of any bonds by a District.

15.3. Limitations on City Remedies. Notwithstanding the foregoing:

15.3.1. the City may not exercise the remedies specified in Sections 15.2.5, 15.2.6, 15.2.7 and 15.2.8 if the Event of Default arises from a breach of Section 5;

- 15.3.2. the City may not exercise the remedies specified in Section 15.2.6 (refuse to accept or process Applications) or Section 15.2.7 (early annexation) and the limitations contained in Sections 15.4.1 and 15.4.2 shall not apply with respect to (a) lot(s) contained in an Approved Final Plat that are owned by an End User, or (b) lot(s) contained in an Approved Final Plat that are owned by an individual or entity who does not qualify as an End User of such lot(s), but only if the Event of Default does not arise from the failure to perform an obligation reflected on the Approved Final Plat; and
- 15.3.3. the City may not exercise the remedy specified in Section 20.2.8, or enforce the limitation on the Owner and the District described in Section 20.4.3, for any unsold or unissued bonds that relate to improvements that have been completed as of the date of the Event of Default unless the Event of Default relates to (a) the improvements or other matters that are the subject of such proposed bonds, (b) the obligations of the District and the Owner pursuant to Section 5, or (c) the obligations of the District and the Owner pursuant to Section 7.2.1. Nothing herein shall restrict the City in the exercise of the remedy specified in Section 20.2.8, or the limitation on the Owner and the District in Section 20.4.3, for any unsold or unissued bonds that relate to improvements that have not been completed as of the date of the Event of Default.

15.4. **Limitations on the Owner.** Except as provided in Sections 15.3.2, 15.3.3 and 15.4.4, in the event of an Event of Default by the Owner or the District with respect to the District Obligations, the Owner or the District, as applicable, shall not have the right to:

- 15.4.1. submit any Application for any portion of the Property;
- 15.4.2. receive from the City any permit, Approval, or similar permission; and
- 15.4.3. issue any debt, including without limitation, any bonds that were previously approved by the City. This limitation, subject to the terms of Section 20.3.3, shall explicitly control over any law or agreement to the contrary and to the extent any such right would exist at law, in equity or otherwise, same is hereby RELEASED, WAIVED and RELINQUISHED by Owner on behalf of themselves and their respective successors and assigns, if any, until and unless the City provides written notice that the Event of Default has been cured or remedied to the satisfaction of the City.
- 15.4.4. Notwithstanding anything to the contrary, this Section 15.4 does not apply to an Event of Default arising from a breach of Section 5.2.5 of this Agreement.

- 15.5. **Prior Notice Required.** If the City becomes aware of a violation of the terms of this Agreement, the City shall, except as expressly set forth herein, notify the defaulting party and the owner(s) of the portion(s) of the Property involved in such violation and request corrective action sufficient to abate such violation and, if applicable, restore the surface of the affected portions of the Property to its previous condition prior to the violation. Failure to abate the violation and take such other corrective action as may be required to cure the violation within the Cure Period will entitle the City to exercise any and all rights and remedies available to it at law or in equity as a result of such failure. Prior to exercising the City's rights to one or more available remedies, the City shall provide written notice as stated in this Section 15.5.
- 15.6. **Failure to Act or Delay.** Forbearance by the City from exercising any of its rights under this Agreement in the event of any breach of any term of this Agreement by Owner, or the District with respect to the District Obligations, shall not be deemed or construed to be a waiver by the City of such term or of any subsequent breach of the same or any other term of this Agreement or of any of the City's rights under this Agreement. No delay or omission by the City in the exercise of any right or remedy upon any breach by Owner, or the District with respect to the District Obligations, or any subsequent Owner shall impair such right or remedy or be construed as a waiver. No covenant, term, condition or restriction of this Agreement or the breach thereof by Owner, or the District with respect to the District Obligations, will be deemed waived, except by written consent of the City, and any waiver of the breach of any such covenant, term, condition or restriction will not be deemed or construed to be a waiver of any preceding or succeeding breach of the same or any other covenant, term, condition or restriction. The City shall retain the right to take any action as may be necessary to ensure compliance with this Agreement notwithstanding any prior failure to act.
- 15.7. **Waiver of Certain Defenses.** Owner and District hereby waive any defense of laches, estoppel, or prescription.
16. **EVENT OF DEFAULT BY CITY.** In the event of an Event of Default by the City, the Owner shall be entitled to seek an injunction without posting bond and/or a writ of mandamus from a court of competent jurisdiction compelling and requiring the City and its officers to observe and perform the covenants, obligations and conditions of this Agreement. The City shall not be liable to Owner for monetary damages and nothing herein shall be deemed to waive the City's right to immunity. The City shall have no liability to the Owner, except in accordance with the terms hereof.
17. **DISTRICT OBLIGATIONS.** The District must agree to the terms of this Development Agreement and the District Obligations described in Sections 5, 6, 7, and 8 within sixty (60) days of the District's creation. The City agrees that for so long as the District collects no or nominal ad valorem tax, the City will not seek to impose liability on the District for failure to perform the District Obligations and the City will look solely to the Owner to meet the District Obligations. The District agrees that any amendments to this Agreement

that do not expressly modify Sections 5-8, including but not limited to Major Amendments to the Master Framework Plan, will not require the consent of the District.

18. PORTION OF PROPERTY LOCATED WITHIN CITY LIMITS

- 18.1.** The portion of the Property identified on **Exhibit H** (Overlapping Property) is located within the District and the corporate limits of the City. Development of any portion of that property will be regulated by Chapter 144 (Zoning), City Code of Ordinances, until such date that the any portion of such property is disannexed from the City.

19. MISCELLANEOUS PROVISIONS.

- 19.1. Actions Performable.** The City and the Owner agree that all actions to be performed under this Agreement are performable solely in Comal County, Texas.
- 19.2. Governing Law.** The City and the Owner agree that this Agreement has been made under the laws of the State of Texas in effect on this date, and that any interpretation of this Agreement at a future date shall be made under the laws of the State of Texas.
- 19.3. Non-Severability.** In the event that any provision of this Agreement regarding the land use and development approvals granted to the Owner or the commitment for utility services and costs for facilities to be provided is subsequently determined to be unenforceable or otherwise materially altered by a court of competent jurisdiction, then the Owner or the City shall have the right to terminate the remainder of this Agreement within sixty (60) days of such determination whereupon any bonds posted by the Owner pursuant to this Agreement shall be immediately released by the City. If a court of competent jurisdiction or any other governmental entity with appropriate jurisdiction determines that any portion of this Agreement is beyond the scope or authority of applicable Texas law, then, subject to the immediately preceding sentence, the City and the Owner agree to immediately amend this Agreement so as to conform to such ruling or decision in such a manner that is most consistent with the original intent of this Agreement as legally possible.
- 19.4. Representation of Authority.** The City represents and warrants to the Owner that the City is duly authorized and empowered to enter into this Agreement. The Owner represents and warrants to the City that it has the requisite authority to enter into this Agreement.
- 19.5. Exhibits.** All exhibits attached to this Agreement are incorporated by reference and expressly made part of this Agreement as if copied verbatim.
- 19.6. Complete Agreement; Amendments.** This Agreement represents a complete Agreement of the Parties and supersedes all prior written and oral matters related to this Agreement. Any amendment to this Agreement must be signed by the

Owner and the City, but not the other Parties provided however the District must consent to amendments to the extent required in Section 17. All amendments shall be incorporated herein by reference as if they were part of the Agreement as of the Effective Date.

- 19.7. **Assignment.** This Agreement is for the benefit of the City and the Owner. The City expressly agrees that the Owner may assign all or part of its rights and obligations under this Agreement to subsequent purchasers of all or part of the Property and/or one or more Homeowners' Associations or a similar non-profit entity owned either by residents or by the Owner, and following receipt of notice of such assignment, the City shall look only to such assignee(s) with respect to such assigned rights or obligations. The foregoing shall not apply to the obligations of the Owner pursuant to Section 10.3.
- 19.8. **Covenants Running With the Property; Recording Fees.** This Agreement is intended to and shall create conditions or exceptions to title or covenants running with the Property, provided that, in accordance with § 212.172(f) of the Texas Local Government Code, this Agreement is not binding on, and does not create any encumbrance to title as to any End User within the Project, except as to land use and development regulations specified in this Agreement that apply to that specific lot. In the event the Owner elects to record the fully executed Development Agreement in accordance with the terms of Section 19.14, all recording costs shall be the responsibility of the Owner. Additionally, in the event that (a) any amendment to this Agreement is executed in accordance with Section 19.6 or (b) any amendment of an exhibit of this Agreement, or any addendum to an exhibit of this Agreement, is properly made pursuant to the terms of this Agreement, the cost of recording such amendment or addendum to an exhibit to this Agreement shall be the responsibility of the Owner.
- 19.9. **Notice.** All notices, requests or other communications required or permitted by this Agreement shall be in writing and shall be sent by (a) telecopy or electronic mail, with the original delivered by hand or overnight carrier, (b) by overnight courier or hand delivery, or (c) certified mail, postage prepaid, return receipt requested, and addressed to the parties at the following addresses:

City:

City of New Braunfels
Attn: City Manager
550 Landa St.
New Braunfels, Texas 78130

with copies to:

City Attorney
550 Landa St.
New Braunfels, Texas 78130

Owner:

Southstar at Mayfair, LP
118 Vintage Way
New Braunfels, TX 78132

with copies to:

Bracewell LLP
Attn: Blakely Fernandez
300 Convent St., Suite 2700
San Antonio, Texas 78205

- 19.10. Contest of Agreement.** In the event of a third party lawsuit, a taxpayer suit or other claim relating to the validity of this Agreement or any actions taken in compliance therewith, (a) the Owner and the City agree to cooperate in the defense of such claim and the City and the Owner shall use their respective reasonable efforts to resolve the conflict in the mutual best interest of the City and the Owner, and (b) the Owner agrees to indemnify, defend and hold harmless the City against the reasonable costs and expenses incurred by the City in connection with such third party lawsuit, taxpayer suit or other claim relating to the validity of this Agreement or any actions taken in compliance therewith, provided that the Owner shall not be obligated to indemnify the City for claims arising out of (i) the intentional constructed willful misconduct of the City or its agents, or (ii) claims arising from actions taken by the City pursuant to Section 3.5. Nothing in this Agreement shall be construed as a waiver of governmental and sovereign immunity by the City.
- 19.11. Force Majeure.** The Owner and the City agree that the obligations of each party, except the obligation to make financial payments, shall be subject to force majeure events such as acts of God, natural calamity, fire or strike.
- 19.12. District Approval.** By its signature below, the District agrees to this Agreement and agrees to abide by this Agreement applicable to the District. The District may enforce any rights established in favor of the District under this Agreement.
- 19.13. Signature Warranty Clause.** The signatories to this Agreement represent and warrant that they have the authority to execute this Agreement on behalf of the City and the Owner, respectively.
- 19.14. Effective Date and Recording.** This Agreement shall be executed by City, the Owner, the District, and the Landowner promptly following approval of this Agreement by the City Council, provided that this Agreement shall not be

binding upon the Property until and unless this Agreement is recorded by the Owner in the real property records of the County.

- 19.15. Captions.** The captions contained in this Agreement are for convenience of reference only, and in no way limit or enlarge the terms and/or conditions of this Agreement.

(EXECUTION PAGE(S) TO FOLLOW)

APPROVED AND AGREED:

CITY OF NEW BRAUNFELS

By: Neel P. J., Mayor
Date: 5/3/24

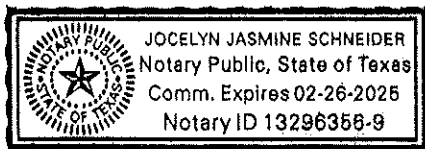
STATE OF TEXAS

COUNTY OF COMAL

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ACKNOWLEDGMENT

This instrument was acknowledged before me on this the 3rd day of May 2024, by Neel Linnartz, a person known to me in their capacity as Mayor of the City of New Braunfels, on behalf of the City of New Braunfels.



Jocelyn Jasmine Schneider
Notary Public, in and for the State of Texas

SOUTHSTAR AT MAYFAIR, LLC, a Texas
limited liability company

By: Chip Mills
Name: CHIP MILLS
Title: SVP

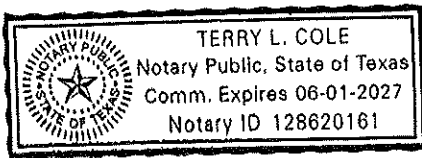
STATE OF TEXAS

COUNTY OF Comal

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ACKNOWLEDGMENT

This instrument was acknowledged before me on this the 17 day of April
2024, by Chip Mills, persons known to me in their capacities Senior Vice President
Southstar at Mayfair on behalf of the partnership.



Terry L. Cole
Notary Public, in and for the State of Texas

LIST OF EXHIBITS

Exhibit A	Consent Resolution
Exhibit B	Description of Property (1888 acres)
Exhibit C	Code of Ordinances
Exhibit D	Development Standards (Development & Design Control Document)
Exhibit E	Master Framework Plan
Exhibit F	Traffic Impact Analysis (Project Transportation Plan)
Exhibit G	Form of Strategic Partnership Agreement
Exhibit H	Overlapping Property
Schedule 7	Parks Schedule

Exhibit A

(Consent Resolution)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**

10/1/2016 10:10 AM
10/1/2016 10:10 AM

RESOLUTION NO. 2021-R-38

RESOLUTION OF CITY OF NEW BRAUNFELS, TEXAS CONSENTING TO THE
CREATION OF COMAL COUNTY WATER IMPROVEMENT DISTRICT NO. 3,
WHICH IS IN THE EXTRATERRITORIAL JURISDICTION OF THE CITY

WHEREAS, pursuant to Acts 2013, 83rd Leg., R.S., Ch. 1122, Sec. 1 (Chapter 8489 of the Texas Special District Local Laws Code) ("**Enabling Act**"), the Texas Legislature created Comal County Water Improvement District No. 3 ("**District**"), a water control and improvement district created pursuant to Article XVI, Section 59 of the Texas Constitution, with the powers and duties provided by Chapters 49 and 51 of the Texas Water Code;

WHEREAS, the District includes approximately 1,888 acres of real property in Comal County, Texas described in the attached Exhibit A ("**Property**"), which is located partially within the corporate limits and partially within the extraterritorial jurisdiction of the City of New Braunfels, Texas ("**City**");

WHEREAS, pursuant to Texas Local Government Code, Section 42.042, land within the extraterritorial jurisdiction of a city may not be included within a district without the written consent of such city;

WHEREAS, pursuant to Section 8489.004 of the Enabling Act, the temporary directors of the District may not hold an election confirming the creation of the District until the City has consented by ordinance or resolution to the creation of the District and to the inclusion of land within the District;

WHEREAS, the City and Southstar at Mayfair, LP ("**Developer**") entered into that certain dated ("**Development Agreement**"), which addresses, among other things, the development of the property within the District and the provision of water, wastewater, and other utilities to the District;

WHEREAS, pursuant to Section 8489.004(a)(2) of the Enabling Act, New Braunfels Utilities and Developer may enter into a utility agreement to govern the provision of water and wastewater services to the Property (the "**Utility Agreement**"), without which, the Development Agreement will be null and void;

WHEREAS, pursuant to the Development Agreement, Developer and the District requested the City's consent by resolution to the creation of the District and to the inclusion of the Property within the District under the terms and conditions below; and

WHEREAS, the City Council of the City desires to adopt this Resolution for the purpose of consenting to the creation of the District.

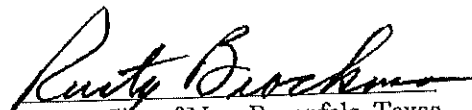
NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NEW BRAUNFELS, TEXAS:

1. That all of the matters and facts set out in the preamble hereof be true and correct.
2. That the City Council of the City hereby specifically gives its written consent, as provided by Texas Local Government Code, Section 42.042 and Texas Special District Local Laws Code, Section 8489.004, to the creation of Comal County

Water Improvement District No. 3 and to the inclusion of Property within the District, subject to the following terms and conditions:

- a. The above consent is contingent on the Developer and New Braunfels Utilities negotiating and executing the Utility Agreement by October 1, 2021.

PASSED AND APPROVED on this 28 day of June 2021.


Mayor, City of New Braunfels, Texas

ATTEST:

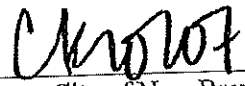

City Secretary, City of New Braunfels, Texas

Exhibit B

(Description of Property)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**



**METES AND BOUNDS DESCRIPTION
FOR**

A 1232.061 acre, or 53,668,577 square feet more or less, tract of land comprised of the following tracts of land conveyed to the State of Texas for the use and benefit of the Permanent School Fund: all of a called 1015.410 acre tract recorded in Document No. 200506041691, all of a called 85.763 acre tract recorded in Document No. 200506039322, all of a called 28.477 acre tract recorded in Document No. 200506039324, all of a called 27.474 acre tract recorded in Document No. 200506045048, all of a called 1,002 acre tract recorded in Document No. 200506039320, all of a called 20,035 acre tract recorded in Document No. 200506039319 and a portion of a called 74.803 acre tract recorded in Document No. 200506039321 all being recorded in the Official Public Records of Comal County, Texas, out of the Antonio Maria Esnaurizar Survey No. 1, Abstract 98, Comal County, Texas. Said 1232.061 acre tract being described as follows with an overall perimeter boundary description of 1232.118 acres; **SAVE AND EXCEPT** a 0.057 acre tract conveyed to Crystal Clear Special Utility District by deed recorded in Document No. 201506033214 of the Official Public Records of Comal County, Texas. Said 1232.061 acre tract being more fully described as follows with distances displayed in surface values and with bearings based on the Texas Coordinate System established for the South Central Zone from the North American Datum of 1983 NAD 83 (NA2011) epoch 2010.00;

BEGINNING: At a found $\frac{1}{4}$ " iron rod with a cap marked "RPLS 4233" at the north corner of said 1015.410 acre tract, the west corner of a 39.48 acre tract recorded in Document No. 201706005455 of the Official Public Records of Comal County, Texas and on the southeast right-of-way line of I.H. 35, a variable width public right-of-way;

THENCE: S 45°01'02" E, departing the southeast right-of-way line of said I.H. 35, with the northeast line of said 1015.410 acre tract and the southwest line of said 39.48 acre tract, a distance of 2148.92 feet to a found 2" iron pipe at the south corner of a 69.569 acre tract recorded in Document No. 9506481804 and the west corner of a 3.643 acre tract recorded in Document No. 200206015903 both of the Official Public Records of Comal County, Texas;

Page 1 of 9

TYPE Firm Registration #470 • TDP/S Firm Registration #10020800
San Antonio | Austin | Houston | Fort Worth | Dallas
Transportation | Water Resources | Land Development | Surveying | Environmental
2000 NW Loop 410, San Antonio, TX 78213 T: 210.375.9000 www.Pape-Dawson.com

Exhibit A

1,232.061 Acres
Job No.: 9205-18
Page 2 of 9

- THENCE: S 44°42'41" E, continuing with the northeast line of said 1015.410 acre tract, with the southwest line of said 3.643 acre tract, the southwest line of a 18.092 acre tract recorded in Volume 972, Page 676 of the Official Public Records of Comal County, Texas, the southwest line of Cuatro Amigos Subdivision recorded in Volume 11, Page 100 of the Map and Plat Records of Comal County, Texas and the southwest line of a 18.062 acre tract recorded in Document No. 201606039066 of the Official Public Records of Comal County, Texas, a distance of 1868.23 feet to a found ½" iron rod at the south corner of said 18.062 acre tract and at the west corner of a 11.847 acre tract recorded in Document No. 200706025229 of the Official Public Records of Comal County, Texas;
- THENCE: S 45°46'15" E, continuing with the northeast line of said 1015.410 acre tract, the southwest line of said 11.847 acre tract, the southwest line of a 27.00 acre tract recorded in Volume 433, Page 473, the southwest line of a 27.00 acre tract recorded in Volume 433, Page 475 and the southwest line of a 27.00 acre tract recorded in Volume 433, Page 471 all of the Deed Records of Comal County, Texas, a distance of 2942.54 feet to a found 60D nail at the south corner of said 27.00 acre tract recorded in Volume 433, Page 471 and at the west corner of a 15.00 acre tract recorded in Volume 862, Page 417 of the Deed Records of Comal County, Texas;
- THENCE: S 45°35'35" E, continuing with the northeast line of said 1015.410 acre tract and with the southwest line of said 15.00 acre tract, a distance of 307.78 feet to a found ½" iron rod at the north corner of a 125.571 acre tract recorded in Volume 744, Page 126 of the Deed Records of Comal County, Texas;
- THENCE: Continuing with the northeast line of said 1015.410 acre tract and the northwest and southwest lines of said 125.571 acre tract, the following bearings and distances:
S 47°05'43" W, a distance of 1402.26 feet to a found ½" iron rod;
S 41°06'54" E, a distance of 52.89 feet to a found ½" iron rod with a cap marked "RPLS 4233";
S 29°03'17" W, a distance of 3.81 feet to a found ½" iron rod with a cap (not able to read cap);
S 44°17'49" E, a distance of 760.07 feet to a found ½" iron rod with a cap marked "RPLS 4233";

Exhibit A

1,232.061 Acres
Job No.: 9205-18
Page 3 of 9

S 44°51'35" E, a distance of 2402.27 feet to a found 1/2" iron rod at the easternmost corner of said 1015.410 acre tract and at the north corner of a 2.318 acre tract recorded in Document No. 200606041143 of the Official Public Records of Comal County, Texas;

THENCE: S 44°32'01" W, with the southeast line of said 1015.410 acre tract, with the northwest line of said 2.318 acre tract and the northwest line of a 2.000 acre tract recorded in Volume 62, Page 862 of the Deed Records of Comal County, Texas, a distance of 634.24 feet to a set 1/2" iron rod with a yellow cap marked "Pape-Dawson" at the west corner of said 2.000 acre tract;

THENCE: S 02°40'51" E, continuing with the southeast line of said 1015.410 acre tract and the southwest line of said 2.000 acre tract, a distance of 89.91 feet to a found 1/2" iron rod with a cap marked "RPLS 4233" on the north right-of-way line of P.M. 1101, a variable width public right-of-way;

THENCE: Continuing with the southeast line of said 1015.410 acre tract and with the north right-of-way line of said P.M. 1101, the following bearings and distances:

Southwesterly, along a non-tangent curve to the right, said curve having a radius of 3769.80 feet, a central angle of 07°30'14", a chord bearing and distance of S 84°28'40" W, 493.37 feet, for an arc length of 493.73 feet to a found TxDOT Type I monument;

S 88°21'30" W, a distance of 2398.64 feet to a found TxDOT Type I monument;

N 86°18'01" W, a distance of 295.73 feet to a found TxDOT Type I monument;

S 88°41'52" W, a distance of 169.87 feet to a found TxDOT Type I monument;

S 79°07'37" W, a distance of 298.25 feet to a 2.5" steel fence post at the southernmost corner of said 1015.410 acre tract and the east corner of a 123.159 acre tract recorded in Volume 1017, Page 50 of the Official Public Records of Bexar County, Texas;

THENCE: With the southwest line of said 1015.410 acre tract and with the northeast line of said 123.159 acre tract, the following bearings and distances:

N 45°29'24" W, a distance of 1565.07 feet to a found 1/2" iron rod;

S 57°49'07" W, a distance of 155.66 feet to a found 4" fence post;

S 57°20'33" W, a distance of 836.86 feet to a found 3/8" iron rod;

N 44°00'14" W, a distance of 507.46 feet to a found 4" fence post;

N 45°05'50" W, a distance of 469.48 feet to a found 1/2" iron rod at the north corner of said 123.159 acre tract and the east corner of said 85.763 acre tract;

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1,232.061 Acres
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- THENCE: S 56°54'11" W, with the southeast line of said 85.763 acre tract and with the northwest line of said 123.159 acre tract, a distance of 1110.64 feet to a found 1/2" iron rod at the south corner of said 85.763 acre tract and at the east corner of said 20.035 acre tract;
- THENCE: S 56°52'51" W, with the southeast line of said 20.035 acre tract and the northwest line of said 123.159 acre tract, a distance of 439.35 feet to a found 1/2" iron rod at the south corner of said 20.035 acre tract and the east corner of said 27.474 acre tract;
- THENCE: S 56°57'56" W, with the southeast line of said 27.474 acre tract and the northwest line of said 123.159 acre tract, a distance of 320.28 feet to a found 4" fence post at the south corner of said 27.474 acre tract, the west corner of said 123.159 acre tract and on the northeast line of said 74.803 acre tract;
- THENCE: S 44°44'19" E, with the northeast line of said 74.803 acre tract and the southwest line of said 123.159 acre tract, a distance of 292.30 feet to a found 6" fence post at the east corner of said 74.803 acre tract and at the north corner of 49.164 acre tract recorded in Document No. 201506009891 of the Official Public Records of Comal County, Texas;
- THENCE: S 45°09'17" W, thence with the southeast line of said 74.803 acre tract and the northwest line of said 49.164 acre tract, a distance of 1414.55 feet to a found 1/2" iron rod with a cap marked "RPLS 4233" at the south corner of said 74.803 acre tract, at the west corner of a 3.008 acre tract recorded in Document No. 200606012396 of the Official Public Records of Comal County, Texas and on the northeast right-of-way line of Kohlenberg Road;
- THENCE: N 44°37'40" W, with the southwest line of said 74.803 acre tract and with the northeast right-of-way line of said Kohlenberg Road, a distance of 190.52 feet to a set 1/2" iron rod with a yellow cap marked "Pape-Dawson";
- THENCE: Departing the northeast right-of-way line of said Kohlenberg Road, over and across said 74.803 acre tract, the following bearings and distances:
N 45°22'20" E, a distance of 257.68 feet to a set 1/2" iron rod with a yellow cap marked "Pape-Dawson";
N 47°20'31" E, a distance of 211.97 feet to a set 1/2" iron rod with a yellow cap marked "Pape-Dawson";
N 40°48'54" E, a distance of 166.08 feet to a set 1/2" iron rod with a yellow cap marked "Pape-Dawson";

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N 45°00'00" E, a distance of 202.97 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 16°17'06" E, a distance of 265.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 38°32'28" E, a distance of 216.40 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 05°48'24" W, a distance of 174.90 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 76°36'27" W, a distance of 126.13 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 61°07'58" W, a distance of 254.47 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 80°55'31" W, a distance of 417.34 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 84°27'38" W, a distance of 433.54 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

S 05°00'29" E, a distance of 247.64 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

S 34°19'02" E, a distance of 491.16 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

S 44°00'23" E, a distance of 345.42 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

S 37°17'18" W, a distance of 352.26 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

S 45°22'20" W, a distance of 131.95 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson" on the northeast right-of-way line of Kohlenberg Road;

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THENCE: N 44°37'40" W, with the southwest line of said 74.803 acre tract and with the northeast right-of-way line of said Kohlenberg Road, a distance of 983.88 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson" at the south corner of a 1.736 acre tract recorded in Document No. 9706007790 of the Official Public Records of Comal County, Texas;

THENCE: Departing the northeast right-of-way line of said Kohlenberg Road, continuing with the southwest line of said 74.803 acre tract, and with the southeast, northeast, and northwest lines of said 1.736 acre tract, the following bearings and distances:

N 33°59'21" E, a distance of 411.71 feet to a found 1" iron pipe;

N 68°19'11" W, a distance of 242.15 feet to a found ½" iron rod;

S 22°38'26" W, a distance of 332.11 feet to a found ½" iron rod on the northeast right-of-way line of said Kohlenberg Road;

THENCE: N 44°37'40" W, continuing with the southwest line of said 74.803 acre tract and the northeast right-of-way line of said Kohlenberg Road, a distance of 399.50 feet to a found TxDOT Type I monument at the south end of the cutback line at the intersection of the northeast right-of-way line of Kohlenberg Road and the southeast right-of-way line of I.H. 35;

THENCE: With the southeast right-of-way line of I.H. 35, the following bearings and distances:

N 34°42'40" W, a distance of 102.61 feet to a found TxDOT Type I monument;

N 44°50'55" W, a distance of 149.93 feet to a found TxDOT Type I monument;

N 32°04'07" W, a distance of 223.01 feet to a found TxDOT Type I monument;

N 17°46'35" W, a distance of 210.78 feet to a found TxDOT Type I monument;

N 06°33'04" W, a distance of 302.20 feet to a found TxDOT Type I monument;

N 58°14'15" W, a distance of 173.66 feet to a found TxDOT Type I monument at the north end of said cutback line and at the west corner of said 20.035 acre tract;

THENCE: N 31°26'06" E, with the northwest line of said 20.035 acre tract and the southeast right-of-way line of said I.H. 35, a distance of 1091.64 feet to a found ½" iron rod with a cap marked "RPLS 4233" at the north corner of said 20.035 acre tract and at the west corner of a 3.560 acre tract recorded in Document No. 201006021157 of the Official Public Records of Real Property;

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THENCE: Departing the southeast right-of-way line of said I.H. 35, with the southwest, southeast, and northeast lines of said 3.560 acre tract, the following bearings and distances:

S 45°19'42" E, a distance of 610.43 feet to a found 2.5" fence post;

N 38°13'56" E, a distance of 296.28 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 53°45'14" W, a distance of 631.50 feet to a found ½" iron rod with a cap marked "SINCLAIRE & ASSOC" at the north corner of said 3.560 acre tract and on the southeast right-of-way line of said I.H. 35;

THENCE: N 31°26'06" E, with the southeast right-of-way line of said I.H. 35, a distance of 245.76 feet to a found ½" iron rod with a cap marked "B&A" at the west corner of a 2.35 acre tract recorded in Volume 293, Page 371 of the Deed Records of Comal County, Texas;

THENCE: Departing the southeast right-of-way line of said I.H. 35, with the southwest, southeast, and northeast lines of said 2.35 acre tract, the following bearings and distances:

S 41°20'00" E, a distance of 507.94 feet to a found ½" iron rod;

N 53°32'02" E, a distance of 151.20 feet to a found ½" iron rod;

N 41°10'00" W, a distance of 568.01 feet to a found ½" iron rod at the north corner of said 2.35 acre tract and on the southeast right-of-way line of said I.H. 35;

THENCE: With the southeast right-of-way line of said I.H. 35, with the northwest line of said 85.763 acre tract and the northwest line of said 1015.410 acre tract, the following bearings and distances:

N 31°26'06" E, a distance of 249.71 feet to a found ½" iron rod with a cap marked "RPLS 4233";

Northeasterly, along a non-tangent curve to the left, said curve having a radial bearing of N 58°11'09" W, a radius of 22784.30 feet, a central angle of 00°23'01", a chord bearing and distance of N 31°37'21" E, 152.55 feet, for an arc length of 152.55 feet to a found TxDOT Type I monument;

N 31°50'37" E, a distance of 2782.19 feet to a found TxDOT Type I monument;

N 35°25'22" E, a distance of 301.25 feet to a found TxDOT Type I monument;

N 32°04'30" E, a distance of 72.08 feet to a found TxDOT Type I monument;

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Northeasterly, along a non-tangent curve to the left, said curve having a radial bearing of N 58°04'26" W, a radius of 23072.30 feet, a central angle of 01°21'04", a chord bearing and distance of N 31°15'02" E, 544.10 feet, for an arc length of 544.12 feet to a found TxDOT Type I monument;

N 30°23'16" E, a distance of 788.37 feet to a found TxDOT Type I monument;

N 26°57'40" E, a distance of 299.52 feet to a found TxDOT Type I monument;

N 30°28'02" E, a distance of 2033.12 feet to the POINT OF BEGINNING, and containing 1232.118 acres.

**SAVE AND EXCEPT THE FOLLOWING 0.057 ACRE TRACT FROM THE ABOVE
DESCRIBED 1232.118 ACRES**

A 0.057 of an acre, or 2,500 square feet more or less, tract of land being all of that tract of land described in deed recorded in Volume 142, Page 608 of the Official Public Records of Comal County, Texas, being the same tract conveyed to Crystal Clear Special Utility District in Document No. 201506033214 of the Official Public Records of Comal County, Texas, out of the Antonio Maria Esnaurizar Survey No. 1, Abstract 98, Comal County, Texas. Said 0.057 of acre tract being more fully described as follows, with bearings based on the Texas Coordinate System established for the South Central Zone from the North American Datum of 1983 NAD 83 (NA2011) epoch 2010.00;

COMMENCING: At a found ½" iron rod at the north corner of a 2.35 acre tract recorded in Volume 293, Page 371 of the Official Public Records of Comal County, Texas, at the west corner of a 20.035 acre tract recorded in Document No. 200506039319 of the Official Public Records of Comal County, Texas and on the southeast right-of-way line of I.H. 35, a variable width public right-of-way;

THENCE: S 41°10'00" E, departing the southeast right-of-way line of said I.H. 35, with the common line of said 2.35 acre tract and said 20.035 acre tract, a distance of 568.01 feet to a found ½" iron rod at the east corner of said 2.35 acre tract and a northeast corner of a 27.474 acre tract described in Document No. 200506045058 of the Official Public Records of Comal County, Texas;

THENCE: S 40°22'52" E, with the common line of said 20.035 acre tract and said 27.474 acre tract, a distance of 1411.85 feet to set ½" iron rod with a yellow cap marked "Pape-Dawson" and being the POINT OF BEGINNING of herein described tract;

THENCE: N 49°37'08" E, a distance of 50.00 feet to a found ½" iron rod with a cap marked "RPLS 4233";

THENCE: S 40°22'52" E, a distance of 50.00 feet to a found ½" iron rod with a cap marked "RPLS 4233";

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THENCE; S 49°37'08" W, a distance of 50.00 feet to a set 1/2" iron rod with a yellow cap marked "Pape-Dawson";

THENCE; N 40°22'52" W, a distance of 50.00 feet to the POINT OF BEGINNING, and containing 0.057 acres in the Comal County, Texas. Said tract being described in accordance with a survey made on the ground and a survey description and map prepared under job number 9205-18 by Pape-Dawson Engineers, Inc.

ACREAGE SUMMARY

1232.118 ACRES - OVERALL PERIMETER BOUNDARY

0.057 ACRE TRACT - SAVE AND EXCEPT

NET ACREAGE = 1,232.061 ACRES

PREPARED BY: Pape-Dawson Engineers, Inc.
DATE: October 16, 2018 REVISED November 2, 2018
JOB NO. 9205-18
DOC. ID. N:\Survey\18\18-9200\9205-18\Word\9205-18 FN 1232.061 AC.docx

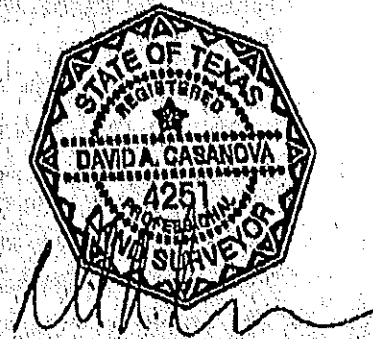


Exhibit A

**PAPE-DAWSON
ENGINEERS**



MBTES AND BOUNDS DESCRIPTION FOR

A 635.033 acre, or 27,662,020 square feet more or less, tract of land comprised of the following tracts of land conveyed to the State of Texas for the use and benefit of the Permanent School Fund: all of a called 236.882 acre tract recorded in Document No. 200606053121, all of a called 227.204 acre tract recorded in Document No. 200606053122 and all of a called 171.030 acre tract recorded in Document No. 200606053123 all of the Official Public Records of Comal County, Texas, out of the Nancy Kenner Survey No. 3, Abstract 306, Comal County, Texas. Said 635.033 acre tract being more fully described as follows, with distances displayed in surface values and with bearings based on the Texas Coordinate System established for the South Central Zone from the North American Datum of 1983 NAD 83 (NA2011) epoch 2010.00;

BEGINNING: At a point at the east corner of said 171.030 acre tract, the south corner of Goodwin Lane, a variable width public right-of-way, recorded in Document No. 201506046191 of the Map and Plat Records of Comal County, Texas and on the northwest right-of-way line of L.H. 35, a variable width public right-of-way, from which a found $\frac{1}{2}$ " iron rod with a cap marked "Overby-Descamps" bears N 46°59'37" W, a distance of 0.34 feet;

THENCE: With the southeast line of said 171.030 acre tract, the southeast line of said 227.204 acre tract and the northwest right-of-way line of said L.H. 35, the following bearings and distances:

S 32°07'18" W, a distance of 2388.71 feet to a found TxDOT Type I monument;

Southwesterly, along a non-tangent curve to the left, said curve having a radial bearing of S 57°46'57" E, a radius of 11625.20 feet, a central angle of 01°39'53", a chord bearing and distance of S 31°23'07" W, 337.77 feet, for an arc length of 337.78 feet to a found TxDOT Type I monument;

S 30°27'02" W, a distance of 1148.42 feet to a found $\frac{1}{2}$ " iron rod with a cap marked "RPLS 4233";

S 34°16'55" W, a distance of 300.80 feet to a found $\frac{1}{2}$ " iron rod with a cap marked "RPLS 4233";

S 30°26'34" W, a distance of 999.80 feet to a found TxDOT Type I monument;

S 26°46'03" W, a distance of 300.27 feet to a found $\frac{1}{2}$ " iron rod with a cap marked "RPLS 4233";

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S 30°29'55" W, a distance of 49.01 feet to a found ½" iron rod with a cap marked "RPLS 4233" at the south corner of said 236.822 acre tract and the southeast corner of a 9.785 acre tract recorded in Volume 378, Page 799 of the Deed Records of Comal County, Texas;

THENCE: N 46°00'20" W, departing the northwest right-of-way line of said I.H 35, with a southwest line of said 236.822 acre tract and the northeast line of said 9.785 acre tract, a distance of 3310.76 feet to a found ½" iron rod at a reentrant corner of said 236.882 acre tract and the north corner of said 9.785 acre tract;

THENCE: With the southeast line of said 236.822 acre tract, the northwest line of said 9.785 acre tract and the northwest line of a 240.485 acre tract recorded in Volume 762, Page 8 of the Deed Records of Comal County, Texas, the following bearings and distances:

S 44°34'34" W, a distance of 1355.16 feet to a found ½" iron rod;

S 44°24'21" E, a distance of 43.25 feet to a found ½" iron rod;

S 44°30'40" W, a distance of 1741.51 feet to a found ½" iron rod at the south corner of said 236.822 acre tract, at the east corner of Lot 56, Cloud Country Subdivision, Unit 4 recorded in Document No. 201806006375 of the Map and Plat Records of Comal County, Texas and on the northwest line of a 44.290 acre tract recorded in Document No. 200406007834 of the Official Public Records of Comal County, Texas;

THENCE: N 45°23'57" W, departing the northwest line of said 44.290 acre tract, with the southwest line of said 236.822 acre tract, the northeast line of said Cloud Country Subdivision, Unit 4, the northeast line of a 29.74 acre tract recorded in Document No. 201606038737 and the northeast line of a 70.688 acre tract recorded in Document No. 200406000885 both of the Official Public Records of Comal County, Texas, a distance of 3537.31 feet to a found ½" iron rod with a cap marked "RPLS 4233" at the west corner of said 236.822 acre tract, the north corner of said 70.688 acre tract and on the southeast line of Union Pacific Railroad, a variable width right of way;

THENCE: With the northwest line of said 236.822 acre tract and the southeast line of said Union Pacific Railroad, the following bearings and distances;

Northeasterly, along a non-tangent curve to the right, said curve having a radial bearing of S 40°28'17" E, a radius of 5679.65 feet, a central angle of 13°18'55", a chord bearing and distance of N 56°11'10" E, 1316.96 feet; for an arc length of 1319.93 feet to a found ½" iron rod with a cap marked "RPLS 4233";

N 62°51'32" E, a distance of 1677.08 feet to a found ½" iron rod with a cap marked "RPLS 4233";

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Northeasterly, along a non-tangent curve to the left, said curve having a radial bearing of N 27°08'26" W, a radius of 2914.93 feet, a central angle of 20°06'13", a chord bearing and distance of N 52°48'27" E, 1017.54 feet, for an arc length of 1022.78 feet to a found 1/2" iron rod with a cap marked "RPLS 4233";

N 42°45'17" E, a distance of 385.99 feet to a found 1/2" iron rod with a cap marked "RPLS 4233" at the north corner of said 227.204 acre tract and the west corner of a 200.211 acre tract recorded in Document No. 201406044928 of the Official Public Records of Comal County, Texas;

THENCE: S 45°58'48" E, departing the southeast line of said Union Pacific Railroad, with the northeast line of said 227.204 acre tract and the southwest line of said 200.211 acre tract, a distance of 2470.91 feet to a found 1/2" iron rod at the south corner of said 200.211 acre tract and the west corner of said 171.030 acre tract;

THENCE: N 43°09'12" E, with the northwest line of said 171.030 acre tract, the southwest line of said 200.211 acre tract, the southeast line of a 7.46 acre tract recorded in Volume 283, Page 775 of the Deed Records of Comal County, Texas and the southeast right-of-way line of said Goodwin Lane, a distance of 2,596.37 feet to a found 6" wood fence post;

THENCE: N 42°57'35" E, continuing with the northwest line of said 171.030 acre tract and the southeast right-of-way line of said Goodwin Lane, a distance of 1556.75 feet to a found 1/2" iron rod with a cap marked "Overby-Descamps" at the north corner of said 171.030 acre tract and a reentrant corner of said Goodwin Lane;

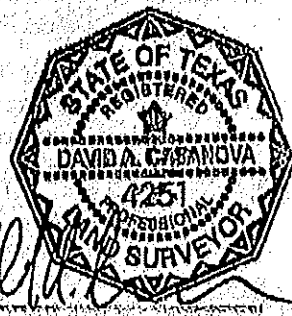
THENCE: With the northeast line of said 171.030 acre tract and the southeast right-of-way line of Goodwin Lane, the following bearings and distances:

S 46°50'42" E, a distance of 702.59 feet to a found 1/2" iron rod with a cap marked "RPLS 4233";

S 46°29'51" E, a distance of 817.53 feet to a found 1/2" iron rod with a cap marked "RPLS 4233";

S 46°59'37" E, a distance of 722.08 feet to the POINT OF BEGINNING, and containing 635.033 acres in Comal County, Texas. Said tract being described in accordance with a survey made on the ground and a survey description and map prepared under job number 9205-18 by Pape-Dawson Engineers, Inc.

PREPARED BY: Pape-Dawson Engineers, Inc.
DATE: October 16, 2018
REVISED: November 2, 2018
December 21, 2018
JOB NO. 9205-18
DOC. ID. N:\Survey\18\18-9205\9205-18\Word\9205-18 PN 635.033 AC.docx



**PAPE-DAWSON
ENGINEERS**
(1111)

Exhibit A

Exhibit C

(Code of Ordinances)

https://library.municode.com/tx/new_braunfels/codes/code_of_ordinances

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**

Exhibit D

(Development Standards – Development & Design Control Document)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**



DEVELOPMENT & DESIGN CONTROL DOCUMENT

Southstar Communities & City of New Braunfels

V.13
April 8, 2024

Disclaimer

The Development & Design Control Document is Exhibit D to the Development Agreement between City of New Braunfels and Mayfair at Southstar LLC for a proposed Mixed Use Development, approved by the City on January 22, 2024.

Capitalized terms in this disclaimer shall have the meaning set forth in Section 15 of this DDCD.

This DDCD is envisioned as a dynamic document that shall continue to evolve in response to changing conditions and circumstances. As such, it is anticipated that over the life of the Project, the Development Standards herein may be amended to incorporate new conditions, special opportunities and/or circumstances, subject to mutual agreement of the City of New Braunfels and Mayfair at Southstar LLC.

The Master Developer and the City advise any party acquiring an interest in the property to obtain a current copy of this DDCD before making any investment or development decisions regarding the property.

Each party acquiring an interest in property that is the subject of this DDCD, whether by purchase, lease, as collateral for a loan or otherwise, acknowledges and agrees that development and use of the property is subject to the current version of this DDCD, a copy of which is available at the offices of the City. Notwithstanding the foregoing, each Applicant seeking approval of proposals or plans under this DDCD is solely responsible for complying with all laws and any approvals granted in relation to this DDCD is for general design conformance only and the Applicant remains responsible for proper engineering, planning and performance of the work and integrity thereof. No person has the authority to represent that any proposal or plan complies with this DDCD or shall be approved except the applicable governing body acting in an authorized administrative approval capacity or in a duly called meeting.

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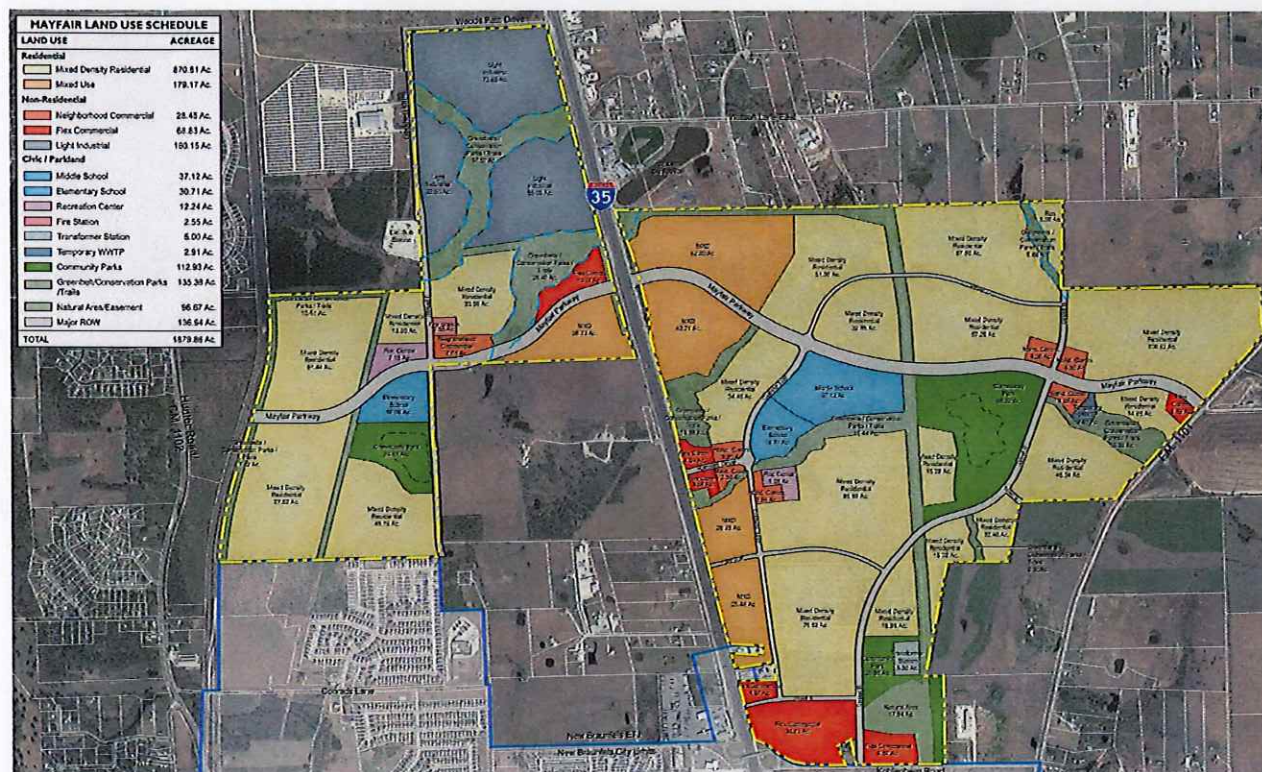
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Mayfair Master Framework Plan



Updated 11/14/2023

PART A

INTRODUCTION & ADMINISTRATION

1 Mayfair Approval Process

The following is an overview of the approval process for all development within the project, which is more fully set forth in the Development Agreement.

The entitlement process is illustrated in Figure 1-1.

Figure 1-1 Entitlement Process



1.1 Development Agreement

The Development Agreement is an agreement between the City and the Master Developer facilitating the planning and development of the project. The Development Agreement, among other matters, establishes the approval process for development within the project.

Where there is an inconsistency or conflict between this DDCC and the Development Agreement, the Development Agreement shall prevail.

1.2 Master Framework Plan

The Master Framework Plan establishes a broad development framework for the project by identifying the location of land uses, parks, schools, utility corridors, major roadways, activity nodes, project boundaries, and other items shown on the Master Framework Plan.

In considering a major amendment to the Master Framework Plan, the City Council shall consider the following:

- whether the proposed amendment will be appropriate in the context of the immediate area, and the relationship to the City as a whole;
 - whether the proposed change is generally in accordance with any existing or proposed plans for providing public schools, streets, water, wastewater, and other utilities to the project or immediate area;
 - how other areas designated for similar development will be, or are likely to be, affected if the proposed amendment is approved;
 - any other factors that will substantially affect the public health, safety, morals, or general welfare;
 - whether the amendment is consistent with the Guiding Principles for the project outlined in Part B
- The process for amending the Master Framework Plan is set forth in the Development Agreement.
- The submittal requirements for an amendment to the Master Framework Plan are included below.

1.2.1 Master Framework Plan Application Submittal Requirements

The following information shall be identified on any amendment to the Master Framework Plan.

Scale: Of a scale sufficient to determine detail.

EXISTING CONDITIONS
<ul style="list-style-type: none"> • City limits and ETJ limits. • Project boundary. • Existing and any approved abutting streets. • Existing and any approved stormwater management facilities and improvements
DEVELOPMENT STATISTICS
<ul style="list-style-type: none"> • Statement of the proposed gross acreage of each planning area. • Statement of the proposed number of residential dwellings. • Statement of proposed minimum gross acreage of parks
THOROUGHFARES
<ul style="list-style-type: none"> • Alignment of abutting road stub extensions. • Location of external access points. • Alignment of major roadways. • Approximate alignment of major accessways.
PARKS
<ul style="list-style-type: none"> • Conceptual location for all parks including approximate acreage and park categorization.

1.3 Sector Plan

A Sector Plan establishes a detailed framework for a sector by identifying neighborhood structure, land use and intensity, internal connectivity, major and minor roadways, major accessways and parks.

- ▶ The process for submitting a Sector Plan application is set forth in the Development Agreement.
- ▶ The submittal requirements for a Sector Plan application are detailed in section 1.3.1

In considering the approval of a Sector Plan application, the Planning Director shall consider the following:

- the Master Framework Plan;
- any code identified in this DDCD as being applicable to a Sector Plan application; and
- any other terms set forth in the Development Agreement.

- ▶ The triggers and processes for Major and Minor amendments to an approved Sector Plan are set forth in the Development Agreement.

In considering a major amendment to a Sector Plan, the Planning Director shall consider the following:

- whether the proposed amendment will be appropriate in the context of the immediate area, and the relationship to the project as a whole;
- whether the proposed change is generally in accordance with any existing or proposed plans for providing public schools, streets, water, wastewater, and other utilities to the project or immediate area;
- how other areas within the project designated for similar development will be, or are likely to be, affected if the proposed amendment is approved;

- any other factors that will substantially affect the public health, safety, morals, or general welfare;
- whether the amendment is consistent with the Guiding Principles for the project outlined in Part B
- whether Sector Plan meets the city's most current Master Plan requirements including Master Drainage Plan Report, Sector Plan TIA and Planning Level TIA Amendment; and
- licensing, deferral of required improvements, recordation and issuance of certificates of occupancy.

1.3.1 Sector Plan Submittal Requirements

The following information shall be identified on a Sector Plan.

Size: Sheets 24 in. wide and 36 in. long.
May be shown over multiple sheets as needed.

Scale: Of a scale sufficient to determine detail.

Area: A sector shall be a minimum of 100 acres or as otherwise agreed to by the City

SURVEY
<ul style="list-style-type: none"> • An accurate survey of the boundaries of the sector.
MASTER FRAMEWORK PLAN
<ul style="list-style-type: none"> • Comparison of Sector Plan to Master Framework Plan.
EXISTING CONDITIONS
<ul style="list-style-type: none"> • City limits and ETJ limits. • Project boundary. • Topographic contours of 2 ft. or less. • Watershed boundaries. • FEMA-100 year floodplain • Identified streams. • US jurisdictional waterways. • Existing water bodies.

EXISTING CONDITIONS
<ul style="list-style-type: none"> • Existing and any approved stormwater management facilities and improvements and associated easements. • Existing and any NBU planned future trunk water and wastewater lines and associated easements. • Existing and any NBU planned phase 3 transmission lines and associated easements. • Existing and any approved abutting streets. • Existing and any approved major accessways. • Reference the City's most current Master Plan requirements including Master Drainage Plan Report, Sector Plan TIA, and Planning Level TIA Amendment.
DEVELOPMENT STANDARDS
<ul style="list-style-type: none"> • A written submission detailing compliance to the applicable minimum development standard. • If proposing an alternative development standard in accordance with Section 2.3.3.3, identification of the applicable alternative development standards.
DEVELOPMENT STATISTICS
<ul style="list-style-type: none"> • Statement of gross acreage of the sector. • Statement of the proposed number of residential dwellings. • Identification of the proposed acreage of each parcel. • Park Master Plan representing gross acreage for community parks and greenbelt/conservation parks/trails within the Sector Plan. • Statement of proposed gross acreage of pocket park, if applicable • Statement of proposed connectivity ratio, compared with section 8.8 • Statement of proposed product diversity, compared with section 9.6 • Location of trails within sector.

THOROUGHFARES
<ul style="list-style-type: none"> • Alignment of proposed major and minor roadways (excluding public or private alleys). • Typical road section for each proposed roadway. • Approximate alignment of accessways.
DRAINAGE AND WATER QUALITY
<ul style="list-style-type: none"> • Approximate location of proposed stormwater management facilities and improvements. • Approximate location of stream buffers.
PARKS
<ul style="list-style-type: none"> • Identification of park classifications • Identification of private parks.
UTILITIES
<ul style="list-style-type: none"> • Location of trunk water and wastewater infrastructure easements. • TIA Worksheet.

1.4 Final Plat

An Applicant shall prepare and submit a Final Plat for all or part of that land shown on the Sector Plan. The Final Plat shall incorporate any and all changes, modifications, alterations, corrections and conditions imposed by the City Council in approving the Sector Plan.

- ▶ The process for submitting and amending a Final Plat is set forth in the Development Agreement.
- ▶ The submittal requirements for a Final Plat application are to be in accordance with included as shown in section 1.4.1 Final Plat Submittal Requirements.
- ▶ Final Plat should reference and meet the city's most current Final Plat requirements including drainage report, TIA Worksheet/TIA, and Sector TIA Update/Planning Level TIA Amendment.

1.4.1 Final Plat Submittal Requirements

The following information shall be identified on a Final Plat.

- Size: Sheets 18 in. wide and 24 in. long with a border of not less than ½ in on all sides
- Scale: No smaller than 100 ft. to 1 in. When more than one sheet is necessary to accommodate the entire area, an index sheet showing the entire subdivision at an appropriate scale shall be attached to the plat.

APPLICATION DETAILS
<ul style="list-style-type: none"> • Names and addresses of the Applicant, record title owner, engineer and/or surveyor. • A Final Plat application form.
SUBDIVISION NAME
<ul style="list-style-type: none"> • Subdivision name. Note: The proposed name of the subdivision shall not have the same spelling or be pronounced similar to the name of any other subdivision located within the City or the City's ETJ, unless the subdivision is contiguous to a recorded subdivision and the Plat represents an additional installment or increment of the original subdivision. • Names of contiguous subdivisions and the owners of contiguous unplatted tracts, and an indication of whether or not contiguous properties are platted.
PLAT DETAILS
<ul style="list-style-type: none"> • Location and description of monuments that shall be placed at each corner of the boundary survey of the subdivision. • Lot numbers, block numbers, and the square footage of all lots or acreage if over one acre in size. • A statement shall be added on the Plat indicating where sidewalks and accessways are required and who is responsible for installing them.

PLAT DETAILS

- A statement shall be added on the Plat stating whether all or a portion of the subdivision falls within the 100-year flood event floodplain, and if so, the engineer's or surveyor's statement of the minimum permissible floor elevation for each Lot together with a statement that all buildings shall be constructed above that minimum floor elevation. If no portion of any Lot on a Plat is within an indicated special flood hazard zone, then the Plat shall state this: "No portion of any lot on this Plat is within an indicated special flood hazard zone according to the adopted flood maps of the City."
- Any applicable notes regarding specific limitations such as "No vehicular access from specific street to Lots W – Y, Block 1."
- Identify HOA/POA maintenance responsibilities, such as alleys or parks.
- Indicate shared access easements when proposed lot layout prohibits for each lot to comply with driveway spacing standards.
- Any Plat Note required by the DDCD.

EXISTING CONDITIONS

- The exact location, dimensions, name and description of all existing or recorded streets, alleys, reservations, easements or public ROW within the subdivision, intersecting or contiguous with its boundary or forming such boundary, with accurate dimensions bearing or deflecting angles and radii, area and central angle, degree of curvature, tangent distance and length of all curves where appropriate.
- The exact location, dimensions, description and name of all proposed streets, alleys, centerlines of streets and alleys, drainage easements, parks, public areas, reservations, easements or ROW, perimeter street ROW, blocks, lots and significant sites within the subdivision, with accurate dimensions bearing or deflecting angles and radii, area and central angles, degree of curvature, tangent distance and length of all curves where appropriate and distances between street jogs.

DEVELOPMENT STANDARDS

- If an alternative development standard was approved in accordance with Section 2.3.3.2, identification of the applicable alternative development standard/s.
- If an alternative development standard is proposed in accordance with Section 2.3.3.2, identification of the applicable alternative development standard/s.
- Letter from Comal County addressing indicating approved street names.
- Statement of gross acreage of the Plat.
- Statement of the proposed number of residential dwellings.
- Statement outlining the types of single-family dwelling permitted on each residential lot.
- Statement of proposed product diversity aligned with terminology from section 9.6
- Statement of proposed gross acreage of park.
- Statement of proposed gross acreage of individual park categories.

SUPPORTING PLANS & REPORTS AS REQUIRED

- TIA Worksheet.
- TIA Update.
- Tree Protection Plan.
- Street Tree Plan, see 11.3.1 for standards.
- Final Plat should reference and meet the city's most current Final Plat requirements including drainage report, TIA Worksheet/TIA, and Sector TIA Update/Planning Level TIA Amendment.

1.5 Additional Platting Processes

§118-33 – §118-41 of the Code of Ordinances apply to the project as they relate to vacating plats, replatting, amending plats, minor plats, development plats, guarantees, of performance, inspecting and acceptance of public improvements, licensing, deferral of required improvements, recordation and issuance of certificates of occupancy.

1.6 Building Permits (including Site Plans)

1.6.1 Non-Residential and Multi-Family Dwelling Use Developments

For non-residential and multi-family dwelling developments, an application for a Building Permit (including Site Plan) shall be submitted in accordance with the process set forth in the Development Agreement.

- Building Permits, including site plans, shall be obtained through the City of New Braunfels according to their requirements.

1.6.1.1 Non-Residential and Multi-Family Dwelling Use Developments

The following information shall be identified on a Site Plan.

Size: Sheets 8.5 in. wide and 11 in. long at a minimum, up to 24 in wide and 36 in. long at a maximum. May be shown over multiple sheets as needed.

Scale: Of a sufficient scale for legibility and to determine detail

PLAN DETAILS (WITH APPROPRIATE DIMENSIONS)

- Identification of proposed land use/s.
- Setbacks:
 - » front, side and rear; and corner and residential adjacent setbacks if applicable.
- Lot dimensions.
- All easements.
- Driveway approach details:
 - » flares/radii;
 - » width and spacing between driveways;
 - » distance from intersection.

PLAN DETAILS (WITH APPROPRIATE DIMENSIONS)

- Location and width of sidewalks.
- Building footprint.
- Notification of GFA.
- Landscape areas and buffers.
- Civic spaces.
- Sensitive features.
- Identified streams.
- Any applicable buffers.

ELEVATION DETAILS

- Height of structure.
- Horizontal and vertical articulation.
- Building design elements.
- Exterior building materials.
- Roof treatment and type.
- Entry way.
- Customer entrance and treatment and pedestrian route.

PARKING DETAILS (WITH APPROPRIATE DIMENSIONS)

- Number of spaces.
- Maneuvering space.
- Handicap spaces (van accessible).

SUPPORTING REPORTS & PLANS (AS REQUIRED)

- TIA Worksheet.
- TIA Update.
- Tree Protection Plan.
- Landscape Plan.

1.6.2 Single Family Dwelling Use Developments

As set forth in the Development Agreement, the process for approval of a Building Permit by the City for residential uses shall be consistent with the process for approval of Building Permits for residential uses within the corporate jurisdiction of the City. No person shall erect or construct or proceed with the erection or construction of any building or structure, nor add to, enlarge, move, improve, alter, repair, convert, extend or demolish any building or structure or cause the same to be done without first applying for and obtaining a Building Permit.

- ▶ The submittal requirements for a Building Permits in Mayfair are consistent with City of New Braunfels Code of Ordinances.

1.7 Special Use Permit

No person shall establish such a use identified as requiring a Special Use Permit without first applying for and obtaining a Special Use Permit from City Council.

Where a Special Use Permit is required, due consideration shall be given to the Guiding Principles and Planning Area Objectives. Where a land use does not compromise the achievement of these outcomes, the use should be allowed.

- ▶ The process for submitting a Special Use Permit is set forth in the Code of Ordinances.
- ▶ Uses that require a Special Use Permit are identified in Part C.

1.8 Review & Approval Authority

Table 1-1 Review and Approval Authority

This table provides only a summary of the project's entitlement process and does not establish any rights or remedies not expressly set forth in the Development Agreement or this DDCD.

REVIEW AND DECISION-MAKING AUTHORITY				
PROCEDURE	PLANNING DIRECTOR	PLANNING COMMISSION*	CITY COUNCIL	PUBLIC NOTICE
Master Framework Plan				
Major Amendment	DM	N/A	<DM>	N, M
Minor Amendment	DM	N/A	A	N/A
Sector Plan	DM	N/A	N/A ²	N/A
Major Amendment ¹	DM	N/A	N/A ²	N/A
Minor Amendment ¹	DM	N/A	N/A ²	N/A
Final Plat	DM	N/A	A	N/A
Major Amendment	DM	N/A	A	N/A
Minor Amendment	DM	N/A	A	N/A
Building Permit	DM	N/A	A	N/A
Site Plan	DM	N/A	A	N/A
Special Use Permit	R	<R>	<DM>	N, M, P
DDCD Amendment				
Development Agreement Obligation	R	N/A	DM	N/A
Optional	R	<R>	<DM>	N/M

R Review body (responsible for review and recommendation)

DM Decision-making body (responsible for final decision to approve or deny)

A Authority to hear and decide appeals by the Applicant of decision-making body's action

NA Not applicable

¹ A major or minor amendment to a Sector Plan triggered by a request for an alternative development standard related to a signage or detailed building façade development standard shall not be mandated to meet the public notice requirements set forth above.

² The applicant shall have the right to submit a new Sector Plan covering all or part of the Property covered by a Rejected Sector Plan, and such new Sector Plan, at the applicant's request, shall be reviewed by the City Council for approval.

< > Public hearing

N Newspaper

M Mailed to all properties within 200 feet of the subject property

P Posted

* Or any replacement body as set forth in the Development Agreement

2 How to Use this DDCCD

2.1 Development & Design Control Document

This DDCCD establishes the parameters for development within the project through a hierarchy of principles, objectives and development standards. These parameters direct the preparation of Sector Plans, Plats and Site Plans. Compliance with this DDCCD shall be monitored and controlled as part of the cascading approval process.

The structure of the DDCCD is illustrated in Figure 2-1.

Figure 2-1 DDCCD Structure



2.1.1 Amendments to the DDCCD

The Development Agreement outlines particular circumstances where amendments to the DDCCD are specifically required. In these circumstances, the amendments shall follow the processes outlined in the Development Agreement.

In other circumstances, the Master Developer and/or the District may voluntarily apply to the City to amend this DDCCD. In these circumstances, the process for amending the DDCCD is:

- The Master Developer and/or the District shall submit, in writing, the proposed DDCCD amendments to the Planning Director.
- The Planning Director shall review the proposed amendments and make a recommendation to the Planning Commission.
- The proposed amendments and Planning Director recommendation shall be presented to the Planning Commission for their recommendation.
- After the Planning Commission makes a recommendation regarding the proposed amendments, the recommendations of the Planning Director and the Planning Commission shall be presented to the City Council for review and action.
- The process for recommending the proposed amendments to the Planning Commission and City Council shall be in accordance with §144-2.1 of the Code of Ordinances, whereby all references to proposed zoning changes and text amendments, and the property subject to such changes, are taken to mean an amendment to this DDCCD, and land subject to this DDCCD.

2.2 Applicability of DDCCD

The DDCCD applies to all development within the project.

2.3 Elements of DDCCD

The following is an overview of the hierarchy of outcomes sought to be achieved by the project, and their role in the decision-making process.

2.3.1 Guiding Principles

Guiding Principles are the overarching outcomes sought to be achieved by the project and provide the framework for future development. The Guiding Principles are set forth in Part B of this DDCCD.

2.3.2 Allowed Land Use Matrix

The Allowed Land Use Matrix identifies land uses are allowed within Mayfair.

2.3.3 Codes and Development Standards

Codes outline the development standards that development is required to comply with. In achieving the development standards, it shall be deemed that development contributes to the achievement of the Guiding Principles.

Where this DDCCD is silent on any matter, the Code of Ordinances applies unless the Development Agreement indicates otherwise.

2.3.3.1 Codes

There are six types of codes:

- Sector Design Code is applicable to all Sector Plan applications.
- Plat Design Code is applicable to all Plat applications.
- Use Codes are applicable to certain Site Plan applications.
- General Codes are applicable to certain Sector Plan, Plat and Site Plan applications.

Most applications shall be required to address more than one code.

2.3.3.2 Development Standards

There are three types of development standards:

- Minimum Development Standards: the minimum standards an application is required to achieve in order to be approved by the City. The City agrees the Minimum Development Standards are discrete, measurable requirements. If an application meets the minimum development standards, then the application must be approved.
- Alternative Development Standards: specific and/or circumstantial standards that do not satisfy the Minimum Development Standards but are determined to be acceptable based upon design principles or objectives. An Applicant may elect to submit an application using Alternative Development Standards, provided that if the Planning Director does not recommend approval of the Alternative Development Standard or the City Council does not approve the Alternative Development Standard, then the Applicant may revert to the Minimum Development Standard and the application will then be measured solely on the grounds of whether it satisfies the applicable Minimum Development Standard.

A request for approval of an Alternative Development Standard/s may be made as part of a Sector Plan application. Alternative Development Standards may be approved by the City Council and are applicable to all or part of a sector as indicated on an approved Sector Plan. When considering an Alternative Development Standard, the Planning Commission and City Council shall give due consideration to the Guiding Principles and Alternative Development Standards Guidance as set forth in this DDCCD. Where an Alternative Development Standard does not compromise the achievement of these goals, the Planning Commission and City Council are encouraged to approve the Alternative Development Standard.

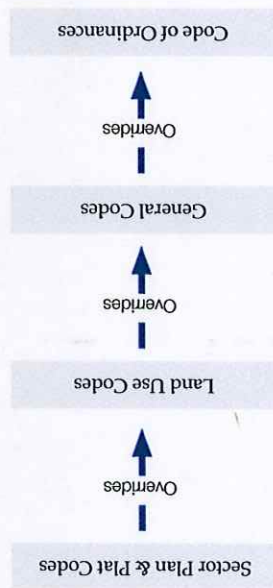


Figure 2-2 Code Hierarchy

Where one or more Alternative Development Standard is approved as part of a Sector Plan application, all subsequent Plats, Building Permits and Site Plans related to such approved Sector Plan shall comply with the approved Alternative Development Standard approval by the City Council or any Alternative Development Standard in connection with an approved Sector Plan shall be applicable only to that Sector Plan and shall not be applicable to any other Sector Plan unless specifically so indicated by the City Council.

Where there is an inconsistency or conflict between the development standards or the applicable codes, the inconsistencies shall be resolved in accordance with Figure 2-2.

Nothing in this DDGD shall be construed to modify the meaning or interpretation of any applicable new ordinances as set forth in the Development Agreement.

2.3.3.3 Alternative Development Standard Guidance

Alternative Development Standards Guidance identifies the specific Guiding Principles, Code Purposes and associated objectives that the City Council shall use to consider approving a proposed Alternative Development Standard.

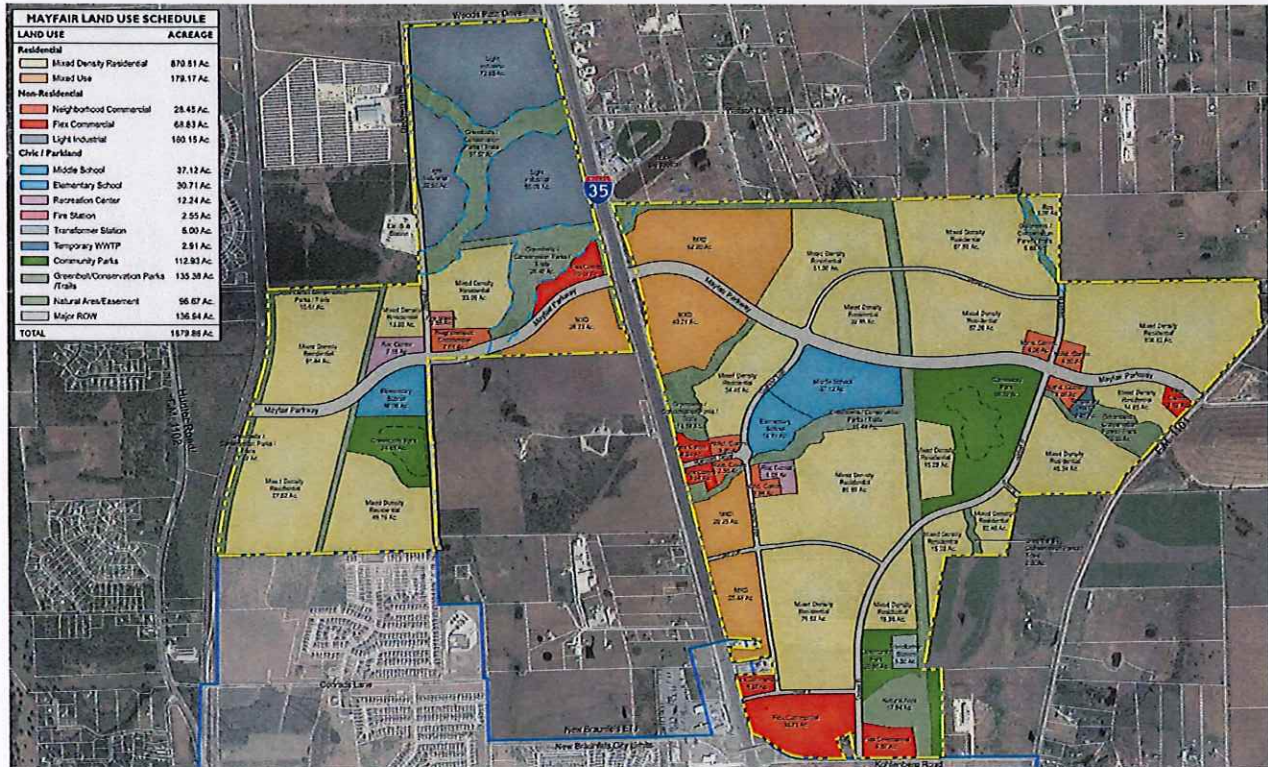
PART B

FRAMEWORK PLANS/GUIDING PRINCIPLES

3 Mayfair Master Framework

Mayfair will be a place of business, entertainment, outdoor recreation, gathering and home for a wide variety of existing and future Comal County residents. Mayfair's success will be measured by its delivery of a thriving cohesive community that supports the economic & infrastructure growth of the region while protecting and engaging all to enjoy its abundant parks and greenspaces.

Plan 3-1 Mayfair Master Framework Plan



Updated 11/14/2023

4 Open Space/Environment/Parks and Amenities

Mayfair will establish a network of open spaces and parks that provide a unique and attractive draw for residents and visitors. These open spaces and parks will offer recreational and leisure experiences, pleasant and safe connections throughout each land use, and access to nature that will enhance residents' quality of life.

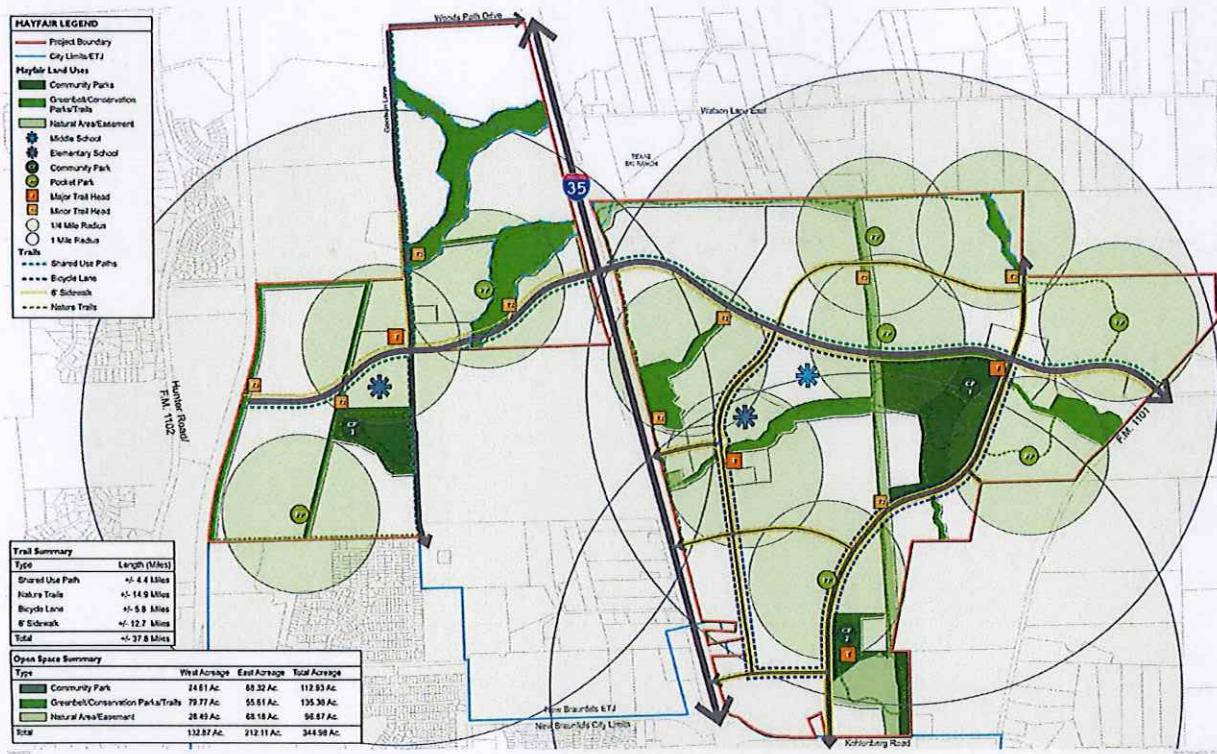
4.1 Principles

1. Mayfair will value the importance of the parks and open spaces as a way of connecting points of interests, transportation networks, and Mayfair to the rest of New Braunfels.
2. Mayfair's District-managed parks and open space will be open to residents and the public to enjoy, featuring a range of amenities to attract different ages and abilities.
3. Mayfair parks will offer recreational experiences designed to enhance the quality of life of residents and visitors.
4. Mayfair will implement development and operating practices to mitigate environmental impacts where possible, and will encourage residents and guests to apply reasonable measures to support the natural environment.

4.2 Objectives

1. Create a wide variety and equitable distribution of attractive, functional parks, active and passive recreation, formal sports fields, cultural pursuits and community facilities, which encourage an active lifestyle and a sense of community.
2. Protect the scenic landscape of the Texas Hill Country and essential elements of the community that are valued and enjoyed by residents and visitors.
3. Encourage best practices in energy conservation, water cycle management, vegetation and habitat conservation and creation, waste reduction and climate responsive design.
4. Implement low impact development techniques and integrated storm-water management measures to reduce the demand on water and drainage infrastructure.
5. Develop energy efficient neighborhoods by utilizing climate responsive subdivision design and lot layouts.
6. Work towards implementing green power sources as the economic viability of such technology becomes readily available to the market.
7. Apply best practices to mitigate light pollution.
8. Promote building design that encourages sustainable design principles that seek to minimize requirements for cooling, lighting and energy, and are responsive to the climatic conditions and natural geography.
9. Serving as the steward for an expansive parcel, Mayfair will introduce Development Guidelines and operating standards that establish sustainable practices as foundational requirements for all who develop, build, work, live or recreate here.
10. Residents, employees and guests will be invited to explore, learn and recreate in the expansive array of green space options in Mayfair. Each interaction will incorporate a reminder of the land's history, fragility and importance to the community, the region and lasting health for all.
11. Meet or exceed park land dedication and development requirements as established in the Development Agreement, considering the City of New Braunfels Strategic Park Plan when planning amenities.

Plan 4-1 Open Space/Environment/Parks and Amenities Framework



MAYFAIR • OPEN SPACE / ENVIRONMENT / PARKS AND AMENITIES FRAMEWORK PLAN (M6)

Prepared by:
Revised: 12/2023
10/2021/6
Staff: [Name]



Updated 11/14/2023

5 Access & Connectivity / Infrastructure

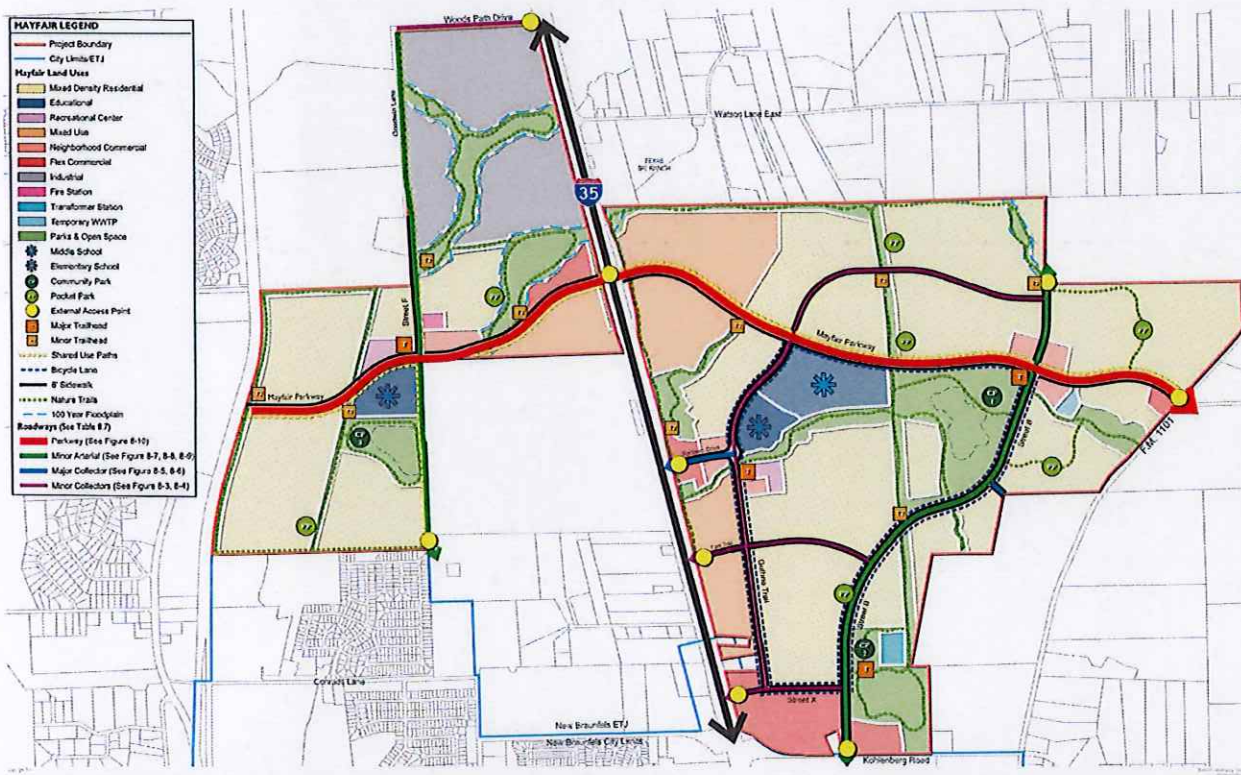
5.1 Principles

1. Mayfair will elevate non-vehicular transportation options to support a livable and healthy community, and deliver a highly connected community.
2. Mayfair's transportation plan is guided by the City of New Braunfels Updated Thoroughfare Plan, and will facilitate vehicular access within the community and to the greater New Braunfels area, preparing for larger scale need and future mass transit goals.
3. Mayfair will introduce community infrastructure that facilitates efficiency, sustainability and future-oriented opportunities.

5.2 Objectives

1. Promote connectivity by establishing a hierarchy of streets that are efficient in both vehicular movement and circulation, and provide street spaces that form an integral part of the community's public realm including:
 - a. principal and minor arterials that move vehicular, bicycle and pedestrian traffic efficiently through the community;
 - b. provide tree-lined landscaped street spaces that define the edges of neighborhoods and centers; and facilitate future public transit;
 - c. collector roads through centers that establish a network of streets and sidewalks that connect and integrate retail and commercial areas with the medium- and high-density residential development;
 - d. walkable market centers that facilitates movement in shaded and safe areas;
 - e. neighborhood collector streets that provide the transition between centers and the surrounding neighborhoods;
 - f. local streets that provide circulation within neighborhoods and multiple connections between neighborhoods; have reduced width to respond to the scale of the neighborhoods; and have sidewalks separated from the curb by planting strips that create landscaped street spaces; and
- g. Greenways, paths and trails that encourage non-vehicular traffic between neighborhoods, schools, market centers and amenities cores.
- h. Achieve a Connectivity Ratio of 1.4 as detailed in section 8.8
2. Establish an effective, efficient and integrated transportation system that will provide:
 - a. a driving, walking, biking and (potentially future) public transportation system that connects the integral elements of the community;
 - b. a compact development pattern that places the maximum number of people within walking distance to market centers and amenities, employment centers and institutions to strengthen the degree of self-containment within the community; and
 - c. major employment centers efficiently linked by major transportation.
3. Provide efficient water, wastewater, drainage, electricity, natural gas and telecommunications infrastructure and encourage economically feasible best practices for reducing energy, waste and water use;
 - a. Prioritize sustainable practices that benefit the community, city and region whenever possible;
 - b. Plan considering future opportunities including connectivity with the City's public transportation, autonomous vehicle opportunities and current and future broadband connectivity opportunities;
 - c. Coordinate and integrate the delivery of infrastructure in a way that maximizes self-sufficiency;
 - d. Provide infrastructure and utility services in a timely, cost effective and equitable manner at a desirable level of service;
 - e. Work collaboratively with NBU in the provision and joint funding of new water and wastewater infrastructure as required by the Utility Construction Cost Sharing Agreement, and support NBU's long-term master planning for water, wastewater and electrical services;
 - f. Provide for the integrated management of stormwater in order to:
 - i. improve flooding mitigation;
 - ii. maintain the environmental values of receiving waters;
 - iii. promote the use of low impact development strategies where feasible;
 - iv. incorporate the use of natural stream corridors and natural channels within the development; and
 - v. recognize community benefit.
- g. Provide infrastructure and utility services that are unobtrusive and visually complementary.

Plan 5-1 Access & Connectivity/Infrastructure Framework



MAYFAIR • ACCESS & CONNECTIVITY / INFRASTRUCTURE FRAMEWORK PLAN (M6)
 New Braunfels, Texas
 November 13, 2023
 RVI
 Southstar Communications



Updated 11/14/2023

6 Development Pattern/ Employment/Economic Impact

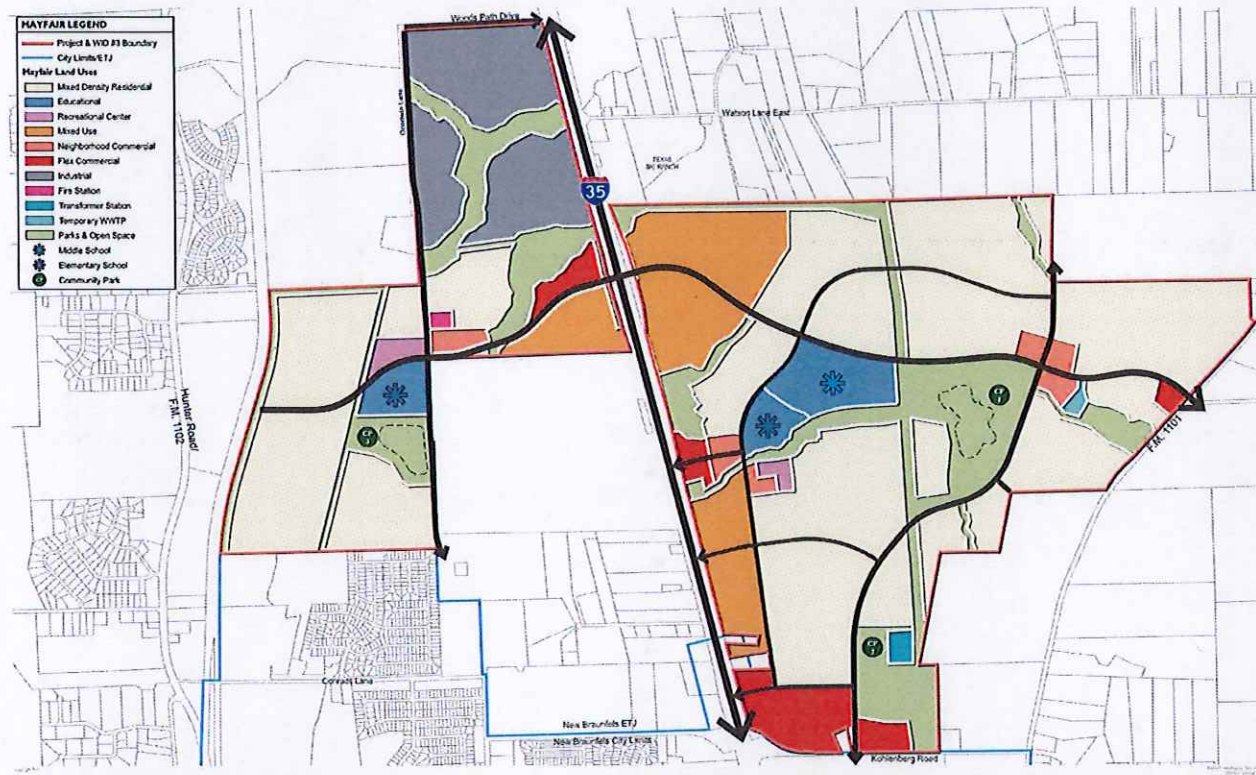
6.1 Principles

1. Mayfair's neighborhoods and employment centers will support the live-work-play culture of the community in easily accessible neighborhoods interwoven with walkable retail and connecting trails and parks.
2. Mayfair will further connect residents through quality community services and facilities that provide the same strong sense of identity, safety and security.

6.2 Objectives

1. Organize employment centers near to convenience retail and varied residential to promote a self-sustaining local economy serving employees and their families at varied levels in their lifecycle.
2. Create an environment where residents enjoy the benefits of a balanced community with a distinct sense of place and identity, community cohesiveness and enviable lifestyle.
3. Create neighborhoods and centers that provide a high level of amenity and safety through the use of contemporary urban design principles.
4. Create a rich fabric of neighborhoods, each with their own diversity of living options and housing types, which are attractive to residents at all stages of their lives.
5. Provide a range of community services and facilities, including emergency services and schools, that meet the needs of the community.
6. Contribute to a balanced employment profile, including professional, service and trade sectors, and facilitate real employment outcomes for a variety of age groups.
7. Make a positive contribution to the City's economic competitiveness via reliable and timely access to educational opportunities.
8. Create an employment complex throughout a hierarchy of centers that include retail, business, educational and institutional uses that will become the focus for coordinated public and private sector investment.
9. Develop retail centers to invite and serve new residents, major employers, students, workers and visitors. It will provide a different experience and complement the City's historic, civic and tourist-orientated downtown by providing alternate economic development opportunities that support the evolving needs and growth of the City.
10. Varied housing product featuring diverse pricing and ownership structures will support the growing employment base at Mayfair (light industrial, retail, operations, education, etc.) and the surrounding area.
11. Develop at least one pilot One Water strategy to improve water management and protect waterways in Mayfair.

Plan 6-1 Development Pattern/Employment/Economic Impact Framework



IRVI MAYFAIR • DEVELOPMENT PATTERN / EMPLOYMENT / ECONOMIC IMPACT FRAMEWORK PLAN (M6)
New Braunfels, Texas
November 13, 2023
1610276
Staff: [Name Redacted]

MAYFAIR SOUTHSTAR
PAPE-DAWSON
ENGINEERS

Scale: 1" = 100'
North Arrow

Updated 11/14/2023

PART C

ALLOWED LAND USES

7 Allowed Land Use Matrix

The use of land and/or buildings shall be in accordance with those listed in the Allowed Land Use Matrix.

7.1 Allowed Land Uses Matrix – Residential Uses

LEGEND A: ALLOWED S: ALLOWED SUBJECT TO OBTAINING A SPECIAL USE PERMIT X: PROHIBITED	MIXED DENSITY RESIDENTIAL	MIXED USE DEVELOPMENT	NEIGHBORHOOD COMMERCIAL	FLEX COMMERCIAL	LIGHT INDUSTRIAL	PARK / OPEN SPACE	RECREATIONAL	EDUCATIONAL
Accessory Structure	A	A	X	X	X	X	X	X
Assisted Living Facility Or Elderly Housing, High Intensity	X	A	S	A	X	X	X	X
Assisted Living Facility Or Elderly Housing, Low Intensity	S	A	A	A	X	X	X	X
Dwelling, Accessory (ADU)	A	A	X	X	X	X	X	X
Dwelling, Hud Code-Manufactured	X	X	X	X	X	X	X	X
Dwelling, Industrialized	X	X	X	X	X	X	X	X
Dwelling, Multi-Family	A ²	A ¹	X	A ¹	X	X	X	X
Dwelling, Multi-Family For Rent, Short-Term	A	A	X	A	X	X	X	X
Dwelling, Single Family For Rent - Condo	A	A	X	X	X	X	X	X
Dwelling, Single Family For Rent - Fee Simple	A	A	X	X	X	X	X	X
Dwelling, Single-Family Attached (duplex)	A	X	X	X	X	X	X	X
Dwelling, Single-Family Attached (rowhome)	A	A	X	S	X	X	X	X
Dwelling, Single-Family Detached	A	X	X	X	X	X	X	X
Dwelling, Single-Family Detached (cluster)	A	A	X	S	X	X	X	X
Dwelling, Single-Family Detached (zero-lot line)	A	S	X	X	X	X	X	X
Family Home (child care or adult care)	A	A	X	A	X	X	X	X
Gated Neighborhood	A	S	X	X	X	X	X	X
Group Home	X	A	X	A	X	X	X	X
Home Occupation	A	A	X	X	X	X	X	X
Caretakers Quarters	A	A	A	A	A	A	A	A
Live Work	A	A	A	A	X	X	X	X

¹ In mixed-use site or vertical mixed-use building

² Mid to High Rise Multi-Family Dwellings only allowed adjacent to minor collectors and larger.

* Additional housing types can be added at Sector Plan. Terminology between the sections 7.1, 8.4 and 9.6 will be aligned with each sector plan. This terminology alignment will not be considered an amendment to the DDOD, but an allowed clarification anticipated with each sector plan.

7.2 Allowed Land Uses Matrix – Non-Residential Uses

LEGEND	MIXED-DENSITY RESIDENTIAL	MIXED USE DEVELOPMENT	NEIGHBORHOOD COMMERCIAL	FLEX COMMERCIAL	LIGHT INDUSTRIAL	PARK / OPEN SPACE	RECREATIONAL	EDUCATIONAL
A: ALLOWED S: ALLOWED SUBJECT TO OBTAINING A SPECIAL USE PERMIT X: PROHIBITED								
ACCOMMODATION								
Bed And Breakfast	X	A	A	A	X	X	X	X
Boarding House	X	A ²	X	A	X	X	X	X
Dormitory	X	A	X	A	X	X	X	A
Hospice Residential Care Facility	X	A	S	A	X	X	X	X
Hotel/Resort	X	A	S	A	X	X	X	X
RETAIL								
Agricultural Equipment And Supply Retail Establishment	X	X	X	A	A ¹	X	X	X
Animal Grooming Service	X	A	A	A	S	X	X	X
Auction House	X	S	A	X	S	X	X	X
Automobile Dealership	X	S	X	A	A	X	X	X
Automobile Detailing Shop	X	A	X	A	S	X	X	X
Automobile Parts Store	X	A	A	A	S	X	X	X
Automobile Repair Services Establishment	X	A	A	A	S	X	X	X
Bar/Nightclub/Tavern	X	A ³	A	A	A	X	X	X
Barber Shop/Beauty Salon	X	A	A	A	A	X	X	S
Café/Coffee House	X	A	A	A	A	S	S	S
Car Wash	X	A	A	A	A	X	X	X
Catering Service	X	A	A	A ¹	A ¹	X	X	S
Convenience Store, With Gasoline Sales	X	A	A	A	S	X	X	X
Convenience Store, Without Gasoline Sales	X	A	A	A	S	X	X	X
Department Store	X	A	S	A	X	X	X	X
Drug Store/Pharmacy	X	A	A	A	X	X	X	X
Dry Cleaning Establishment	X	A ³	A	A	X	X	X	X

7.2 Allowed Land Uses Matrix – Non-Residential Uses (cont'd.)

LEGEND	MIXED DENSITY RESIDENTIAL	MIXED USE DEVELOPMENT	NEIGHBORHOOD COMMERCIAL	FLEX COMMERCIAL	LIGHT INDUSTRIAL	PARK / OPEN SPACE	RECREATIONAL	EDUCATIONAL
A: ALLOWED								
S: ALLOWED SUBJECT TO OBTAINING A SPECIAL USE PERMIT								
X: PROHIBITED								
Farmer's Market	A	A	A	A	A	S	A	A
Laundromat	X	A ³	A ³	A	S	X	X	S
Liquor Store	X	A ³	A ³	A	S	X	X	X
Mobile Food Court	X	A ¹	A ¹	A ¹	S	S ¹	A ¹	A ¹
Restaurant (including drive-in and drive-thru)	X	A	A	A	A	S	X	X
Retail Establishment	X	A	A	A	A	X	X	S
Retail Establishment, Anchor Retail	X	A ¹	A ¹	A	S	X	X	X
Shopping Center, Equal To Or Less Than 50,000 Sq. Ft.	X	A	A	A	S	X	X	X
Shopping Center, Greater Than 50,000 Sq. Ft.	X	A	A	A	A	X	X	X
Supermarket, With Gasoline Sales	X	A	A	A	S	X	X	X
Supermarket, Without Gasoline Sales	X	A	A	A	S	X	X	X
Tattoo Parlor/Body Piercing Studio	X	A ¹	X	A	X	X	X	X
Temporary Vendor / Mobile Food Unit	S ¹	A ¹	A ¹	S ¹	A ¹	S ¹	A ¹	A ¹
BUSINESS								
Broadcasting/Production Studio/Communication Service	X	A	A	A	A	X	X	S
Check Cashing Service	X	A ³	X	A	X	X	X	X
Financial Institution	X	A	A	A	X	X	X	S
Office	S ¹	A	A	A	A	X	A	A
Research And Development Facility	X	X	S	A	A	X	X	A
Veterinary Clinic, With No Outside Animal Runs Or Kennels	X	A ³	A	A	A	X	X	X
Veterinary Clinic, With Outdoor Animal Runs Or Kennels	X	S	S	A	A ¹	X	X	X
CIVIC, HEALTH & EDUCATION								
Cemetery	X	X	X	X	A	X	X	X
Columbarium/Crematorium/Mausoleum	X	X	X	X	A	X	X	X

7.2 Allowed Land Uses Matrix – Non-Residential Uses (cont'd.)

LEGEND A: ALLOWED S: ALLOWED SUBJECT TO OBTAINING A SPECIAL USE PERMIT X: PROHIBITED	MIXED DENSITY RESIDENTIAL	MIXED USE DEVELOPMENT	NEIGHBORHOOD COMMERCIAL	FLEX COMMERCIAL	LIGHT INDUSTRIAL	PARK / OPEN SPACE	RECREATIONAL	EDUCATIONAL
Club	X	A ¹	A	A	A	X	A	X
College/University (public or private)	X	A	A	A	A	X	X	A
Day Care Center (child or adult)	S ⁴	A	A	A	A ⁴	X	S	A
Funeral Home/Mortuary	X	S	A	A	A	X	X	X
Government Building Or Use (without outdoor storage)	A	A	A	A	A	A	A	A
Hospital/Health Care Facility	X	A	A	A	A	X	X	S
Medical Facility	X	A	A	A	A	X	X	S
Public Safety Facility	A	A	A	A	A	A	A	A
Religious Institution	X	A	A	A	A	X	S	A
Sanatorium	X	A	X	A	X	X	X	X
School, K-8 (public or private)	A	A	A	A	A	S	X	A
School, 9-12 (public or private)	S	A	A	A	A	S	X	A
School, Vocational	S	A	A	A ³	A	X	X	A
ARTS, ENTERTAINMENT & RECREATION								
Amphitheater	A	A	A	A	A	A	A	A
Amusement Arcade	X	A ³	A	A	A	X	S	A
Amusement Park	X	S	A	A	A	S	S	S
Archery Range	X	S	A	A	A	S	S	S
Athletic Field	X	A	A	A	A	A	A	A
Cabin	X	X	X	A	A	A	A	X
Camp, Day Or Youth	X	S	A	A	A	S	A	A
Campground	X	X	X	X	A	S	X	X
Community Facility	A	A	A	A	A	A	A	A
Community Gardens	A	A	A	A	A	A	A	A

7.2 Allowed Land Uses Matrix – Non-Residential Uses (cont'd.)

LEGEND	MIXED-DENSITY RESIDENTIAL	MIXED USE DEVELOPMENT	NEIGHBORHOOD COMMERCIAL	FLEX COMMERCIAL	LIGHT INDUSTRIAL	PARK / OPEN SPACE	RECREATIONAL	EDUCATIONAL
A: ALLOWED S: ALLOWED SUBJECT TO OBTAINING A SPECIAL USE PERMIT X: PROHIBITED								
Conference/Convention Center	X	A	X	A	S	X	X	A
Dance Hall	X	S'	A	A	A'	S'	A	X
Driving Range	X	A	X	A	A	A'	A	A
Fairground/Festival Ground	X	X	X	A	A	A'	S	S
Golf Course	X	X	X	A	A	A	A	S
Golf Course, Miniature	X	A	X	A	A	A	A	S
Indoor Shooting Range	X	A'	X	A'	S'	X	S'	X
Museum	X	A	A	A	A	A	X	A
Park	A	A	A	A	A	A	A	A
Recreation Establishment, Commercial Indoor	X	A	A	A	A	A	S	S
Recreation Establishment, Commercial Outdoor	X	A	A	A	A	A	S'	A
Recreation Facility, Private	A	A	A	A	A	S	A	A
Recreation Facility, Public	A	A	A	A	A	A	A	A
Recreation Vehicle (Rv) Park	X	X	X	A	A	S	X	X
Rodeo Ground	X	S	X	S	A	S	S	S
Studio (art, dance, music, drama, reducing, photography)	X	A	A ³	A	A	S	S	S
Theater, Motion Or Performing Arts	S	A	A ³	A	A	S	A	A
TRANSPORTATION & UTILITIES								
Airport	X	X	X	X	S	X	X	X
Bus Lot	X	A	X	A	A	S	X	A
Bus Terminal	X	A	S	A	A	X	X	A
Freight Terminal	X	X	X	A	A	X	X	X
Garage/Parking Lot, Commercial	S	A	A	A	A	A	X	S
Helipad/Helistop	X	A	S	A	A'	X	S	A'

7.2 Allowed Land Uses Matrix – Non-Residential Uses (cont'd.)

LEGEND	MIXED DENSITY RESIDENTIAL	MIXED USE DEVELOPMENT	NEIGHBORHOOD COMMERCIAL	FLEX COMMERCIAL	LIGHT INDUSTRIAL	PARK / OPEN SPACE	RECREATIONAL	EDUCATIONAL
A: ALLOWED								
S: ALLOWED SUBJECT TO OBTAINING A SPECIAL USE PERMIT								
X: PROHIBITED								
School, Automobile Driving School	X	A	S	A	A	X	X	A
Solid Waste Transfer Facility	X	X	X	X	A	X	X	X
Taxi And Limousine Service	X	A	S	A	A	X	X	X
Telecommunication Antenna/Tower	A'	A'	A'	A'	A'	A'	A'	A'
CONSTRUCTION								
Contractor's Office	A'	A'	A'	A'	A'	A'	A'	A'
Temporary Real Estate Sales Office	A'	A'	A'	A'	A'	A'	A'	S
MINING & EXTRACTION								
Mining And Extractive Industry	X	X	X	X	X	X	X	X
Water Storage (surface, underground or overhead, water wells and pumping stations that are part of a public or municipal system)	A	A	A	A	A	A	A	A
LIGHT INDUSTRIAL/MANUFACTURING & WHOLESALE TRADE								
Brewery	X	A	A	A	A	X	X	X
Manufacturing Establishment, Chemicals, Metals, Machinery And Electronics Products	X	S	X	A	A'	X	X	X
Manufacturing Establishment, Food, Textiles And Related Products	X	X	X	A'	A'	X	X	X
Manufacturing Establishment, Miscellaneous Products	X	X	X	A'	A'	X	X	X
Manufacturing Establishment, Wood, Paper And Printing Products	X	X	X	A'	A'	X	X	X
Microbrewery/Micro Distillery	X	A	A	A	A	X	A	X
Self-Service Storage Facility	X	A	A	A	A	X	A	X
Service Industry Establishment	X	A	A	A	A	X	S	A
Warehouse, Mini/Self Storage Facility (with boats and rv storage)	X	A	X	A	A	X	X	X
Warehouse, Mini/Self Storage Facility (without boats and rv storage)	X	A	A	A	A	X	X	X
Wholesale Trade Establishment	X	X	X	A'	A'	X	X	X
Warehouse/office and storage/distribution center, light manufacturing, bottling	X	X	X	S	A	X	X	X

7.2 Allowed Land Uses Matrix – Non-Residential Uses (cont'd.)

LEGEND	MIXED-DENSITY RESIDENTIAL	MIXED USE DEVELOPMENT	NEIGHBORHOOD COMMERCIAL	FLEX COMMERCIAL	LIGHT INDUSTRIAL	PARK / OPEN SPACE	RECREATIONAL	EDUCATIONAL
A: ALLOWED S: ALLOWED SUBJECT TO OBTAINING A SPECIAL USE PERMIT X: PROHIBITED								
AGRICULTURE (EXCLUDING EXISTING AGRICULTURAL AND RANCHING ACTIVITIES)								
Agricultural Support Services	X	X	X	X	A ¹	X	X	X
Animal Husbandry	X	A	X	X	A ¹	X	X	X
Crop Production	A	A	A	A	A	S	A	A
Farm	A	S	A	A	A	S	A	A
Farm, Ancillary Building	S	X	S	S	S	S	S	S
Livestock Market	X		X	X	S	X	X	X
Stockyard		X						
OTHER								
Sexually-Oriented Businesses								

¹ Additional zoning requirements, as set forth in Code of Ordinances, shall be applicable in the assessment of this use to the extent permitted by the Development Agreement or State law.

² Where located on the ground floor of a mixed use building, otherwise subject to a Special Use Permit.

³ Allowed as part of a planned development, otherwise subject to a Special Use Permit.

⁴ As an incidental use to an approved use in this area.

7.3 New and Unlisted Land Uses

It is recognized that new types of land uses will arise in the future and forms of land uses not presently anticipated may seek to locate in the project. In order to provide for such changes and contingencies, a determination as to the appropriate classification of any new or unlisted form of land use in the Allowed Land Use Matrix shall be made as follows:

- ▶ A new and unlisted land use may be interpreted by the Planning Director as similar to a listed land use. The unlisted land use shall possess the majority of characteristics of the listed land use, otherwise the unlisted land use shall be submitted to the Planning Commission and City Council for approval. If the unlisted land use is deemed similar to a listed land use, no amendment of the Allowed Land Use Matrix is required.
- ▶ A person requesting the addition of a new or unlisted land use shall submit to the Planning Director all information necessary for the classification of the land use, including but not limited to:
 - the nature of the land use and whether the land use involves residential activity, sales, services, or processing;
 - the type of product/s sold or produced under the land use;
 - whether the land use has enclosed or open storage, and the amount and nature of the storage;
 - anticipated employment for the land use;
 - transportation requirements, including approximate mileage, turning radius, or driving time of the expected client or patron base;
 - the nature and time of occupancy and operation of the premises;
 - the off-street parking and loading requirements;
 - the amount of noise, odor, fumes, dust, toxic materials and vibration likely to be generated; and
 - the requirements for public utilities, such as sanitary sewer and water, and any special public services that may be required.

The Planning Director shall refer the question concerning any new or unlisted land use to the Planning Commission and request a recommendation as to the planning area into which such land use should be placed.

The Planning Commission shall consider the nature and described performance of the proposed land use and its compatibility with the land uses permitted in the various planning areas to determine the planning area/s within which such land use is most similar and should be permitted.

The Planning Commission shall transmit its findings and recommendations to the City Council as to the classification proposed for any new or unlisted use. The City Council shall approve or disapprove the recommendation of the Planning Commission or make such determination concerning the classification of such use as is determined appropriate based upon its findings. If approved, the new or unlisted use shall be updated in the Land Use Matrix of this DDCD.

PART D

DESIGN CODE

8 Subdivision Design

8.1 Applicability

This Code applies in the assessment of all Sector Plan applications and subsequent related applications within the project.

8.2 Purpose

The purpose of this Code is to:

- I. Ensure the Guiding Principles are met.
- II. Facilitate the logical and efficient use of land for residential, non-residential and mixed-use development.
- III. Encourage safe, convenient and attractive neighborhoods and centers, that meet the diverse and changing needs of the project, including:
 - a cohesive neighborhood structure that facilitates permeability;
 - a block structure that supports transition and evolution of uses over time;
 - a range of housing opportunities to accommodate a diverse range of lifestyles;
 - protection of specific local site conditions, such as existing vegetation and other design variables;
 - access to non-residential and community facilities;
 - a street network that functions both as the principal movement network and an important aspect of the public realm;
 - streets that create an enjoyable experience for vehicular traffic, pedestrians and cyclists;
 - access to parks and recreation;
 - a quality development preserving the sense of place.

8.3 Development Standards

The applicable application shall comply with the minimum development standards of the City of New Braunfels Code of Ordinances §118 Street and Subdivision Platting, unless superseded by approved alternative development standards or this Mayfair Development and Design Control Document.

8.4 Residential Lot Dimensional Standards

	SINGLE FAMILY DETACHED DWELLING LOT, FRONT LOADED	SINGLE FAMILY DETACHED DWELLING LOT, ALLEY LOADED ¹	SINGLE FAMILY ATTACHED DWELLING (DUPLEX) LOT	SINGLE FAMILY ATTACHED DWELLING (ROWHOUSE) LOT ²	SINGLE FAMILY DETACHED DWELLING (ZERO LOT LINE) LOT ³	SINGLE FAMILY DETACHED DWELLING (CLUSTER) LOT ⁴	SINGLE-FAMILY DETACHED FOR RENT COTTAGES	MULTI-FAMILY ATTACHED DWELLING LOT
Minimum Lot/Parcel Area (sq. ft.)	4,400	3,520	4,000	1,800	2,500	2,000	2,000	12,000
Maximum Units per Structure			2	8				no limit ⁵
Minimum Lot Width (ft.) (at building line)	40	32	45	24	30	40 ⁷	20	40
Minimum Front Setback (ft.)	20	10	20	10 & 12	20	10	10	15
Minimum Side Setback (ft.)	5	5	5	0 & 10 (exterior)	0 ² & 10	5	10	15
Minimum Rear Setback (ft.)	10	5	10	5	5 ³	5	5	15
Maximum Building Height (ft.)	35	35	35	35	35	35	35	60
Maximum Accessory Building Height (ft.)	15	15	15	15	15	15	15	15

¹ No limit on the number of apartment units per structure; 8 row home units per structure max.

² The dwelling on the zero lot line side may be offset from the lot line by no more than 5 ft. Projections, including eaves and gutters shall not overhang the zero lot line side of the lot and must be set back a minimum of 2 ft. from the property line.

³ Minimum rear setback is 3 ft. where rear entry garage is served by an alley, and 5 ft. where no alley is provided.

⁴ Vehicular access to individual cluster lots shall be provided via an internal drive or private street. Minimum corner lot setback (street-side) is 5 ft. from internal drive.

⁵ Corner lots 10' minimum side setback.

⁶ Rowhouses may be front or rear loaded, front loaded must have shared driveways.

⁷ Frontage not required provided dedicated perpetual access easement is in place.

* Additional housing types can be added at Sector Plan. Terminology between the sections 7.1, 8.4 and 9.6 will be aligned with each sector plan. This terminology alignment will not be considered an amendment to the DDCD, but an allowed clarification anticipated with each sector plan.

* 40' lots: when platted in contiguous parcels of 7 lots or more, a minimum of 25% of lots will be alley fed or have a shared driveway. All lots under 40' will have shared driveways or be alley fed.

8.5 MXD Lot Dimensional Standards

Reserved

8.6 Non-Residential Lot Dimensional Standards

	N-COMM NEIGHBORHOOD COMMERCIAL	F-COMM FLEX COMMERCIAL	L-IND LIGHT INDUSTRIAL	MXD MIXED-USE
Sq. Ft. Max	50,000			RESERVED
Lot Width (min. ft.)	60	60	60	
Lot Depth (min. ft.)	100	100	100	
Front Setback (min. ft.)	25	25	25	
Side Setback (min. ft.)	5	5	5	
Side Setback to Res. (min. ft.)	6'	6'	20	
Rear Setback (min. ft.)	20	20	20	
Rear Setback to Res. (min. ft.)	20'	20'	20'	
Building Height, (max. ft.)	35	60	120	
Corner Lot Setback (min. ft.)	15	15	15	

¹ Setback adjoining one or two family use is 20 ft. plus 1 ft. for each foot of building height over 20 feet.

Setbacks presented above refer to building setbacks

8.7 Street Design Code

Mayfair streets will be developed to City of New Braunfels standards unless otherwise shown herein.

Intersection design, including bicycle lanes and paths, will be determined at the time of roadway design. Design will be in accordance with city code and accepted design standards.

	Local A Street	Local B Street	Minor Collector ⁶	Minor Collector w/ Bicycle Lanes	Major Collector	Major Collector w/ Bicycle Lanes	Minor Arterial	Minor Arterial w/ Bicycle Lanes	Minor Arterial with Shared Use Path	Parkway ⁷
Right-of-Way (min.)	50	56	60	72	90	102	98	110	100	200
Number of Lanes	2	2	3	3	4	4	4	4	4	4
Lane Width (min. ft.)	14	10-12	10-12	10-12	10	10	11	11	11	12
Pavement Width ¹ (min. ft.)	28	34	38	38	40	40	44	44	44	48
Parkway Width (min. ft.)	9	9	9	15	17	23	17	23	17	35
Median Width (min. ft.)	NR	NR	NR	NR	12	12	16	16	16	24
Sidewalk Width (ft.)	4/4	4/4	6/6	6/6	6/6	6/6	6/6	6/6	10/6 ²	10/6 ²
Shared Use Path	NR	NR	NR	NR	NR	NR	NR	NR	Yes ²	Yes ²
Bicycle Lane Width (ft.)				Yes ³		Yes ³		Yes ³		
Grade (max)	12.0%	10.0%	8.0%	8.0%	6.0%	6.0%	5.0%	5.0%	5.0%	5.0%
Grade (min.)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Centerline Radius (min. ft.)	125	340	510	510	770	770	1200	1200	1200	1200
Street Trees	Yes ⁴	Yes ⁴	Yes ⁵	Yes ⁵	Yes ⁵	Yes ⁵	Yes ⁵	Yes ⁵	Yes ⁵	Yes ⁵
Max. Block Length (ft.)	750	1200 ⁸	NR	NR	NR	NR	NR	NR	NR	NR

NR denotes item as "Not Required"

¹ Pavement width excludes 2' wide curb and gutter

² 10' shared use path on one side of roadway

³ 6' off-street bicycle lane adjacent to 6' sidewalk on both sides of roadway.

⁴ Street trees will be sited on private property on Local Streets. 2" caliper trees will be planted every 40 LF or every lot if smaller than 40 LF. See 11.3.1 for Street Tree Standards.

⁵ Street trees locations every 50 linear feet, 3" caliper on collectors, arterials and parkway. Tree locations and species must be presented with Street Tree Planting Plan at Final Plat. See 11.3.1 for Street Tree Development Standards.

⁶ Lane configuration shown within 38' pavement shown for illustrative purposes. Alternate lane configurations are allowed with approval of City Engineer

⁷ Parkway Section is for illustrative purposes. Final section to be coordinated with the City of New Braunfels and TxDOT at platting Phase.

⁸ No more than seven (7) residential lots of 40' width or less will be platted contiguously without an increase in lot width, or a block break, as defined as break by road, trail, drainage, easement or parkland.

Figure 8-1 Cross Sections – Local A Street

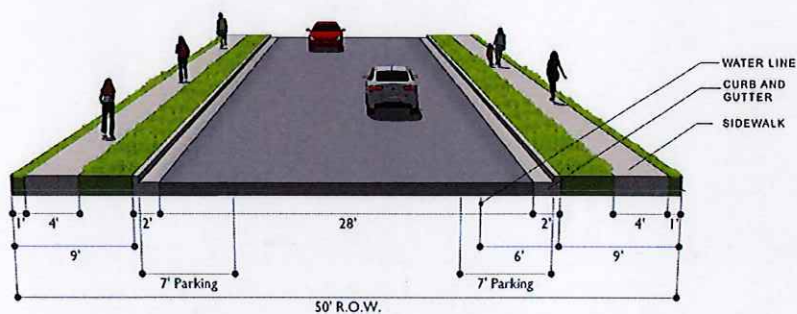
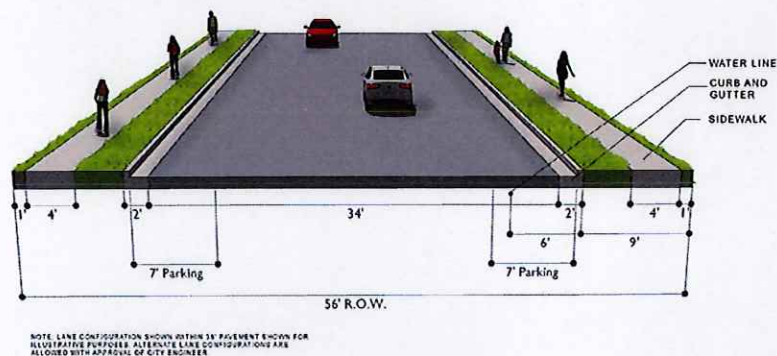


Figure 8-2 Cross Sections – Local B Street



Note: Trees will be established by builders on local streets and residential collectors.
Note: All streets will be delivered to City of New Braunfels standards unless otherwise presented herein.

Figure 8-3 Cross Sections – Minor Collector

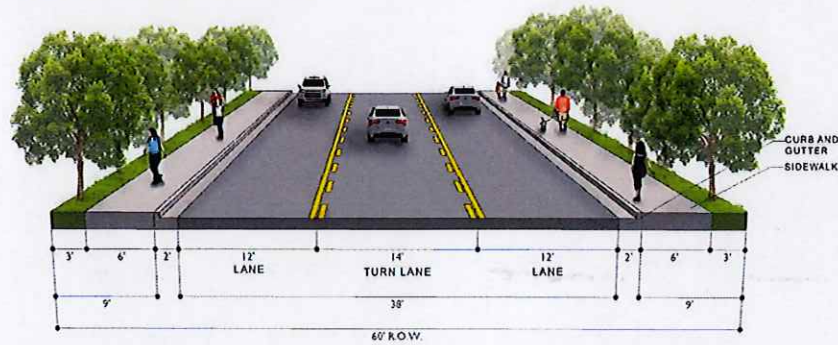
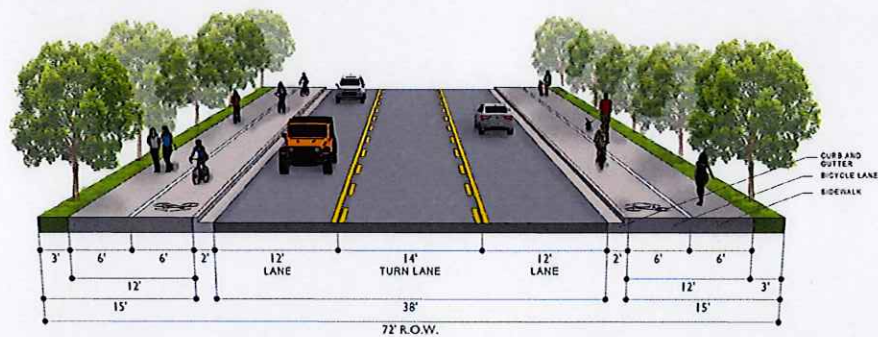


Figure 8-4 Cross Sections – Minor Collector w/ Bicycle Lane



NOTE: LANE CONFIGURATION SHOWN WITHIN 38' PAVEMENT SHOWN FOR ILLUSTRATIVE PURPOSES. ALTERNATE LANE CONFIGURATIONS ARE ALLOWED WITH APPROVAL OF CITY ENGINEER.

Note: All streets will be delivered to City of New Braunfels standards unless otherwise presented herein.

Figure 8-5 Cross Sections – Major Collector

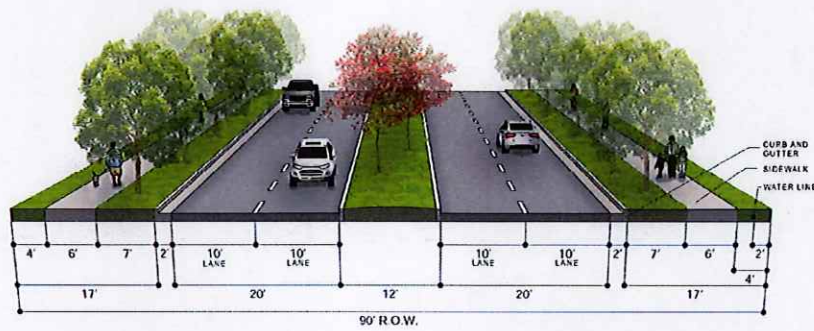
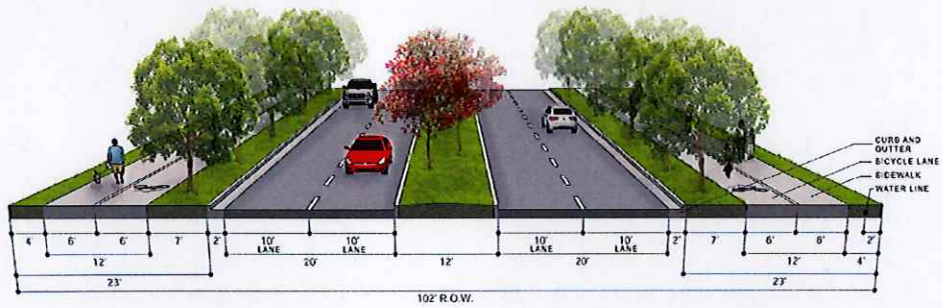


Figure 8-6 Cross Sections – Major Collector w/ Bicycle Lane



Note: All streets will be delivered to City of New Braunfels standards unless otherwise presented herein.

Figure 8-7 Cross Sections – Minor Arterial

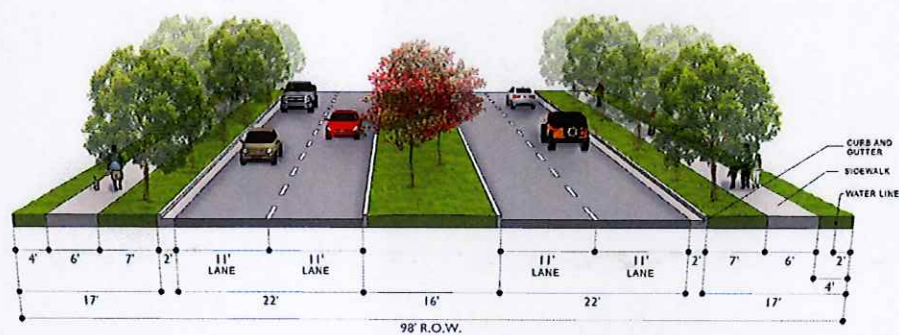
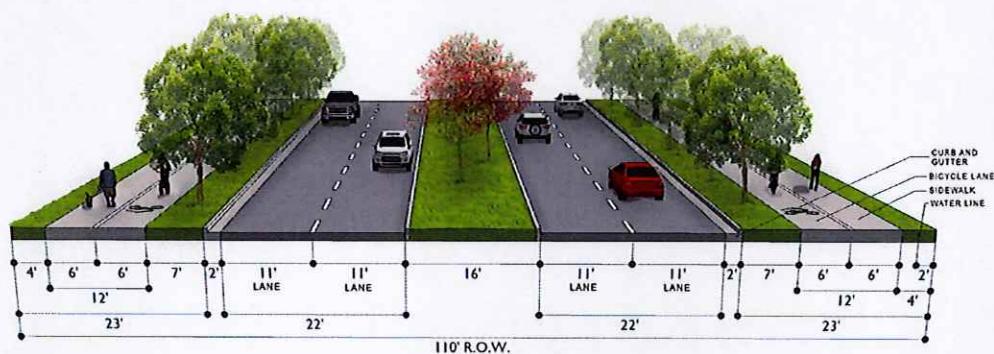


Figure 8-8 Cross Sections – Minor Arterial w/Bicycle Lane



Note: All streets will be delivered to City of New Braunfels standards unless otherwise presented herein.

Figure 8-9 Cross Sections – Minor Arterial with Shared Use Path

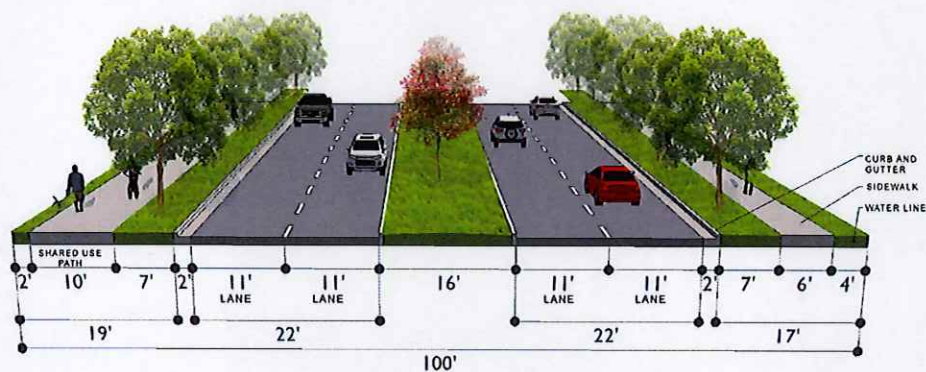
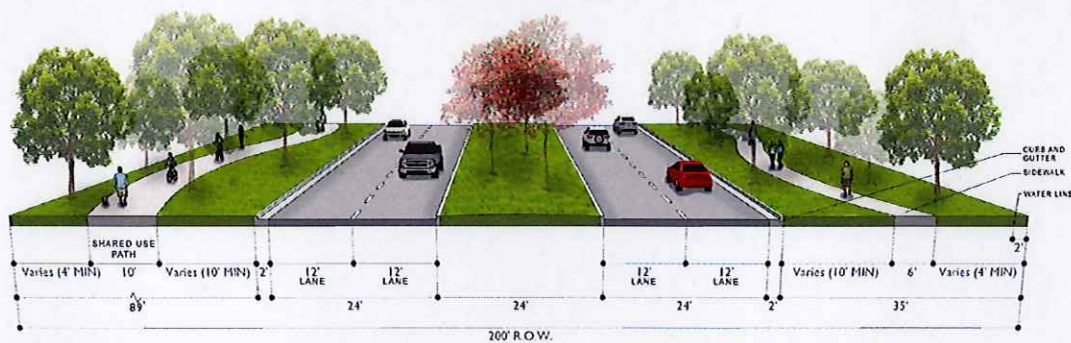


Figure 8-10 Cross Sections – Parkway



8.8 Connectivity Ratio

To facilitate efficient traffic, access by service and emergency vehicles, and promote vehicle mobility, Mayfair will achieve an internal connectivity ratio of 1.4.

While the DDCD establishes the primary roads network within the community and externally to Mayfair, the connectivity ratio is aimed at ensuring roads within each residential plat/pod are designed to support ease of access and mobility.

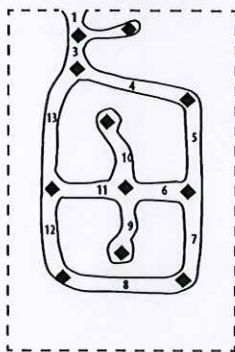
Calculation:

Connectivity Ratio = Number of Street/Sidewalk Connections (links)/
intersections (nodes)

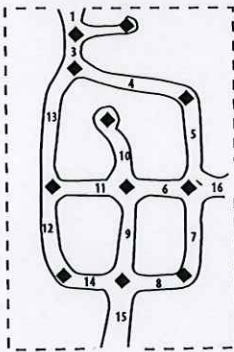
Each plat will achieve a minimum Connectivity Ratio of 1.4, ensuring that no plat put undue pressure on another to achieve an aggregated score.

Connectivity will be confirmed at Sector Plan but achieved by each individual plat.

13 links/11 nodes = 1.18



16 links/11 nodes = 1.45



PART E

LAND USE CODE

9 Land Use Code

9.1 Applicability

The code applies in the assessment of all applications for residential and non-residential use within the project.

9.2 Purpose

The purpose of this Code is to:

- I. Ensure the Guiding Principles are met.
- II. Ensure residential development, including ancillary structures, is compatible in scale, intensity and appearance with the purpose of the neighborhood.
- III. Ensure residential amenity is maintained.
- IV. Encourage a variety of housing product in an effort to provide affordable housing options and visual product diversity.

9.3 Development Standards

The applicable application shall comply with the minimum development standards of the City of New Braunfels Code of Ordinances §144 unless superseded by approved alternative development standards or this Mayfair DDCD.

9.3.1 Land Use Types

Mayfair is hereby divided into land use types as follows:

For the purpose of regulating and restricting the use of land and the erection, construction, alteration of and use of buildings or structures, the following Land Use Types are hereby created.

LAND USE		RESIDENTIAL PRODUCT TYPES ¹ (may include but not limited to)
RESIDENTIAL	MDR Mixed Density Residential	TF Single-family and two-family detached
		RH Rowhome attached
		ZH Zero lot line detached
		SC Single-family cluster detached
		SFR Single-family for rent cluster detached
		MF-1 Multi-family low density
		MF-2 Multi-family high density
NON-RESIDENTIAL	MXD High-intensity Mixed Use	
	N-Comm Neighborhood Commercial	
	F-Comm Flex Commercial	
	L IND Light Industrial District	

¹ Refer to 7.1 for Allowed Land Uses by Residential Product Type

In an effort to promote diversity and appropriate housing product, additional residential product types may be proposed or included.

9.3.1.1 Regulations for all Land Use Types

Except as provided in Part C and Part D of this DDCCD, the following shall apply;

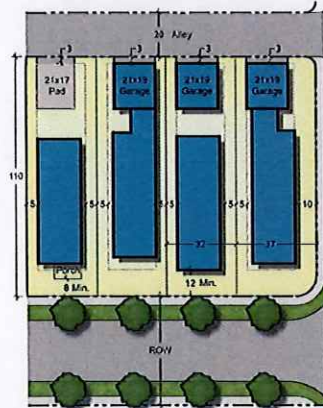
MINIMUM DEVELOPMENT STANDARD		
Use	1.1	No building or structure shall be erected, constructed, reconstructed or altered, nor shall any building, structure or land be used for any purpose other than is permitted in the Planning Area in which such building, structure or land is situated
Height	2.1	No building or structure shall be erected, constructed, reconstructed or altered to exceed the height limit herein established for the Planning Area in which such building or structure is located
Area	3.1	No lot area shall be reduced or diminished so that the building setbacks or other open spaces shall be less than prescribed by this chapter, nor shall the density of dwelling units be increased in any manner, except in conformity with the area regulations established herein. Every building hereafter erected shall be located on a lot as herein described. Buildings shall not cross lot lines.
Number of buildings on a lot or parcel	4.1	More than one main building is allowed on a lot or parcel as provided for in section 7.1. See Development Standards for ADUs in section 9.3.1.1.

MDR MIXED DENSITY RESIDENTIAL LAND USE		
Purpose	1.1	Development of a variety of low to medium density residential use types to create a diverse and inclusive neighborhoods that are sustainable.
Authorized Uses	2.1	Uses permitted by right shall be those set forth in the land use matrix in Part C.
Height and Area Requirements	3.1	See Part D section 8.4

TF SINGLE-FAMILY AND TWO-FAMILY RESIDENTIAL PRODUCT TYPES

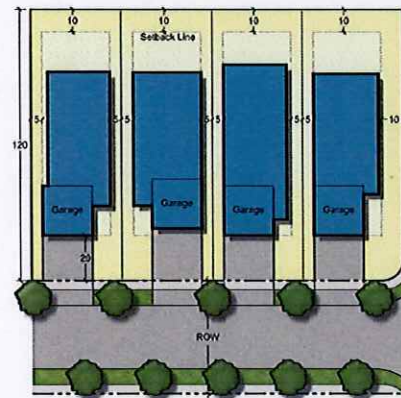
Purpose	1.1 Development of single-family residences and associated uses as well as for development on larger parcels of land of low density two-family duplex units.
Authorized Uses	2.1 Uses permitted by right shall be those set forth in the land use matrix in Part C.
Height and Area Requirements	3.1 See Part D section 8.4 3.2 Single family detached narrower than 40' will be alley loaded.

Examples of TF Single-Family and Two-Family Residential Product Types



32' (34' & 40') Single Family Alley-Loaded Lots

Width: 32' (+5' on corners)
Depth: 110'
Access: Rear Alley
Front Setback: 12' min. (Porch may encroach, 10' min setback)
Rear Setback: 5' min. (garage or pad)
Side Setback: 5' min.



40' Single Family Front-Loaded Lots

Width: 40' (+5' on corners)
Depth: 110'
Access: Front
Front Setback: 20' min.
Rear Setback: 10' min.
Side Setback: 5' min.

Example of TF Single-Family and Two-Family Residential Product Types



52' Two Family Shared Driveway

Width: 52' (+5' on corners)

Depth: 125'

Access: shared drive, rear

Front Setback: 12' min. (Porch may encroach, 8' min setback)

Rear Setback: 10' min. (garage or pad)

Side Setback: 5' min./7' min. (+ 5' on corners)

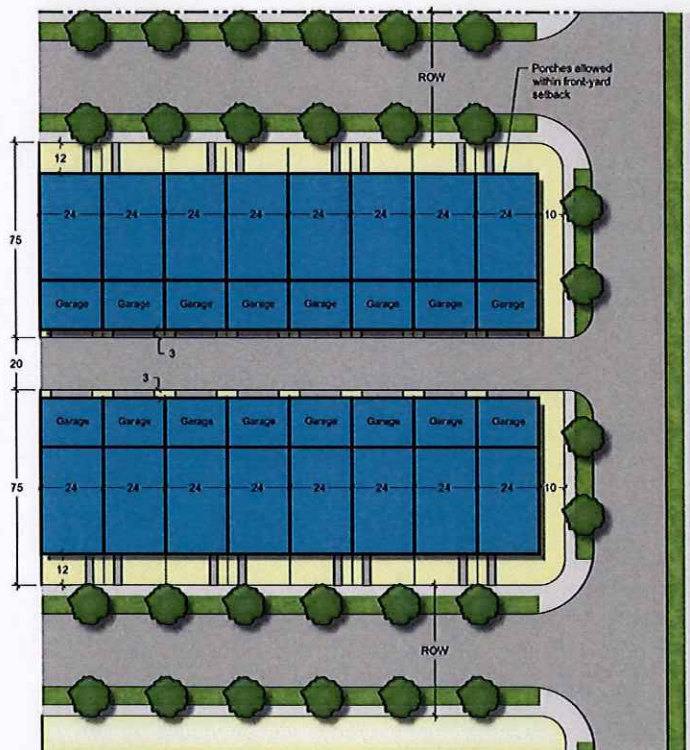
RH ROWHOME ATTACHED RESIDENTIAL PRODUCT TYPE

Purpose	1.1	Development of single-family residential rowhomes.																												
Authorized Uses	2.1	Uses permitted by right shall be those set forth in the land use matrix in Part C.																												
Height and Area Requirements	3.1	<table><tr><td></td><td>Fee Simple</td><td>Condominium</td></tr><tr><td>Minimum Lot Parcel</td><td>1,800</td><td>7,380</td></tr><tr><td>Max Units per Structure</td><td>8</td><td>8</td></tr><tr><td>Minimum Lot Width (ft.)</td><td>24</td><td>82</td></tr><tr><td>Minimum Front Setback (ft.)</td><td>10 & 12</td><td>15</td></tr><tr><td>Minimum Side Setback (ft.)</td><td>0 & 10 (exterior)</td><td>5</td></tr><tr><td>Minimum Rear Setback (ft.)</td><td>5</td><td>10</td></tr><tr><td>Maximum Building Height (ft.)</td><td>35</td><td>35</td></tr><tr><td>Maximum Accessory Building Height</td><td>15</td><td>15</td></tr></table>			Fee Simple	Condominium	Minimum Lot Parcel	1,800	7,380	Max Units per Structure	8	8	Minimum Lot Width (ft.)	24	82	Minimum Front Setback (ft.)	10 & 12	15	Minimum Side Setback (ft.)	0 & 10 (exterior)	5	Minimum Rear Setback (ft.)	5	10	Maximum Building Height (ft.)	35	35	Maximum Accessory Building Height	15	15
	Fee Simple	Condominium																												
Minimum Lot Parcel	1,800	7,380																												
Max Units per Structure	8	8																												
Minimum Lot Width (ft.)	24	82																												
Minimum Front Setback (ft.)	10 & 12	15																												
Minimum Side Setback (ft.)	0 & 10 (exterior)	5																												
Minimum Rear Setback (ft.)	5	10																												
Maximum Building Height (ft.)	35	35																												
Maximum Accessory Building Height	15	15																												

RH DEVELOPMENT STANDARDS

Common Open Space	4.1	A minimum of 250 square feet of common open space per lot shall be provided within the rowhome project. In computing the required common open space, individually owned row home lots, required front, rear, or side setbacks, streets, alleys, or public rights-of-way of any kind, vehicular drives, parking areas, service drives, or utility easements shall not be included. Drainage easements and detention ponds may be used in computing common open space.
Building Group	5.1	There shall be no less than two nor more than eight individual dwelling units in each building or dwelling group. Each building group shall be at least 20 feet from any other building group, measured from the nearest points of their foundations. Each building or building group shall be at least 20 feet from any subdivision or zoning district boundary line.
Accessory Buildings	6.1	Any detached accessory buildings permitted, except carports open on at least two sides, shall be set at least three feet away from the side lot line unless their walls are equal in fire resistance to the common walls of the main structure. Detached carports, open on at least two sides, may be built to the property line with no common wall required. Rear building setbacks for an accessory building shall be three feet.
Parking	7.1	There shall be at least two off-street parking spaces for each rowhome. Garage parking will apply toward this requirement. See City of New Braunfels Code of Ordinance §144-5.1 for other permitted uses' parking.

Example of RH Rowhome Residential Product Type (Non-Exclusive)



24' Alley Loaded Rowhome

Width: 24' (10' on corners)

Depth: 75'

Access: rear alley

Front Setback: 12' min. (Porches may encroach-10' setback)

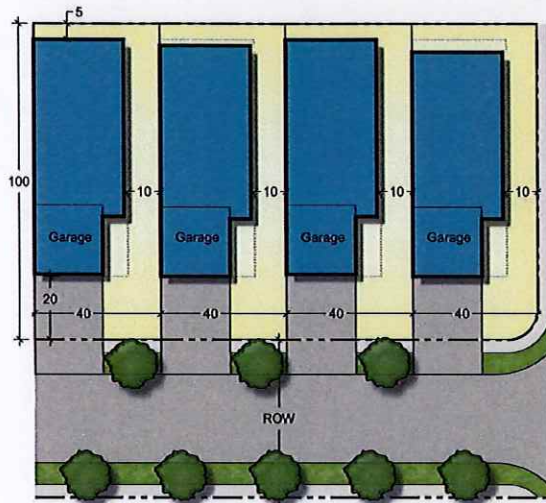
Rear Setback: 5' min. (garage or pad)

Side Setback: 0' (10' separation between buildings)

ZH ZERO LOT LINE DETACHED RESIDENTIAL PRODUCT TYPE

Purpose	1.1	Development of detached single-family residences on compact lots having one side building setback reduced to zero feet, also commonly referred to as "zero lot line," and having a minimum lot size of 4,000 square feet.	
Height and Area Requirements	2.1	Minimum Lot/Parcel Area	2,500
		Minimum Lot Width (ft.)	30
		Minimum Front Setback (ft.)	20
		Minimum Side Setback (ft.)	0' & 10
		Minimum Rear Setback (ft.)	5/3 ²
		Maximum Building Height (ft.)	35
		Maximum Accessory Building Height (ft.)	15
¹ The dwelling on the zero lot line side may be offset from the lot line by no more than 5 ft.			
² Minimum rear setback is 3 ft. where rear entry garage is served by an alley, and 5 ft. where no alley is provided.			
Minimum Area	3.1	Not less than three lots with common side lot lines will be permitted for zero lot line homes.	
Zero Lot Line Wall	4.1	No door or window openings shall be built into the side wall facing the zero lot line side except those that are more than three feet from the property line and do not occupy more than 25% of the wall area.	
Overhang	5.1	Projections, including eaves and gutters shall not overhang the zero lot line side of the lot and must be set back a minimum of 2 ft. from the property line.	
Maintenance, Drainage and Overhang Easement	6.1	A maintenance, drainage easement of five feet shall be provided on each lot that is adjacent to a lot with a zero setback allowance. This easement shall be for the purpose of maintaining the wall and foundation that is adjacent to one side property line to provide for proper maintenance and drainage. Must be included on subdivision plat.	
Parking	7.1	There shall be at least two off-street parking spaces for each zero lot line home. Garage parking will apply toward this requirement.	
International Residential Code	8.1	Construction of 'zero lot line' homes must also comply with all fire resistant construction requirements as stated in the International Residential Code and any amendments to the code as adopted by the City of New Braunfels	

Examples of ZH Zero Lot Line Residential Product Types



40' Zero Lot Line Front-Loaded Lot

Width: 40'
Depth: 100'
Access: Front
Front Setback: 20' min.
Rear Setback: 5' min.
Side Setback²: 10' min. and 0' min.¹



40' Zero Lot Line Alley-Loaded

Width: 40'
Depth: 100'
Access: Rear Alley
Front Setback: 12' min.
Rear Setback: 5' min. (garage or pad)
Side Setback²: 10' min. and 0' min.¹

¹ The dwelling on the zero lot line side may be offset from the lot line by no more than 5ft.

² Projections, Including eaves and gutters shall not overhang the zero lot line side of the lot and must be set back a minimum of 2ft. from the property line.

SC SINGLE-FAMILY CLUSTER DETACHED RESIDENTIAL PRODUCT TYPE

Purpose	1.1	Development of detached single-family residences in a cluster configuration providing common space for all.	
Development Standards	2.1	A minimum of 150 sq.ft. of common open space, with a minimum width of 10 ft., is provided per dwelling	
	2.2	Common open space shall exclude streets, alleys, public ROW, vehicular drives, parking areas, service drives or utility easements. Up to 30% of common open space may include drainage easements and detention ponds only where such facilities are accessible for use by residents or are low impact development measures.	
Height and Area Requirements	3.1	Minimum Lot/Parcel Area	2,000
		Minimum Lot Width (ft.)	10
		Minimum Front Setback (ft.)	10
		Minimum Side Setback (ft.)	5
		Minimum Rear Setback (ft.)	5
		Maximum Building Height (ft.)	35
		Maximum Accessory Building Height (ft.)	15
			Vehicular access to individual cluster lots shall be provided via an internal drive or private street. Minimum corner lot setback (street-side) is 5 ft. from internal drive.

Example of SC Single-Family Detached Cluster Residential Product Types



**40' Shared Drive Cluster Home
- with Access Easement**

Width: 40' - 55' (+5' on corners)

Depth: 100' - 110'

Access: shared autocourt

Front Setback: 12' min. (for lots on ROW)

Rear Setback: 10' min.

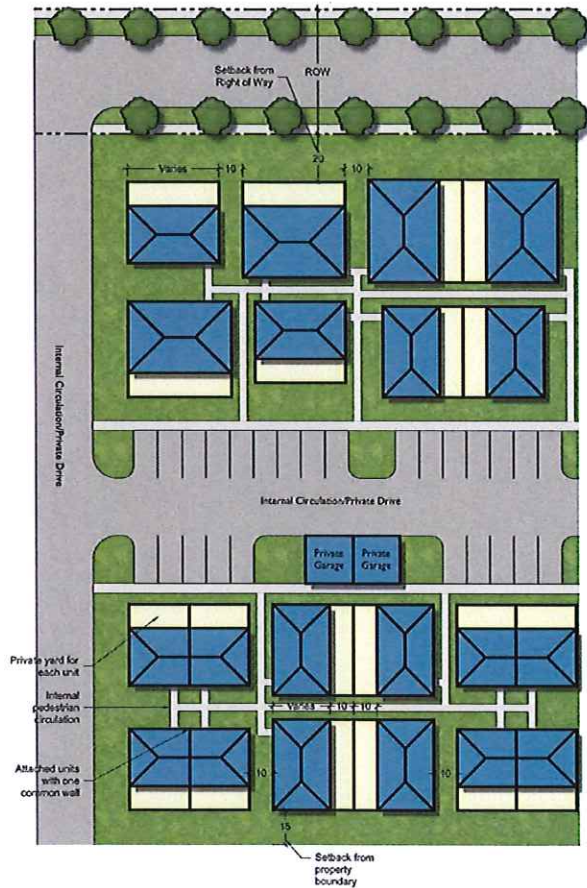
Side Setback: 5' min./10' min. (+5' on corners)

Lots do not require frontage provided dedicated perpetual access easement.

Subject to fire code.

SFR SINGLE-FAMILY CLUSTER RESIDENTIAL PRODUCT TYPE		
Purpose	1.1	Development of attached or detached single-family detached residences in a cluster configuration.
	1.2	This land use type is applicable for rent or for sale (condo)
Authorized Uses	2.1	Uses permitted by right shall be those set forth in the land use matrix in Section C.
Minimum Area	3.1	A minimum of 150 sq. ft. of common open space, with a minimum width of 10 ft., is provided per dwelling.
	3.2	Common open space shall exclude streets, alleys, public ROW, vehicular drives, parking areas, service drives or utility easements. Up to 30% of common open space may include drainage easements and detention ponds only where such facilities are accessible to use by residents or are low impact development measures.
Height and Area Requirements	4.1	See Part D section 8.4

Example of SFR Single-Family Cluster Residential Product Type



Single Family for Rent Cottages

Width: Lot width varies

Depth: Lot depth varies

Access: Internal circulation, common parking lots, private garages

Setback from ROW: 20' min

Setback from Property Boundary

Unit Separation: 10' min.

Parking configuration will be formalized at permit submittal.

MF-1 MULTI-FAMILY LOW DENSITY RESIDENTIAL PRODUCT TYPE

Purpose	1.1	Development of multiple-family, apartment residences at not more than 14 units per acre.										
Height and Area Requirements	2.1	Residential: See Part D section 8.4										
	2.2	Non-residential: Reserved										
Accessory Uses	3.1	Accessory uses such as swimming pools, tennis courts and playgrounds will not be permitted within any required yard.										
Lot Coverage	4.1	The combined area of all yards shall not be less than 50 percent of the total lot or tract; provided however, that in the event enclosed or covered parking is provided, the minimum total yard area requirement shall be 40 percent of the total lot or tract.										
Distance Between Structures	5.1	There shall be a minimum of 10 feet between structures side by side; a minimum of 30 feet between structures side by front or rear; a minimum of 50 feet between structures front to front; and a minimum of 20 feet between structures backing rear to rear; and a minimum of 20 feet between structures front to rear.										
Parking	6.1	For apartments, apartment hotel units and other multifamily dwellings, off-street parking spaces shall be provided in accord with the following schedule:										
<table><tr><th>Bedrooms</th><th>Parking Spaces (Per Unit)</th></tr><tr><td>1</td><td>1.5</td></tr><tr><td>2</td><td>2</td></tr><tr><td>each additional bedroom</td><td>0.5</td></tr><tr><td>Dwelling unit for low-income elderly (55 yrs+ with low/moderate income as per HUD</td><td>0.75</td></tr></table>			Bedrooms	Parking Spaces (Per Unit)	1	1.5	2	2	each additional bedroom	0.5	Dwelling unit for low-income elderly (55 yrs+ with low/moderate income as per HUD	0.75
Bedrooms	Parking Spaces (Per Unit)											
1	1.5											
2	2											
each additional bedroom	0.5											
Dwelling unit for low-income elderly (55 yrs+ with low/moderate income as per HUD	0.75											

MF-2 MULTI-FAMILY HIGH DENSITY RESIDENTIAL PRODUCT TYPE		
Purpose	1.1	Development of multiple-family residences at not more than 24 units per acre.
Authorized Uses	2.1	Uses permitted by right shall be those set forth in the land use matrix in section C.
Height and Area Requirements	3.1	Residential: See Part D section 8.4
	3.2	Non-residential: Reserved

ACCESSORY DWELLING UNITS (ADU)		
Purpose	1.1	Development of Accessory Dwelling Units (ADUs) to serve as on-site secondary living space, including a guest cottage, in-law suite or garage loft.
Authorized Uses	2.1	Uses permitted as set forth in the land use matrix section C.
Height and Area Requirements	3.1	Maximum size: 1,100 sq.ft.
	3.2	Maximum height of ADU shall not exceed the height of the primary structure, unless otherwise restricted in this document.
	3.3	Side setback minimum 5 ft.
	3.4	Rear setback minimum 5 ft.
	3.5	The ADU shall not occupy more than 30 percent of the rear yard.
	3.6	ADUs may be furnished as separate living quarters, including all utilities and full kitchens.

MXD MIXED USE LAND USE		
Purpose	1.1	The MXD mixed use land use is intended to provide for a mixture of retail, office, and residential uses in close proximity to enable people to live, work and shop in a single location. Bed-and-breakfast establishments could also be located in this land use. Pedestrian walkways and open areas are desired in order to promote a pedestrian-friendly environment.
Authorized Uses	2.1	RESERVED

N-COMM NEIGHBORHOOD COMMERCIAL LAND USE

Purpose

1.1

To provide office, business and professional services, and light retail and commercial uses to serve adjacent neighborhoods. The uses found in the neighborhood business land use are generally clustered at major intersections of collector streets near the perimeters of residential neighborhoods. No major shopping or office centers are included in this land use. No use that is noxious or offensive by reason of vibration, noise, odor, dust, smoke or gas shall be included in this land use.

Authorized Uses

2.1

Uses permitted by right shall be those set forth in the land use matrix in section C.

Height and Area Requirements

3.1

Building Heights and Setbacks

Sq. Ft. Max	50,000
Lot Width (min. ft.)	60
Lot Depth (min. ft.)	100
Front Setback (min.ft.)	25
Side Setback (min. ft.)	5
Side Setback to Res. (min. ft.)	6'
Rear Setback (min. ft.)	20
Rear Setback to Residential (min. ft.)	20'
Building Height (max. ft.)	35
Corner Lot Setback (max ft.)	15

1

Setback adjoining one to two-family use is 20 ft. plus 1 ft. for each foot of building height over 20'.

F-COMM FLEX COMMERCIAL LAND USE

Purpose 1.1 To provide areas for a broad range of office and retail uses. This land use should generally consist of retail nodes located along or at the intersection of major collectors or thoroughfares to accommodate high traffic volumes generated by general retail uses.

Authorized Uses 2.1 Uses permitted by right shall be those set forth in the land use matrix in section C.

Height and Area Requirements 3.1 Building Heights and Setbacks

Lot Width (min. ft.)	60
Lot Depth (min. ft.)	100
Front Setback (min.ft.)	25
Side Setback (min. ft.)	5
Side Setback to Residential (min. ft.)	6'
Rear Setback (min. ft.)	20
Rear Setback to Residential (min. ft.)	20'
Building Height (max. ft.)	60
Corner Lot Setback (max ft.)	15

1 Setback adjoining one to two-family use is 20 ft. plus 1 ft. for each foot of building height over 20'.

L-IND LIGHT INDUSTRIAL LAND USE

Purpose 1.1 For the conduct of light manufacturing, assembling and fabrication activities, distribution, and for warehousing, research and development, wholesaling and service operations that do not typically depend upon frequent customer or client visits. Such uses generally require accessibility to major thoroughfares, major highways, railways or other means of transportation.

Authorized Uses 2.1 Uses permitted by right shall be those set forth in the land use matrix in section C.
2.2 Authorized uses include any comparable business or use not included in or excluded from any other land use described in Part C provided that such use is not noxious or offensive by reason of vibration, noise, odor, dust, smoke or gas.

Setbacks and Lot Configuration 3.1 Building Heights and Setbacks

Lot Width (min. ft.)	60
Lot Depth (min. ft.)	100
Front Setback (min.ft.)	25
Side Setback (min. ft.)	5
Side Setback to Residential (min ft.)	20'
Rear Setback (min. ft.)	20
Rear Setback to Residential (min. ft.)	20'
Building Height (max. ft.)	120
Corner Lot Setback (max ft.)	15

1 Setback adjoining one to two-family use is 20 ft. plus 1 ft. for each foot of building height over 20'.

L-IND BUILDING STANDARDS FOR PRIMARY FACADES FACING PUBLIC STREETS		
Building Articulation	4.1	Buildings with facades 100 feet or greater in length shall incorporate offsets, recesses, projections, notches, horizontal or vertical wall articulation, or other design feature providing similar relief every 100 feet along the length of the façade.
Building Design Elements	4.2	Buildings shall incorporate four or more of the following at building corners and main entryways: <ul style="list-style-type: none"> • Lighting features (as per lighting standards) • Awnings; • Canopies; • Alcoves; • Windows or other glazing feature; • Recessed entries; • Ornamental cornices; • Pillar posts; and/or • Other building elements that contribute to the human scale of a building.
Exterior Building Materials	4.3	Buildings shall incorporate one or more of the following building materials at building corners and main entryways: At least 80 percent of the vertical walls of all applicable buildings (excluding doors and windows) shall be finished in two or more of the following primary materials; <ul style="list-style-type: none"> • Brick, stone, cast stone, rock, marble, granite; • Glass block, tile; • Stucco or plaster; • Glass; • Split-face concrete block, poured-in-place concrete, and tilt-wall • concrete including, but not limited to, concrete panels with acrylic or similar coating; and/or • Fiber cement, such as James Hardie brand products or equivalent.
Garage and Overhead Doors	4.4	Garage and overhead doors facing a public roadway, public park or residential neighborhood shall be screened with landscaping, as per section 11.3.2
Roof Treatments	4.5	Parapets on facades facing public streets shall be used to screen roof top equipment on flat roofs to help limit visibility from such public streets. Where overhanging eaves are used, overhangs are encouraged to be no less than two feet beyond the supporting walls.

9.6 Housing Product Diversity

To promote a variety of housing product in scope, form and affordability, Mayfair will regularly evaluate product diversity.

Mayfair's Housing Diversity Program is designed to:

- Support affordable housing in both rental and whole ownership
- Allow for easy evaluation
- Confirm execution of built product
- Encourage new and diverse residential products, supporting the need for Missing Middle housing

Housing Diversity Milestones:

- 1st Quartile: at least 5 housing types from at least 2 categories
- 2nd Quartile: at least 7 housing types from at least 3 categories
- 3rd Quartile: at least 8 housing types from at least 3 categories
- 4th Quartile: at least 8 housing types from at least 4 categories

* Additional housing types can be added at Sector Plan. Terminology between the sections 7.1, 8.4 and 9.6 will be aligned with each sector plan. This terminology alignment will not be considered an amendment to the DDCD, but an allowed clarification anticipated with each sector plan.

CATEGORIES	HOUSING TYPES (EXAMPLES)
SF Detached For Sale	SF Detached 70'+
	SF Detached 55'-69'
	SF Detached 45'-54'
	SF Detached 40'-44'
	SF Detached 40'44' Alley fed
	SF Cluster
	SF Zero Lot Line
SF Detached For Rent	SF Detached 55'-69'
	SF Detached 45'-54'
	SF Detached 40'-44'
	SF Cluster for Rent
Attached For Sale	Attached Units (Townhomes/Rowhomes)
	Attached Unit (Duplex-Quadplex)
	Attached Bungalow Court
Attached For Rent	Attached Unit (Townhomes/Rowhomes)
	Attached Unit (Duplex-Quadplex)
	Attached Unit Bungalow Court
Multi-Family	Dwelling Unit MF building large
	Dwelling Unit MF building small
ADU	Accessory dwelling unit large
	Accessory dwelling unit small

PART F

PARK USE CODE

10 Park Use Code

10.1 Applicability

This Code applies in the assessment of all applications for a park use within the project.

10.2 Purpose

The objectives in developing the project are to:

- I. Ensure the Open Space/Environment/Parks and Amenities Guiding Principles and Objectives are met.
- II. Provision is made for sufficient parks to:
 - meet the needs of the project and to ensure that the environmental and scenic values of the area are protected;
 - meets or exceeds the City's minimum parkland dedication standard;
 - identify acreage standards required by park type;
 - provide a diversity of settings and recreational opportunities;
 - support riparian corridors and significant vegetation and habitat areas where present on the site;
 - provide connectivity, both internal and external to the project;
 - support multi-modal movement through the community using trails to connect neighborhoods and amenities to parks;
 - support the goal for shared parking for trails and public park use;
 - mitigate drainage impacts through varied park and open space throughout the community;
 - align with park types and standards in City of New Braunfels Parks and Recreation Strategic Master Plan;
 - identify appropriate and applicable park amenities as prioritized in the City of New Braunfels Parks & Recreation Strategic Master Plan.

10.3 Development Standards

The applicable application shall comply with the minimum development standards of this Code unless superseded by approved alternative development standards.

Where there is a conflict between this Code and other codes, such a conflict is to be resolved in accordance with Figure 2-2.

Table 10-1 All Parks – General

MINIMUM DEVELOPMENT STANDARD		
General	1.1	A Park Master Plan prepared by a certified landscape architect shall be submitted as part of a Sector Plan application for community parks and greenbelts/conservation parks/trails, and as a Plat Application for all other parks.
	1.2	Where a park is proposed to be dedicated as public park land and district-managed it shall comply with the Development Agreement, Code of Ordinances §118-57 or specified in this section.
	1.3	Parks will align in classification and design principles with the City of New Braunfels Parks & Recreation Strategic Master Plan.
	1.4	Park programming will reference the City of New Braunfels Parks & Recreation Strategic Master Plan and feedback from Parks and Recreation staff to deliver high priority amenities where possible.
Total Park Land and Trail Mileage	2.1	A minimum of 300 acres of park land will be District-managed and open to the public, this is to be achieved through a combination of neighborhood and Community Parks and Greenbelts/Conservation Parks/Trails.
	2.2	A community trail network traversing over 30 miles and will be comprised of 10' shared use paths, 6' protected bicycle lanes and on-street trails (sidewalks).
	2.3	A park trail network will include 13 miles of recreational trails to be comprised of nature and interior walking loops.
	2.4	All residential units will be located within 1/4 mile of Mayfair park land as described herein.
Design Standards	3.1	<p>All Parks will aim to achieve the following goals where reasonable;</p> <ul style="list-style-type: none"> • High visibility from sidewalks, streets & buildings • Provide opportunities for shade and sun, • Incorporate water elements • Incorporate wind protection • Provide opportunities for art • Integrate with adjacent public rights-of-way • Provide opportunities to connect with civic facilities (public parks) • Provide opportunities to connect to multi-modal facilities (i.e., bike, HBT, or transit) • Support universal accessibility • Incorporate sustainable design (native plants, rainwater irrigation, etc.)

10-1 Park Dedication/Development Schedule

		1ST HALF QUARTILE 1	2ND HALF QUARTILE 1	QUARTILE 2	QUARTILE 3	QUARTILE 4	PROJECT TOTAL
Residential Units (at Building Permit)		750	750	1,500	1,500	1,500	6,000 units
PARK TYPE		Minimum Development Schedule					
Private Parks	Pocket Parks	1 park	1 park	1 park	2 parks	2 parks	7 Pocket Parks
	Recreation Centers		1 Rec Center			1 Rec Center	2 Rec Centers
Public Parks	Greenbelts/Conservation Parks/Trails	16 acres	15 acres	28 acres	TBD (combined w/Community Parks = 75 acres)	TBD (combined w/Community Parks = 95 acres)	133 acres
	Community Parks	31 acres	0	40 acres			120 acres
	Natural Area/Easement	TBD (pending utility easement agreements and development progression)					77 acres
Minimum Total Dedicated Public Parks Acreage		47 acres	15 acres	68 acres	75 acres	95 acres	331 acres
Total Parks Investment		\$1,528,500	\$1,528,500	\$3,057,000	\$3,057,000	\$3,057,000	\$12,228,000.00

Note: Owner may satisfy any or all of its obligations in the Park Schedule in advance of the schedule.

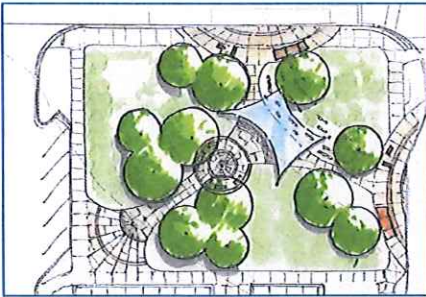
10.3.2 Community Parks

MINIMUM DEVELOPMENT STANDARD		
General	1.1	<p>A total of three Community Parks will be created within the community in accordance with the Parkland Dedication/Development Schedule in 10-1.</p> <p>Note: The Master Developer reserves the right to determine the location of such park and no development approval shall be withheld or delayed in relation to such park unless the final Sector Plan for the area is filed and the standard has not yet been satisfied in that Sector Plan or a prior Sector Plan.</p>
Programming Schedule	2.1	Community Parks will align with the Park Classification and Park Design Principles as stated in the City of New Braunfels Parks and Recreation Strategic Master Plan.

10.3.3 Pocket Parks

MINIMUM DEVELOPMENT STANDARD		
General	1.1	A minimum of seven (7) Pocket Parks will be created in the project in accordance with Parkland Dedication/Development Schedule in Table 10-1.
	1.2	A Pocket Park will be no less than 0.25 acre in size.
	1.3	Pocket Parks will operate as private parks for the sole use of residential property owners and tenants as designated in the CC&Rs.
	1.4	Pocket Parks will be located within residential neighborhoods, and will not be adjacent to major roadways.
	1.5	Pocket Parks will have a minimum of 50 ft. of frontage to at least one minor roadway.
	1.6	In a Pocket Park, sidewalk or shared use path adjacent to a street will suffice as sidewalk requirement.
Programming Schedule	2.1	Pocket Parks will align with the Park Classification and Park Design Principles as stated in the City of New Braunfels Parks and Recreation Strategic Master Plan.
	2.2	Pocket Parks may include lawn areas, picnic shelters and tables, play equipment, or other amenities that are appropriate for the demographics and neighborhood activities.

Pocket Park Examples



10.3.4 Greenbelts/Conservation Parks/Trails

MINIMUM DEVELOPMENT STANDARD

General	1.1	Greenbelts/Conservation Parks/Trails shall be located along large utility corridors and channels. They are designed to connect people to places within Mayfair and may include paved or natural trails.
	1.2	Mayfair's Greenbelts/Conservation Parks/Trails are planned to comprise 54 acres and span over 13 miles.
Programming Schedule	2.1	Greenbelts/Conservation Parks/Trails will align with the Park Classification and Park Design Principles as stated in the City of New Braunfels Parks and Recreation Strategic Master Plan.
	2.2	Programming may include natural or paved trails, including mountain bike trails.
	2.3	Major and minor trailheads will be located within 1/4 mile of the locations on the Open Space/Environment/Parks and Amenities framework.
	2.4	Major trailheads shall include shade (either via plantings or a formal structure), seating, restrooms, trash and recycling receptacle including pet waste receptacle, directional signage with park/trail rules, and a drinking fountain, including a pet drinking fountain
	2.5	Parking shall be provided within 600 ft. of a major trailhead as per Table 12-2.
	2.6	Where on-street parking is permitted in accordance with Table 12-1, on-street parking shall satisfy the requirements of this development standard.
	2.7	Minor trailheads shall include shade (either via plantings or a formal structure) trash and recycling receptacle and directional signage with park/trail rules.
	2.8	Trail Accessways (maintained natural paths within easements) will be located on every cul de sac with lots backing to parks or community trails.



Example: Mountain Bike Trail



Example: Nature Trail



Example: Utility Corridor Trail



Example: Riparian Trail



Example: Parkway Utility Trail



Example: Shared Use Path

10.3.5 Recreation Centers

MINIMUM DEVELOPMENT STANDARD		
General	1.1	A minimum of two (2) Recreation Centers will be created in Mayfair for the sole use of Mayfair residents as per community CC&Rs. Each Recreation Center will be located on a minimum of 5 acres.
Programming Schedule	2.1	Recreation Centers that are intended to function as private parks shall comply with the development standards required for public parks.
	2.2	Recreation Centers, such as clubhouses, gyms, standalone swimming pools and tennis courts etc., which are not intended to function as a private park, shall not be required to comply with this Code.

Recreation Center Examples



10.3.6 Trailhead

MINIMUM DEVELOPMENT STANDARD		
Location	1.1	Major and minor trailheads will be located within ¼ mile of the locations as presented on the Open Space/Environment/Parks and Amenities Framework.
Programming Schedule	2.1	Major trailheads shall include shade (either via plantings or a formal structure), seating, restrooms, trash and recycling receptacle including pet waste receptacle, directional signage with park/trail rules, and a drinking fountain, including a pet drinking fountain
	2.2	Parking shall be provided within 600 ft. of a major trailhead as per Table 12-2. Where on-street parking is permitted in accordance with Table 12-1, on-street parking shall satisfy the requirements of this development standard.
	2.3	Minor trailheads shall include shade (either via plantings or a formal structure) trash and recycling receptacle and directional signage with park/trail rules.

PART G

GENERAL CODES

11 Landscape & Lighting

11.1 Applicability

This Code applies in the assessment of all applications within the project.

11.2 Purpose

The purpose of this Code is to:

- I. Ensure the Guiding Principles are met.
- II. Create aesthetically pleasing, safe and functional environments for people to live, work, visit and invest.
- III. Contribute to the legibility and character of the project.
- IV. Integrate stormwater and water quality BMP facilities into landscape design.
- V. Provide attractive streetscapes that reinforce the functions of a street and enhance the amenity of buildings.
- VI. Ensure that landscaping is a functional part of development design.
- VII. Support community cohesive presentation through landscape & lighting.
- VIII. Provide landscaping as a visually appealing buffer in high density areas.
- IX. Deliver a landscaping plan that supports the community's overarching goal of utilizing Low Impact Development methods where ever possible.

11.3 Development Standards

The applicable application shall comply with the minimum development standards of this Code unless superseded by approved alternative development standards.

Where there is a conflict between this Code and other codes, such a conflict is to be resolved in accordance with Figure 2-2.

11.3.1 Landscaping – General

MINIMUM DEVELOPMENT STANDARD		
General	1.1	A Landscape Plan shall be submitted as part of a Building Permit/Site Plan application.
	1.2	Grass seed, sod and other material shall be clean and reasonably free of weeds and noxious pests and insects.
	1.3	Grass areas shall be sodded, plugged, sprigged, hydro-mulched or seeded, except that solid sod or other erosion control devices identified in the TCEQ Erosion Control Manual, shall be used in swales, earthen berms or other areas subject to erosion.
	1.4	Ground covers shall be planted in such a manner as to present a finished appearance.
	1.5	Earthen berms shall have side slopes not to exceed 33 percent (3 ft. of horizontal distance for each one foot of vertical height).
	1.6	All new trees shall be provided with a permeable surface of 100 sq. ft. under the average growth drip line of the species.
	1.7	Plantings shall consist of permeable surface areas only. The permeable surface area of shrubs may be included within the permeable surface area required for trees.
	1.8	Each tree and shrub shall be planted at least 30 in. from the edge of any impervious surface.
	1.9	Whenever possible and economically feasible, all trees should be preserved and protected during construction with vegetative fencing
Plant Materials	2.1	Standards for planting shall conform to the latest standards of ANSI A300 Best Management Practices for Tree Planting, ANSI A300 Transplanting Standard and ANSI Z60.1 American Standards for Nursery Stock and Bid Specifications.
	2.2	Whenever possible, encourage drought tolerant landscaping.
	2.3	Refer to Appendix A of the New Braunfels Zoning Code for approved plant materials.
Plantings in Easements	3.1	No small trees shall be planted within 10 lateral ft. of any overhead utility wire or within 8 lateral ft. of any utility pole.
	3.2	No medium tree shall be planted within 20 lateral ft. of any overhead utility wire or utility pole.

MINIMUM DEVELOPMENT STANDARD		
	3.3	No large tree shall be planted within 30 lateral ft. of any overhead utility wire or utility pole.
	3.4	Shrubs may be planted within utility easements provided no shrub is planted over or within 5 lateral ft. of any underground water line, sewer line, electric line or other utility.
	3.5	Shrubs shall not be planted within 5 ft. of the flow line of a swale. Trees and other plantings may be planted within utility easements, including stormwater BMP facilities, provided that they are of a species adaptable to the nature of the easement, and in the case public utility easements, provided that NBU approves the location of the proposed tree plantings .
Street Trees	4.1	Refer to 8.7 for street tree code by street type.
	4.2	A Street Tree Planting Plan is required at final plat, to be prepared and sealed by a landscape architect. The plan will include the location and type of trees, as chosen from Appendix A of the New Braunfels Zoning Code.
	4.3	Compliance to street tree plan must be demonstrated at building permit.
Sight Distance and Visibility	5.1	To ensure that landscape materials do not constitute a driving and pedestrian hazard, a sight distance triangle shall be observed at all street intersections, all street and accessway intersections, street and alley intersections, and intersections of driveways with streets. Within the sight distance triangle, no landscape material, wall, or other obstruction shall be permitted between the heights of 2.5 – 7 ft. above the street, alley or driveway elevation. The sight distance triangle shall comply with AASHTO A Policy on Geometric Design of Highways and Streets Section 9.5 Intersection Sight Distance.
Subdivision & Neighborhood Identification Signs	6.1	Landscaping of subdivision and neighborhood identification signs shall comply with Section Signage – Permanent on-Premise Signs 13.3.3.

11.3.2 Landscaping – Applicable to Non-Residential and Multi-Family Dwelling Uses Only

MINIMUM DEVELOPMENT STANDARD		
Front Setback Landscape Area	1.1	<p>Within the front setback yard, the following shall be provided:</p> <ul style="list-style-type: none"> A minimum of one 2 inch diameter tree for every linear 40 ft., or part thereof, of street frontage (excluding alleys) of which at least 50 percent of the trees shall be shade trees. Trees shall not be planted within the front 10' of a utility easement space as measured from the front property line at the street ROW. Trees shall not be planted within 5' of electric service laterals; and A minimum of one shrub for every linear 10 ft., of part thereof, of street frontage (excluding alleys). Landscaping shall be located to emphasize building entrances and pedestrian access points. <p>Where a buffer is also required in accordance with Development Standards 1.1 above, this Development Standard shall be satisfied through compliance with Development Standard 1.1.</p> <p>Note: This Development Standard is not applicable to any building that is built to the front lot line.</p>
	1.2	Trees shall be planted a minimum of 40 ft. apart and a maximum of 120 ft. apart to accomplish effective buffering at maturity.
	1.3	Trees and shrubs do not need to be evenly spaced, however shall be planted to provide the highest level of health for the tree.
Parking Perimeter Landscape Buffer Area	2.1	<p>All parking areas fronting streets or accessway, shall provide:</p> <ul style="list-style-type: none"> a minimum 5 ft. wide landscaped area along the street or accessway frontage; screening at least 3 ft. in height and not less than 50 percent opaque, to be reached within three growing seasons; and one 2" caliper shade tree planted every 40 linear feet of parking area frontage. a minimum of one 1-gallon shrubs planted every 5 feet. <p>If parking is adjacent to roadway, Parking Perimeter Landscape Buffer Standards will apply in lieu of 11.3.2.1.1 Front Setback Landscape Area Standards.</p>
	2.2	Trees do not need to be evenly spaced, however shall be planted a minimum of 20 ft. and a maximum of 120 ft. apart.
	2.3	All landscaped areas shall be bordered by a concrete curb a minimum of 5 in. high or wheel stops where adjacent to the parking surface.
	2.4	Plant spacing must accomplish effective buffering at maturity.
Internal Parking Area Shading	3.1	Refer to §144-5-3 (7) (a) 3.

MINIMUM DEVELOPMENT STANDARD		
Residential Buffer	4.1	Where a non-residential lot abuts a lot within the Neighborhood (Mixed Density) Residential Planning Area, the following shall be provided: <ul style="list-style-type: none"> • a minimum 6 ft. masonry wall along the common lot line; • a minimum 5 ft. wide landscaped area along the common lot line; • a minimum one 4 in. diameter tree for every linear 25 ft., or part thereof, of common lot line frontage. • a minimum of one 24 in. high shrub for every linear 5 ft. of common lot line. Plantings may be clustered within the landscape area.
	4.2	Trees shall be planted a minimum of 40 ft. and a maximum of 120 ft. apart.
Drive-thru Restaurants	5.1	Drive-thru restaurant screening shall be provided in accordance with §144-5.2 of the Code of Ordinances.
Screening	6.1	All service entrances, loading areas, refuse and outdoor storage areas, antennas, satellite dishes and mechanical equipment visible from adjoining residential uses or street shall adhere to all setback standards, unless otherwise set forth, and be screened. Screening shall be provided by either a solid masonry fence, solid vegetation or a combination of both, with a minimum height of 6 ft., or of a height sufficient to obscure the area or equipment requiring screening, whichever is less. The height of plants shall be based on reaching their size at maturity within five growing seasons.
Turf	7.1	No more than 30 percent of the planting beds, not including detention ponds, shall be turf grasses. Buffalo and prairie grasses are exempt from this restriction. Xeriscaping is preferred and shall not be prohibited.

11.3.3 Landscaping – Applicable to Single-Family Dwelling Uses Only

MINIMUM DEVELOPMENT STANDARD		
Front Setback Landscape Area	1.1	<p>Refer to 8.7 for street tree code by street type.</p> <ul style="list-style-type: none"> On local streets, street trees will be sited on private property, no more than 3 feet from the sidewalk. 2" caliper trees will be planted every 40 linear feet or every lot if smaller than 40 LF. On collectors, arterials and parkway, 3" caliper street trees will be sited every 50 linear feet.
	1.2	<p>Within the front setback, the following shall be provided;</p> <ul style="list-style-type: none"> a minimum one 2" caliper tree of which at least 50 percent of the trees shall be shade trees. A tree may accommodate street tree requirement if Street Tree Development Standards 11.3.1 are met. a minimum of one shrub every 10 linear feet of street frontage (excluding alleys) <p>Where an existing high value tree is being retained within the front setback yard, the retention of each tree shall be considered as providing a 2" caliper tree as per the requirements.</p>
	1.3	<p>Trees and shrubs do not need to be evenly spaced, however shall be planted to provide the highest level of health for the tree and limit maintenance impacts on sidewalks and public spaces.</p>
Turf	2.1	<p>No more than 30 percent of the planting beds, not including detention ponds, shall be turf grasses. Buffalo and prairie grasses are exempt from this restriction.</p> <p>Xeriscaping is preferred and shall not be prohibited.</p>

11.3.4 Fences

MINIMUM DEVELOPMENT STANDARD		
Maximum Height of a Fence or Wall	1.1	Side yard or rear yard not abutting a park, accessway or other street: 8 ft.
	1.2	Ornamental features may be placed on top of the screening fence or wall so long as the features obstruct less than 50 percent of the opening on top of the fence or wall.
Fences within Public Easements	2.1	Fences within a public easement shall have a gate or removable panel to allow for maintenance access to such easement.
	2.2	The entity responsible for the public easement shall approve the fence.
Fences within Drainage Easements	3.1	No fence shall transverse a drainage easement.
Compliance	4.1	Fences shall comply with intersection sight distance requirements

11.3.5 Outdoor Lighting

In keeping with the Guiding Principles of Mayfair, lighting use will be guided by City Code §82-15 - §82-19 and §144-5.3-3 unless otherwise clarified herein.

Mayfair covenants will support a Dark Sky friendly community everywhere possible, while prioritizing safety for residents and guests.

12 Parking, Access and Servicing

12.1 Applicability

This Code applies in the assessment of all applications within the project.

12.2 Purpose

The purpose of this Code is to:

- I. Ensure the Guiding Principles are met.
- II. Ensure vehicle access and parking is convenient for residents, visitors and service providers.
- III. Ensure on-street parking, surface parking lots and parking structures are screened from streets and other public areas by buildings and/or landscaping.
- IV. Utilize shared parking between uses that require peak parking at different periods of time to reduce overall parking requirements; and
- V. Support multi-modal transportation goals and IC efficiencies through parking maximums where applicable.

12.3 Development Standards

The applicable application shall comply with the minimum development standards of this Code unless superseded by approved alternative development standards.

Where there is a conflict between this Code and other codes, such a conflict is to be resolved in accordance with Figure 2-2.

12.3.1 General

MINIMUM DEVELOPMENT STANDARD		
Parking Areas	1.1	Off-street parking shall be on the same lot as the uses it is intended to serve, or where part of a cohesive or multi-building development utilizes common parking intended to serve the broader development. Shared parking may be utilized. Cross-access easements shall be provided where shared parking will occur. On-street visitor parking on minor roadways shall be permitted where dedicated parking spaces are identified as part of an approved Plat.
	2.1	Garage doors associated with non-residential uses, including service entrances and loading areas, shall not face adjacent residential uses within 100 ft. from property line.
Orientation of Garage Doors	2.2	When used, garage doors associated with non-residential uses shall be screened from adjacent properties and street view with landscaping per 11.3.2.
Valet Parking	3.1	Valet parking shall comply with §144-5.1 of the Code of Ordinances.
Minimum Dimensions	4.1	Minimum dimensions and specifications for off-street parking areas and parking spaces shall comply with §144-5.1 of the Code of Ordinances.
Construction & Maintenance	5.1	Construction and maintenance of off-street parking areas shall comply with §144-5.1 of the Code of Ordinances.

12.3.2 General – Applicable to Mixed Use

MINIMUM DEVELOPMENT STANDARD		
Siting of Parking Areas	1.1	Parking shall be located on the side or rear of buildings, to allow buildings to define the edge of streets.
	1.2	Off-street parking shall not abut more than 50 percent of the principal street frontage.
Service Entrances and Loading Areas	2.1	Loading areas shall be located on the same lot as the land uses it is intended to serve.
	2.2	Service entrances and loading areas shall be located to the rear of buildings.
	2.3	Loading areas shall be separated from parking areas and pedestrian accessways.
Driveway Access	3.1	Driveway access shall be provided in accordance with §114-98 of the Code of Ordinances and Table 13-1.
	3.2	Major driveway approaches with peak hour trips greater than 100 PHT shall be shared between different property owners or tenants when necessary to maintain minimum spacing required by Table 13-1.
Internal Circulation	4.1	Surface parking areas shall be separated into cells of 1000 ft. or less.
	4.2	Direct access to service entrances and loading areas shall be provided, while minimizing movement through parking areas.
	4.3	Parking cells shall be separated by a dedicated accessway.
	4.4	Accessways required by Development Standard 4.3 above, shall have a minimum width of 6 ft. and provide a continuous tree canopy at maturity or architectural cover providing shade and weather protection for pedestrian and cyclists.
	4.5	Easements are created over vehicular, bicycle and pedestrian accessways to provide connectivity in parking and pedestrian areas to abutting lots on the same block.

12.3.3 General – Applicable to Neighborhood Commercial

MINIMUM DEVELOPMENT STANDARD		
Siting of Parking Areas	1.1	Parking is encouraged to be located on the side or rear of buildings, to allow buildings to define the edge of streets. A maximum of two head-in parking rows may be permitted fronting the principal street frontage.
Service Entrances and Loading Areas	2.1	Loading areas shall be located on the same lot as the land uses it is intended to serve. Common or shared service entrances and loading areas are permitted. The loading, unloading and stockpiling of goods outside of dedicated loading areas is prohibited.
	2.2	Service entrances and loading areas shall be located to the rear of buildings.
	2.3	Loading areas shall be separated from parking areas and pedestrian accessways.
Driveway Access	3.1	Driveway access shall be provided in accordance with §114-98 of the Code of Ordinances and Table 13-1.
	3.2	Major driveway approaches with peak hour trips greater than 100 PHT shall be shared between different property owners or tenants when necessary to maintain minimum spacing required by Table 13-1
Internal Circulation	4.1	Surface parking areas shall be separated into cells of 400 ft. or less.
	4.2	Direct access to service entrances and loading areas shall be provided, while minimizing movement through parking areas.
	4.3	Parking cells shall be separated by a dedicated accessway.
	4.4	Accessways required by Development Standard 4.3 above, shall have a minimum width of 6 ft. and have 2" caliper trees planted every 50 LF.
	4.5	Easements are created over vehicular, bicycle and pedestrian accessways to provide connectivity in parking and pedestrian areas to abutting lots on the same block.

12.3.4 General – Applicable to Flex Commercial

MINIMUM DEVELOPMENT STANDARD		
Siting of Parking Areas	1.1	Parking is encouraged to be located on the side or rear of buildings, to allow buildings to define the edge of streets. A maximum of two head-in parking rows may be permitted fronting the principal street frontage.
Service Entrances and Loading Areas	2.1	Loading areas shall be located on the same lot as the land uses it is intended to serve. Common or shared service entrances and loading areas are permitted. The loading, unloading and stockpiling of goods outside of dedicated loading areas is prohibited.
	2.2	Service entrances and loading areas shall be located to the rear of buildings.
	2.3	Loading areas shall be separated from parking areas and pedestrian accessways.
Driveway Access	3.1	Driveway access shall be provided in accordance with §114-98 of the Code of Ordinances and Table 13-1.
	3.2	Major driveway approaches with peak hour trips greater than 100 PHT shall be shared between different property owners or tenants when necessary to maintain minimum spacing required by Table 13-1
Internal Circulation	4.1	Surface parking areas shall be separated into cells of 400 ft. or less.
	4.2	Direct access to service entrances and loading areas shall be provided, while minimizing movement through parking areas.
	4.3	Parking cells shall be separated by a dedicated accessway.
	4.4	Accessways required by Development Standard 4.3 above, shall have a minimum width of 6 ft. and have 2" caliper trees planted every 50 LF.
	4.5	Easements are created over vehicular, bicycle and pedestrian accessways to provide connectivity in parking and pedestrian areas to abutting lots on the same block.

12.3.5 General – Applicable to Single-Family Dwelling

MINIMUM DEVELOPMENT STANDARD

Driveway Access	1.1	Maximum one driveway per dwelling.
	1.2	Shared driveways may be provided.
	1.3	Driveways shall be a minimum of 12 ft. wide and shall not exceed a width of 24 ft.

Note:
An application shall not be denied or rejected based on the Applicants decision not to provide shared driveways.

12.3.6 General – Applicable to Multi-Family Dwelling

MINIMUM DEVELOPMENT STANDARD

Siting of Parking Areas	1.1	Parking shall be either: <ul style="list-style-type: none"> • integrated within the building; • sleeved by the building façade; or • located to the rear of a building.
	2.1	Service entrances and loading areas shall be either: <ul style="list-style-type: none"> • integrated within the building; • sleeved by the building façade; or • located to the rear of a building.

12.3.7 Parking Ratio

MINIMUM DEVELOPMENT STANDARD		
Minimum Parking Ratio	1.1	<p>For any building or use identified in Table 12-1, no less than the number of parking spaces set forth in Table 12-1 shall be provided.</p> <p>Where a land use is not identified in Table 12-1, the Planning Director shall determine the applicable parking ratio.</p> <p>Note:</p> <p>Where more than one land use exists on the same site, or in the same building, the portion of such site or building devoted to each land use shall be used in computing the number of off-street parking spaces required for each a land use. For such site or building, the total requirements for off-street parking spaces shall be the sum of the requirements of the various land uses computed separately.</p> <p>The off-street parking space for one use shall not be considered as providing the required off-street parking space for another use, unless herein set forth.</p> <p>When the requirement for each individual land use is computed, fractions shall be counted at their actual value. When units of measurements determining the total number of required off-street parking spaces result in a requirement of a fractional space, any fraction less than one-half shall be disregarded. Any fraction of one-half or greater shall require one off-street parking space.</p> <p>Where the parking ratio variable identified in Table 12-1 is the number of employees, the parking requirements shall be based on the largest shift rather than the total number of employees.</p> <p>Where the parking ratio variable identified in Table 12-1 is square footage, the square footage shall not include any of the exclusions listed in the definition of GFA in this DDCD.</p>
Maximum Parking Ratio	2.1	<p>The maximum number of off-street parking spaces for any building or use shall not exceed 125 percent of the minimum number of parking spaces as identified in Table 12-1, not including accessible spaces.</p> <p>Multi-story parking structures, light industrial uses and pervious pavement shall not be subject to maximum parking requirements.</p>
Shared Parking	3.1	<p>Cohesive developments which contain a mix of uses may reduce the amount of required parking in accordance with the following methodology:</p> <ul style="list-style-type: none"> • Determine the minimum parking requirements in accordance with Table 12-1 for each land use as if it were a separate use. • Multiply each amount by the corresponding percentages for each of the 5 time periods set forth in columns A – E of Table 12-3. • Calculate the total for each time period. • Select the total with the highest value as the required minimum number of parking spaces.

Table 12-1 Minimum Parking Ratio

LAND USE	MINIMUM PARKING RATIO
RESIDENTIAL	
Accessory Structure	None
Assisted Living Facility or Elderly Housing	1 space per four employees 1 space per four patient beds 1 space per staff doctor
Dwelling, accessory	1 per accessory dwelling provided addition to the principal dwelling
Dwelling, industrialized	2
Dwelling, multi-family	1.5 space per one-bedroom unit 2 space per two-bedroom unit 0.5 space per each additional bedroom 0.75 space per dwelling unit provided exclusively for low income elderly occupancy
Dwelling, short term rental	2
Dwelling, single-family attached (duplex)	2
Dwelling, single-family attached (row home)	2
Dwelling, single-family detached	2
Dwelling, single-family detached (cluster)	2
Dwelling, single-family detached (zero-lot line)	2
Family Home (Child Care or Adult Care)	1 space per two employees or staff members, 1 space per five children/adults for which the facility is licensed by the state
Group Home	1 space per four employees 1 space per four patient beds 1 space per staff doctor
Home Occupation	1 space per nonresident employee (if there is one) provided addition to the principal dwelling

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Accommodation	
Bed and Breakfast	1 space per guest room
Boarding House	1 space per two person the establishment is designed to house 1 space per three employees
Dormitory	1 space per two persons the establishment is designed to house 1 space per three employees
Hospice Residential Care Facility	1 space per four employees 1 space per four patient beds 1 space per staff doctor
Hotel/Resort	1.1 space per bedroom
Retail	
Agricultural Equipment and Supply Retail Establishment	1 space per 400 sq. ft. GFA
Animal Grooming Service	1 space per 400 sq. ft. GFA
Auction House	1 space per 400 sq. ft. GFA
Automobile Dealership	1 space per 400 sq. ft. GFA
Automobile Detailing Shop	1 space per 400 sq. ft. GFA
Automobile Parts Store	1 space per 400 sq. ft. GFA
Automobile Repair Services Establishment	3 spaces per service bay
Bar/Nightclub/Tavern	1 space per four seats for patron use, or 1 space per 100 sq. ft. GFA, whichever is greater
Barber Shop/Beauty Salon	1 space per 200 sq. ft. GFA
Café/Coffee House	1 space per 100 sq. ft. GFA

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Car Wash	3 stacking spaces per approach lane, plus 2 drying spaces per stall
Catering Service	1 space per 300 sq. ft. GFA
Convenience Store	1 space per 200 sq. ft. GFA
Department Store	1 space per 200 sq. ft. GFA
Drug Store/Pharmacy	1 space per 300 sq. ft. GFA
Dry Cleaning Establishment	1 space per 300 sq. ft. GFA
Farmer's Market	1 space per 400 sq. ft. GFA
Laundromat	1 space per 300 sq. ft. GFA
Liquor Store	1 space per 300 sq. ft. GFA
Mobile Food Trailer	2 spaces per Trailer
Restaurant	1 space per four seats for patron use, or 1 space per 100 sq. ft. GFA, whichever is greater
Restaurant, drive in	1 space per 4 seats for patron use, or 1 space per 100 sq. ft. GFA, whichever is greater
Retail Establishment	1 space per 400 sq. ft. GFA
Retail Establishment, bulk goods	1 space per 400 sq. ft. GFA
Shopping Center	1 space per 200 sq. ft. GFA
Supermarket, with gasoline sales	1 space per 200 sq. ft. GFA
Supermarket, without gasoline sales	1 space per 200 sq. ft. GFA
Tattoo Parlor/Body Piercing Studio	1 space per 300 sq. ft. GFA
Temporary Vendor	None

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Business	
Broadcasting/Production Studio/ Communication Service	1 space per 400 sq. ft. GFA
Check Cashing Service	1 space per 200 sq. ft. GFA
Financial Institution	1 space per 200 sq. ft. GFA
Office	1 space per 300 sq. ft. GFA
Research and Development Facility	1 space per 1,000 sq. ft. GFA
Veterinary Clinic	1 space per 300 sq. ft. GFA
Civic, Health & Education	
Cemetery/Columbarium/Crematorium/ Mausoleum	1 space per 400 sq. ft. GFA
Club	1 space per 200 sq. ft. GFA
College/University (public or private)	1 space per two teachers and members of the technical and administrative staff 1 space per four additional persons employed on the premises 1 space per five students capacity not residing on campus
Day Care Center (Child or Adult)	1 space per two employees or staff members 1 space per five children/adults for which the facility is licensed by the state
Public Safety Facility	1 space per vehicular operated in connection with the use 2 spaces per 3 employees
Funeral Home/Mortuary	1 space per 400 sq. ft. GFA
Hospital/Health Care Facility	1 space per four employees 1 space per four patient beds 1 space per staff doctor
Medical Facility	1 space per 300 sq. ft. GFA

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Religious Institution	1 space per 400 sq. ft. GFA
Sanatorium	1 space per 4 employees 1 space per 4 patient beds 1 space per staff doctor
School, K-12 (public or private)	<i>Kindergarten:</i> 1 space per 2 employees or staff members 1 space per 5 children for which the facility is licensed by the state
	<i>Elementary/Middle School:</i> 1 space per 2 teachers 1 space per 2 (public, parochial, private) persons employed on the premises 1 space per bus if kept at the school
	<i>High School:</i> 1 space per 2 teachers 1 space per 2 (public, parochial, private) persons employed on the premises 1 space per 10 enrolled students 1 space per bus if kept at the school
School, vocational	1 space per 2 teachers and members of the technical and administrative staff 1 space per 4 additional persons employed on the premises 1 space per 5 students capacity not residing on campus
Arts, Entertainment & Recreation	
Amphitheater	1 space per 5 seats or 1 space per 40 sq. ft. GFA where no permanent seating is provided
Amusement Arcade	1 space per 200 sq. ft. GFA
Amusement Park	3 space per 1,000 sq. ft. GFA 2 space per 1,000 sq. ft. GFA
Archery Range	1 space per shooting point
Athletic Field	20 spaces per field
Cabin	1 space for per sleeping room 1 space per two employees

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Camp, day or youth	1 space per employee 1 space per camp vehicle parked on premises 5 visitor spaces
Campground	1 space per campsite 1 space per employee
Community Facility	1 space per 400 sq. ft. GFA
Conference/Convention Center	1 space per 200 sq. ft. GFA, or 1 space per four seats, or 1 space per three persons of total building occupancy, whichever is greater
Dance Hall	1 space per four seats for patron use, or 1 space per 100 sq. ft. GFA, whichever is greater
Driving Range	1 space per 400 sq. ft. GFA
Fairground/Festival Ground	1 space per 600 sq. ft. of outdoor recreation area 1 space per 400 sq. ft. of indoor recreation area
Golf Course	4 spaces per hole
Golf Course, miniature	1 space per 600 sq. ft. of outdoor recreation area 1 space per 400 sq. ft. of indoor recreation area
Indoor Shooting Range	1 space per 6 seats or 1 space per 30 sq. ft. GFA if no permanent seating is proposed
Museum	1 space per 400 sq. ft. GFA
Park	In accordance with Table 12-2.
Recreation Establishment, commercial indoor	1 space per 400 sq. ft. of GFA
Recreation Establishment, commercial outdoor	1 space per 600 sq. ft. of outdoor recreation area 1 space per 400 sq. ft. of indoor recreation area
Recreation Center, private	In accordance with Table 12-2.
Recreation Center, public	In accordance with Table 12-2.
Recreation Vehicle (RV) Park	1 space per site

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Rodeo Ground	1 space per 6 seats or 1 space per 30 sq. ft. GFA if no permanent seating is proposed
Studio (art, dance, music, drama, reducing, photography)	1 space per 200 sq. ft. GFA
Theater, motion or performing arts	1 space per 5 seats for patron use
Transportation & Utilities	
Airport	1 space per 4 seats in the passenger waiting area 1 space per 4 aircraft tie downs
Bus Lot	1 space per 400 sq. ft. GFA
Bus Terminal	1 space per 400 sq. ft. GFA
Freight Terminal	1 space per 400 sq. ft. GFA
Garage/Parking lot, commercial	None
Helipad/Helistop	2 spaces per pad site
School, automobile driving school	1 space per 200 sq. ft. GFA
Taxi and Limousine Service	1 space per 300 sq. ft. GFA
Telecommunication Antenna/Tower	None
Construction	
Contractor's Office	1 space per 500 sq. ft. GFA
Temporary Real Estate Sales Office	1 space per 500 sq. ft. GFA

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Mining & Extraction	
Water Storage	
Light Industrial, Manufacturing and Wholesale Trade	
Brewery	1 space per employee 1 space per 4 seats in any tasting room or other visitor facility open the public
Light Industrial, warehouse, storage, distribution, fulfillment, manufacturing, and similar uses in the L-IND Light Industrial District (incl. integrated office)	1 space per 2,500 sq. ft. GFA
Manufacturing Establishment, chemicals, metals, machinery and electronics products	1 space per 1,000 sq. ft. GFA
Manufacturing Establishment, miscellaneous products	1 space per 1,000 sq. ft. GFA
Manufacturing Establishment, wood, paper and printing products	1 space per 1,000 sq. ft. GFA
Manufacturing Establishment, food, textiles and related products	1 space per 1,000 sq. ft. GFA
Microbrewery	1 space per employee 1 space per two seats in any tasting room or other visitor facility open the public
Self-Service Storage Facility	1 space per 600 sq. ft. GFA
Service Industry Establishment	1 space per 400 sq. ft. GFA
Warehouse, mini/self-storage facility	4 spaces or 1 space for 300 sq. ft. of service/retail area, whichever is greater
Wholesale Trade Establishment Agriculture	1 space per 1,000 sq. ft. GFA

LAND USE	MINIMUM PARKING RATIO
NON-RESIDENTIAL	
Agricultural Support Services	1 space per employee
Animal Husbandry	1 space per non-resident employee
Crop Production	1 space per non-resident employee
Farm	1 space per non-resident employee
Farm, ancillary building	None
Livestock Market	1 space per 500 sq. ft. GFA

Table 12-2 Park Use Parking Ratio

PARK IMPROVEMENT	MINIMUM PARKING RATIO*
Baseball Field	25 spaces per field
Basketball Court	4 spaces per court
Major Trailhead	2 spaces per trailhead
Open Play Area	5 spaces per field
Pavilion	1 space per 400 sq. ft. of covered pavilion
Picnic Table	1 space per table
Playscape	3 spaces per area
Soccer Field	25 spaces per field
Swimming Pools	1 space per 600 sq. ft. of outdoor recreation area, and 1 space per 400 sq. ft. of indoor recreation area
Tennis Court	1 space per court
Volleyball Court	4 spaces per court

* Parking requirements will be determined in coordination with the City upon formal park programming and delivered for approval at Plat submittal. Parking plan will be designed to provide sufficient parking based on grouped amenities and considering enhanced community trails and bikeways. Provision of parking spaces is inclusive of formal on-street parking within 500 ft. of the boundary of the park.

Table 12-3 Shared Parking Schedule

LAND USE	WEEKDAY		WEEKEND		NIGHTTIME
	Daytime (9AM-4PM)	Evening (6PM-12AM)	Daytime (9AM-4PM)	Evening (6PM-12AM)	
Office/Light Industrial	100%	10%	10%	5%	5%
Retail	60%	90%	100%	70%	5%
Hotel/Resort	75%	100%	75%	100%	75%
Restaurant	50%	100%	100%	100%	10%
Entertainment/ Commercial	40%	100%	80%	100%	10%

* Refer to 12.3.7 for Shared Parking Code

13 Signage

13.1 Applicability

This Code applies in the assessment of all applications for a sign within the project.

13.2 Purpose

The purpose of this Code is to:

- I. Ensure the Guiding Principles are met.
- II. Encourage the effective use of signs as a means of communication with in and abutting the project.
- III. To maintain and enhance the project's overall aesthetic environment and the Project's ability to attract sources of economic development and growth.
- IV. Improve pedestrian and traffic safety.
- V. Minimize the possible adverse effects of signage on nearby public and private property.
- VI. Enable effective outdoor advertising.
- VII. Provide comprehensive and intuitive wayfinding for all modes of transportation within the community.

13.3 Development Standards

The applicable application shall comply with the minimum development standards of this Code unless superseded by approved alternative development standards.

Mayfair Signage

Within Mayfair there will be a hierarchy of signage and monumentation throughout the project. Public signage such as traffic signs, street signs and safety signs will comply with current city and traffic standards. The signage described below is related only to private signage. A description of each category of signage within Mayfair is detailed below. Regarding size and type of sign, the developer may choose to use a smaller sign in place of the larger permitted sign shown on the Signage Chart.

13.4 Vertical Structure in Midtown

- As part of the placemaking efforts in Mayfair, a water tower is planned for Midtown commercial/recreation district that will feature a painted exterior commissioned by an area artist.
- The current concept calls for a maximum height of 100' but could be smaller once final plans are done.
- Water tower concept will include non-flashing automatically dimmable LED bulbs on a timer with a maximum light intensity not to exceed 1 foot-candle illumination or less at the property line.

13.5 With Love from Mayfair Sign

- As part of the project identification efforts, a large-scale "With Love from Mayfair" landmark sign is planned along the I-35 northbound frontage angled south.
- Signage location is subject to move in future years to another location along I-35 or within the community as development continues. Future location will be presented to city council for approval.
- Sign will be lit with non-flashing LED bulbs that are automatically dimmable and on a timer with a maximum light intensity not to exceed 0.3 foot-candles over ambient conditions at 250 feet from the sign. It will not be located near residential properties.

13.6 Iconic Signage (IC)

- Iconic Signage at Mayfair is defined as: larger, non-traditional signage and branding that is employed to establish and reinforce a unique community aesthetic. Iconic Signage in the project will not only work to brand and identify Mayfair but also provide a sense-of-place for residents of Mayfair.

13.7 Neighborhood Identity Signage

- Neighborhood Signage at Mayfair is defined as: monumentation, signs, or walls that are employed to announce entry into the neighborhood or promote features within the community.
- Neighborhood Signage at Mayfair will be located at entries to the community of Mayfair as well as at internal intersections and serve as wayfinding directionals to community points of interest, including parks, schools, recreation areas, model homes, etc.
- The size of Major Neighborhood Signage at Mayfair will be limited per the parameters outlined in the Mayfair Signage Chart.

13.8 Wayfinding Signs

- As part of the project identification efforts, a comprehensive wayfinding plan will be developed.
- Project wayfinding signs shall comply with 106-13(b) of the Code of Ordinances.

13.9 Temporary Signage

- Temporary Signage at Mayfair is defined as: large signage within the community that is employed to announce and advertise but will not be a permanent fixture in the neighborhood.
- Temporary Signage may be used for up to ten years and refreshed or replaced as needed until the full build-out and sale of all residential, commercial, and mixed-use parcels within the community.
- Temporary Signage at Mayfair will be located within 300 feet of the Interstate 35 frontage road right of way or within 100 feet of the Kohlenberg Road or Mayfair Parkway rights of way.

- Temporary Signage at Mayfair may not be placed closer than 400 feet of another Major Temporary Sign.
- The size of Major Temporary Signage at Mayfair will be limited per the parameters outlined in the Mayfair Signage Chart.

13.10 Temporary Signage – Builder

- Temporary Builder Signage at Mayfair is defined as: signage within the community that is employed by or at the request of homebuilders to announce, advertise, and locate model homes, for-sale units, and coming-soon units.
- Temporary Builder Signage may be located outside the right of way within the Mayfair community.
- The size of Temporary Builder Signage at Mayfair will be limited per the parameters outlined in the Mayfair Signage Chart.

13.11 Commercial Signage

- Commercial Signage at Mayfair is defined as: signage within the community that is employed to announce and advertise commercial sites, Industrial Sites, or commercial and industrial tenants.
- Commercial Signage at Mayfair will be located at commercial, industrial, and mixed-use sites across the development. Signage may be along the periphery of commercial, industrial, and mixed-use boundaries, adjacent to the frontage of rights of way, or internal to commercial developments.
- Commercial Signs may be consolidated onto larger structures or stand-alone signage.
- The size of Commercial Signage at Mayfair will be limited per the parameters outlined in the Mayfair Signage Chart.

13.12 Park Signage

- Park Signage at Mayfair is defined as: monumentation, signs or walls that are employed to announce parks within Mayfair.
- Park Signage may be located within on or adjacent to park sites.
- The size of Park Signage at Mayfair will be limited per the parameters outlined in the Mayfair Signage Chart.

13.13 Logo Columns and Walls

- Logo Columns and Walls at Mayfair are defined as: columns and walls branded with a logo or name of Mayfair, neighborhoods within Mayfair, or commercial tenants within Mayfair.
- Logo Columns may be located in any location within Mayfair.
- The size of Logo Columns and Walls at Mayfair will be limited per the parameters outlined in the Mayfair Signage Chart.

13.14 Interpretive Signage

- Interpretive Signage at Mayfair is defined as: signs, plaques, and monuments displaying information at a pedestrian scale.
- Interpretive signs may be located outside the right of way within the community.
- The size of Interpretive Signage at Mayfair will be limited per the parameters outlined in the Mayfair Signage Chart.

13.15 Digital Signage

- Digital Signage is defined as: signs and monuments with digital message capability including state-of-the-art LED technology and brightness adjustment capabilities.
- Digital Signage may be located along I-35, schools and interior amenities within the community.
- City of New Braunfels will have access to digital message capability on all signage for local alerts, messages and PSAs.
- Signs will be non-flashing automatically dimmable LED bulbs on a timer with a maximum light intensity not to exceed 1 foot-candle illumination or less at the property line.
- Any change of pictures or information on the electronic sign shall not produce the illusion of scrolling, moving objects, expanding or contracting shapes, rotation or any similar effect of animation. There must be a static display with no special effect changes between messages.
- Images must remain static for at least 3 seconds. The transition from each static image may not last more than two seconds.

- Any sign picture or information shall not have a solid white background between the time period of 30 minutes after sunset and 30 minutes before sunrise.
- Provide for auto dimming/brightening based on natural ambient light conditions.
- Provide and maintain a photo cell and dimmer control to assure the luminance standard is met and not exceeded.

13.16 Digital Billboards

- Digital billboards in Mayfair will be located along I-35 at a maximum, standard billboard size of 14x48 in accordance with TxDOT standards
- There will be two digital billboard structures on Mayfair property (one on west side and one on east side of I-35) that will serve as a replacement (not in addition) to current vinyl billboards along I-35.
- Digital billboards along I-35 will automatically adjust brightness levels to be no more than .3 foot-candles over ambient light conditions within 250 feet of sign.
- A development agreement will be put into place with the City of New Braunfels, the selected billboard company and the developer, prior to permit submittal for construction of the signs.

13.17 Murals

- Murals at Mayfair are defined as: a work of art painted on or affixed to a structure, wall, or piece of infrastructure within the community.
- Murals may be located in any location within Mayfair.
- Murals should be located outside the ROW unless serving as wayfinding directionals for pedestrians and cyclists.

13.18 Artwork

- Artwork at Mayfair is defined as: a work of art that is freestanding or placed in the community independent of walls or structure.
- Artwork may be located in any location within Mayfair.
- The size of artwork is not limited within Mayfair.

13.19 Event Signage

- Event Signage at Mayfair is defined as: signs and markers which are displayed for short periods of time to advertise or provide wayfinding for an event.
- Event signage may be used at developer's discretion and placed within parks, individual lots and commercial areas.

13.20 Sign Illumination

- A spotlight on sign or exterior lighting of a sign may be employed, but must be oriented away from adjacent properties and roadways
- Uplighting, downlighting, and interior lighting of signs may be employed, but will work to comply with dark sky regulations.

13.21 Flags

- Government flags shall comply with 106-14 of the Code of Ordinances.

13.22 Signs exempt from ordinances

- In accordance with §106-10 of the Code of Ordinances unless otherwise provided for within this Code.

13.23 Signs not requiring a permit

- In accordance with §106-10 of the Code of Ordinances.

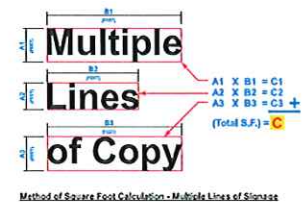
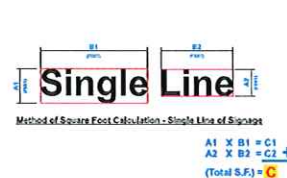
The size of signage at Mayfair refers to the maximum allowable size and is defined as follows:

13.24 Size of structure

- The structure of signage refers to the wall, monument, or other mounting apparatus on which a sign or lettering is mounted. If a sign or lettering is mounted on a habitable structure, that structure is not limited by these restrictions.
- The height of a structure will be measured by the finished grade on which the structure is placed to the highest point of the structure. Flag poles, antenna, and finials are not included in the height of a structure.
- The width of a structure will be measured laterally across a structure inclusive of all signs or individual lettering. That width will include the face of any non-inhabited structure on which sign is mounted from edge to edge.

13.25 Size of sign

- The size of a sign refers to the bounds of a graphic or lettering.
- The height of a sign will be measured from the bottom of a graphic or lettering to the top of the graphic or lettering. The width of a sign will be measured laterally from edge to edge on a graphic or individual letters.
- The square footage of a sign is to be calculated by height multiplied by the width. Up to two rectangles encapsulating all lettering and logos may be used for single line copy. Up to three rectangles encapsulating all lettering and logos may be used for multiple line copy.



13.26 Sign lighting standards

(excludes digital signs, With Love from Mayfair Sign and Vertical Structure in Midtown Sign)

- No illuminated sign shall have luminance greater than 75 foot candles for any portion of the sign within a circle one foot in diameter.
- Lamp and ballast watts shall not exceed 1.8 watts per square foot.
- No unshielded light source may be visible from the edge of the public right-of-way or at the property line with a residential use or zoning district.
- Internally illuminated signs shall either be constructed with an opaque background and translucent text, symbols, and logos, or with a colored (not white, off-white, light gray, or cream) background and generally lighter text, symbols, and logos. See example below:

White Background Not Allowed	Shaded Background Allowed	Color Background Allowed	Opaque Background Allowed
Business Name/Logo	Business Name/Logo	Business Name/Logo	Business Name/Logo



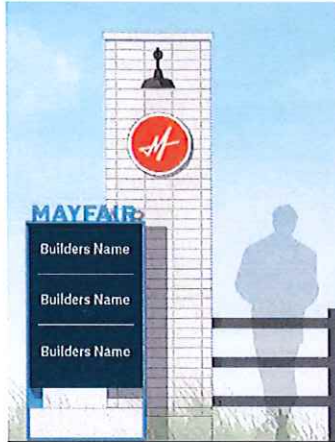
With Love From Mayfair Sign



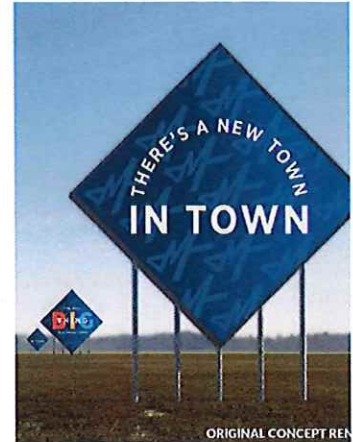
Neighborhood Wayfinding Signage



Neighborhood Identity Signage



Temporary Signage - Builder



Temporary Signage - Major



Mural

Example Images for Illustrative Purposes Only

Table 13-1 Mayfair Signage Chart

SIGNAGE TYPE	MAXIMUM NUMBER OF SIGNS	MAXIMUM HEIGHT OF STRUCTURE	MAXIMUM WIDTH OF STRUCTURE	MAXIMUM HEIGHT OF SIGN	MAXIMUM WIDTH OF SIGN	MAXIMUM SQUARE FOOTAGE OF SIGN
With Love From Mayfair Landmark	1 in community	50'	100'	50'	100'	1,530 sf
Vertical Structure in Midtown	1 in community	100'	45'	6'	41'	250 sf
Iconic Signage	4 in community	40'	100'	40'	100'	400 sf
Neighborhood Identity Signage	2 per entry	10'	20'	10'	10'	65 sf. Individually; 200 sf. Combined sign & sign structure
Temporary Signage	2 per lot	20'	20'	20'	20'	100 sf
Temporary Signage-Bulder	2 per lot	10'	10'	10'	10'	100 sf
Park Signage	2 per access point	20'	20'	20'	20'	120 sf
Logo Column/Wall	No Limit	10'	N/A	5'	5'	25 sf
Interpretive Signage	No Limit	12'	8'	10'	6'	60 sf
Digital Signage	1 per lot	6'	8'	6'	8'	48 sf
Digital Billboards	2 in community	40'	48'	14'	48'	672 sf

Table 13-2 Mayfair Commercial Signage Chart

LAND USE	SIGN TYPE	MAXIMUM AREA PER SIGN FACE	MAXIMUM HEIGHT	MIN. SETBACK	MAXIMUM SIGNS PER LOT
Flex Commercial/ Light Industrial	Freestanding Monument Sign	48 sq. ft. For multi-tenant signs with four or more businesses/tenants, a maximum of 16 sq. ft. per tenant, with a total maximum sign face of 64 sq. ft.	10 ft.	5 ft.	1 per frontage, unless otherwise provided for in this Code.
	Low Profile Pole Sign	20 sq. ft.	10 ft.	5 ft.	1 per frontage, unless otherwise provided for in this Code.
	Flag/Flag Pole	40 sq. ft.	25 ft.	5 ft.	—
	Electronic Message Sign	40 sq. ft.	10 ft.	5 ft.	1 per frontage, unless otherwise provided for in this Code.
Neighborhood Commercial	Freestanding Monument Sign	32 sq. ft. For multi-tenant signs with four or more businesses/tenants, a maximum of 16 sq. ft. per tenant, with a total maximum sign face of 64 sq. ft.	8 ft.	6 ft.	1 per frontage, unless otherwise provided for in this Code.
	Low Profile Pole Sign	20 sq. ft.	6 ft.	6 ft.	1 per frontage, unless otherwise provided for in this Code.
	Flag/Flag Pole	40 sq. ft.	25 ft.	5 ft.	—
MXD	Freestanding Monument Sign	32 sq.ft	10 ft.	5 ft.	1 per frontage, unless otherwise provided for in this Code.
	Low Profile Pole Sign	Not permitted	Not permitted	Not permitted	Not permitted
	Flag/Flag Pole	40 sq. ft.	25 ft.	5 ft.	—

14 Vegetation Protection

14.1 Applicability

This Code applies in the assessment of all applications within the project.

This Code does not preclude ongoing agricultural activities, including agricultural exempt tree clearing for ranch management purposes from continuing. This Code shall only take effect, and apply to the part of the project, on which a Sector Plan has been approved.

14.2 Purpose

The purpose of this Code:

- I. Ensure the Guiding Principles are met.
- II. Ensure that significant vegetation is retained where possible.
- III. Contribute to the legibility and character of the project.
- IV. Preserve riparian corridors and vegetation clusters and habitat areas.
- V. Encourage the retention of vegetation as an amenity resource.

14.3 Development Standards

Mayfair will follow City of New Braunfels Vegetation Protection guidelines §134 as applicable.

14.3.1 General – Exemptions

MINIMUM DEVELOPMENT STANDARD		
Exemptions	1.1	If either the Urban Forester or a certified arborist determines a high value tree to be causing danger or be in a hazardous condition due to a natural disaster such as a tornado, fire, storm, flood or other act of God that endangers public health, welfare or safety, the requirement of this Section shall be waived.
	1.2	If the Urban Forester or certified arborist determines, based on site inspection that a high value tree is already dead, dying or fatally diseased prior to starting a development, the provision of the mitigation requirement will not apply and such determination shall be provided in writing.

14.3.2 Riparian Buffer Protection

MINIMUM DEVELOPMENT STANDARD

Location

1.1

1.1 Buffers shall be provided as follows:

STREAM	MINIMUM BUFFER
Identified streams draining 640 acres or greater	300 ft. from the centerline
Identified streams draining 320-639 acres	200 ft. from the centerline
Identified streams draining 128-319 acres	100 ft. from the centerline
Identified streams draining at 64-128 acres	50 ft. from the centerline
Identified streams draining less than 64 acres	No buffer requirement

1.2

To the extent required to be identified in a Sector Plan, roads, facilities, structures and improvements such as paths, trails, utilities, stormwater management facilities and water quality measures are permitted within buffer areas. Where stream buffers are located within parks, or are subject to a public easement, the buffer shall count towards overall park acreage.

1.3

Where stream buffers are located within parks, or are subject to a public easement, the buffer shall count towards overall park acreage.

1.4

The only exemption to establishing buffers is if the waterway is enclosed in a storm drain or is conveyed by an engineered channel designed to convey the 1% AC UD flow. The City will accept the exemption upon receiving signed and sealed plans from a professional engineer registered in the State of Texas.

PART H

APPENDIX

15.1 Abbreviations and Definitions

All words, phrases, and terms, whether capitalized or not, used in this DDCD, but not otherwise defined herein, shall have the respective meanings described in Section 2 of the Development Agreement, this Section, or the Code of Ordinances.

Any conflict or discrepancy between a definition in the Development Agreement, this DDCD, or the Code of Ordinances shall be resolved in favor of the Development Agreement first, this DDCD second, and the Code of Ordinances third. Words, phrases, and terms not defined in the Development Agreement, in this DDCD, nor in the Code of Ordinances shall be given their usual and customary meanings except where the context clearly indicates a different meaning.

All terms used herein, whether used in singular or plural form, shall be deemed to refer to the object of such term whether such is singular or plural in nature, as the context may suggest or require.

The word "shall" is mandatory and not permissive; the word "may" is permissive and not mandatory.

Words used in the present tense include the future tense and words used in the future tense include the present tense.

15.1.1 Abbreviations

BMP	Best Management Practice
DDCD	Development and Design Control Document (this DDCD)
DBH	Diameter at Breast Height
ETJ	Extra Territorial Jurisdiction
FEMA	Federal Emergency Management Agency
ft.	Foot/Feet
GFA	Gross Floor Area
NBHD	Neighborhood
HOA	Home Owners Association
IESNA	Illuminating Engineering Society of North America
in.	Inch/Inches
ITE	Institute of Transportation Engineers
LOS	Level of Service
NBU	New Braunfels Utilities
PHT	Peak Hour Trips
ROW	Right of way
SH	State Highway
sq. ft.	Square Foot/Square Feet
TCEQ	Texas Commission on Environmental Quality
TIA	Traffic Impact Assessment (or Analysis)
US	United States
USACE	United State Army Corps of Engineers
USPS	United States Postal Service

15.1.2 Definitions

Note: Defined terms that have similar or related derivatives may be sorted or grouped by the object or subject matter for ease of reference.

100-Year Flood Event	The flood having a 1 percent chance of being equaled or exceeded in any given year.
100-Year Flood Event Floodplain	All land area that has been or may be inundated by water from any source as determined by the crest of a flood having a 1 percent chance of occurrence in one year for fully developed watershed conditions on drainage areas with greater than 64 acres.
2-Year Flood Event	A flood having a 50 percent chance of being equaled or exceeded in any given year.
2-Year Flood Event Floodplain	All land area that has been or may be inundated by water from any source as determined by the crest of a flood having a 50 percent chance of occurrence in one year for fully developed watershed conditions on drainage areas with greater than 64 acres.
25-Year Flood Event	A flood having a 4 percent chance of being equaled or exceeded in any given year.
25-Year Flood Event Floodplain	All land area that has been or may be inundated by water from any source as determined by the crest of a flood having a 4 percent chance of occurrence in one year for fully developed watershed conditions on drainage areas with greater than 64 acres.
5-Year Flood Event	A flood having a 20 percent chance of being equaled or exceeded in any given year.
5-Year Flood Event Floodplain	All land area that has been or may be inundated by water from any source as determined by the crest of a flood having a 20 percent chance of occurrence in one year for fully developed watershed conditions on drainage areas with greater than 64 acres.

Abutting	Having a common lot line with.
Accessway, Major	A 10' shared use accessway of varying surfaces identified on a Sector Plan.
Accessory Dwelling	A separate, complete housekeeping unit with a separate entrance, kitchen, sleeping area, and full bathroom facilities, which is an attached or detached extension to an existing single-family structure.
Accessory Structures	A structure such as pool, pergola, or shed associated with a single-family dwelling.
Adjacent	Directly across a street (excluding a major roadway) or alley.
Adjoining	Located next to, irrespective of whether they abut.
Alley	ROW that is used primarily for vehicular service access to the back or sides of lots otherwise abutting a street.
Alternative Tower Structure	Clock towers, bell steeples, light poles, and similar alternative-design mounting structures.
Applicant	Has the meaning set forth in the Development Agreement.
Application	Has the meaning set forth in the Development Agreement.
Architectural Review Board	A governing body created by the Master Association to administer the associations' Design Guidelines as it relates to all residential and commercial properties in the community, to guide cohesive, complimentary exterior presentation of homes and businesses.
Assisted Living Facility or Elderly Housing, High Intensity	An assisted living facility or elderly housing use that has the physical appearance of a multi-family dwelling development.
Assisted Living Facility or Elderly Housing, Low Intensity	An assisted living facility or elderly housing use that has the physical appearance of a single-family dwelling development.

Athletic Field/Playfield	A recreation area for open-air games, including but not limited to a multi-purpose practice field, football field, soccer field and/or baseball/softball diamond. Bleachers or grandstands may be provided.	CC&Rs	Covenants, Conditions & Restrictions. Mayfair will have a master association and sub-associations that will guide the operational standards of the community, including but not limited to maintenance standards of homes and businesses, process for improvements, structure of the association and more.
Bicycle Facilities	Pathways designed for bicyclists' travel. These pathways may be located in the roadway ROW, in parks, or other identified areas. Bicycle facilities have different forms including bike lanes and shared use paths. For a more complete list refer to the Hike and Bicycle Trail Plan (2020).	Certified Arborist	An arborist certified by the International Society of Arboriculture.
Bicycle Facility, Bicycle Lane	Designated by a lane stripe, pavement markings, and signage. Striped bicycle lanes promote areas reserved for bicyclists. Typically, the solid stripe of the bicycle lane is either dropped or dashed prior to and through intersections, to allow for both cyclists 'and motorists' turning movements.	City	Has the meaning set forth in the Development Agreement.
		City Council	Has the meaning set forth in the Development Agreement.
		Civic Space	A designated publicly accessible space with associated amenities that is designed to encourage and allow for the formal and/or informal gathering of people.
Bicycle Facility Protected Bicycle Lane	On-street bike lanes with physical separation from sidewalks and/or motor vehicle traffic, designed for people riding bicycles or other micro-mobility devices.	Class 1 Lighting	All outdoor lighting used for but not limited to outdoor sales or eating areas, assembly or repair areas, advertising and other signs, recreational facilities and other similar applications where color rendition is important.
Block	A unit of land bounded by streets or by a combination of streets, public accessways, parks, railroad ROW, streams, waterways or any other barrier to the continuity of development. For the purpose of this definition, the project boundary shall not be considered barrier to development.	Class 2 Lighting	All outdoor lighting used for but not limited to illumination for walkways, roadways, equipment yards.
Block Length, Maximum	The length of a block measured along the longest axis.	Class 3 Lighting	Any outdoor lighting used for decorative effects, including but not limited to architectural illumination, flag monument lighting, and illumination of trees, bushes, etc.
Buffer	An area of land used to physically and/or visually separate one use or lot from another.	Club	An establishment or facilities used for social, educational or recreational purposes, for which membership is required for participation.
Building Group	A collective group of attached dwellings.	Cluster-style Mailbox	A type of mailbox, complying with the specifications of the USPS, where individual mailbox units are grouped together so that they are regarded as one unit.
Building Permit	An application prepared in accordance with Section 1.6. As used in this DDGD, Building Permit includes a Site Plan.		

Code	When referenced by (chapter symbol) or the term "City code", referencing City of New Braunfels Municipal Code.	Development	The construction of one or more new buildings or structures on one or more building lots, the moving of an existing building to another lot, or the use of open land for a new use.
	Where stated as "This Code" the definition shall mean that Section of the DCDC.	Development Agreement	Has the meaning set forth in the Development Agreement as "Agreement".
Code of Ordinances	Has the meaning set forth in the Development Agreement.	Duplex	A building designed as a single structure, containing two separate living units, each of which is designed to be occupied as a separate permanent residence for one family or in two separate structures on one lot.
Cohesive Development	Development where individual lots share access or use common facilities or spaces through recorded easement agreements, including, but not limited to vehicular and pedestrian access.	Dwelling, Single-Family Attached (Duplex)	A building with a common wall between dwellings that is arranged, intended, or designed for occupancy by two families living independently of each other in an attached structure.
Community Facility	A publicly owned or publicly leased facility or building which is primarily intended to service the recreational, educational, cultural, administrative, or entertainment needs of the community.	Dwelling, Single-Family Detached	A detached building arranged, intended, or designed for occupancy by one family.
Contiguous	In relation to a lot, where at least one boundary line or portion of one lot touches a boundary line/s or point/s of another lot/s.	Dwelling, Single-Family Detached (Cluster)	A single-family dwelling located on a cluster lot.
Connectivity Ratio	A commonly recognized metric to access ease of mobility within an area, created by dividing all links (non-arterial roadway segments) by nodes (all non-arterial intersections and cul-de-sacs).	Dwelling, Single-Family Detached (Zero-Lot Line)	A single-family dwelling that is built to abut one side lot line.
Cul-de-sac	A short, minor roadway having only one outlet to another street and terminating on the opposite end by a vehicular turnaround.	External Access Point	Location where a throughfare within the project and a thoroughfare adjacent to and outside of the project boundary intersect
Dead-end Street	A street, other than a cul-de-sac, with only one outlet.	Flex Commercial	Higher intensity commercial land use developed along higher traffic areas to serve a regional need.
Design Guidelines	Mayfair's standard of exterior presentation (façade, surfacing, color palate, landscaping, etc.) that will guide the development of all homes and businesses in the community.	Fully Shielded Fixture	Fixtures that are shielded in such a manner that light rays emitted by the fixture, either directly from the lamp or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where light is emitted.
		Garage, Detached	A private garage wholly separated and independent of the principal building.

Gated Neighborhood	A residential area where vehicular accessibility is controlled by the means of a gate, guard, barrier or similar improvements within or across a privately maintained ROW.	Light Trespass	Spill light falling over lot lines that illuminate adjacent grounds or buildings in an objectionable manner.
Gross Floor Area	The total floor area of all floors of a building, expressed in sq. ft., measured from the outside of the exterior walls or from the centerline of common walls. It does not include: <ul style="list-style-type: none"> • internal ground and underground/basement parking or loading, servicing and maneuvering areas; • building services, plant and equipment; • access between floors (e.g. internal stairwells and elevator shafts); • ground floor public lobby (for non-residential uses only); • outdoor pedestrian malls; and • unenclosed balconies/patios (whether roofed or not). 	Lot	An undivided tract or parcel of land which is, or in the future may be, offered for sale, conveyance, transfer or improvement, which is designated as a distinct and separate parcel, and which is identified by a tract, or lot number, or symbol in a duly approved subdivision Plat which has been properly filed of record.
		Lot Line	The lines bounding a lot.
		Lot Line, Front	The boundary between a lot and the street on which the lot fronts.
		Lot Line, Rear	The lot line that is opposite and most distant from the front lot line.
		Lot Line, Side	Any lot line that is not a front or rear lot line. A side lot line may be a part lot line, a line bordering on an alley or place or a side street line.
Height	The vertical distance of a structure measured from the average elevation of the finished grade surrounding the structure to the highest point of the structure.	Lot, Cluster	A lot that contains one single-family detached (cluster) dwelling.
Home Occupation	An occupation carried on in a dwelling unit, or in an accessory building to a dwelling unit, by a resident of the premises, which occupation is clearly incidental and secondary to the use of the premises for residential purposes.	Lot, Corner	A lot abutting upon two or more streets at their intersection. A corner lot shall be deemed to front on that street on which it has its least dimension.
Intersection	Location where two streets connect.	Lot, Coverage	See Coverage, lot.
Landscape Plan	A plan prepared in accordance to section 144-5.3-1 (b) (5) of the Code of Ordinances.	Lot, Depth	The length of a line connecting the midpoints of the front and rear lot lines.
Lane Width	The distance between the face of one curb to the face of the other curb excluding the gutter section, or center of the lane marking to center of the lane marking, or combination thereof.	Lot, Double Frontage	Any lot, not a corner lot, with frontage on two streets that are parallel to each other or within 45 degrees of being parallel to each other.
		Lot, Frontage	The length of street frontage between lot lines.
		Lot, Interior	A lot with side lot lines that do not abut any street.

Lot, Parent	A lot that includes at least three cluster lots, shared access for cluster lots and common open space.	Motion Sensing Security Lighting	A fixture designed, and properly adjusted, to illuminate an area around a residence or other building by means of switching on a lamp when motion is detected within a set area around the fixture, and switching the lamp off when the detected motion ceases, or after a set amount of time.
Lot, Through	An interior lot having frontage on two streets.		
Lot, Width	The horizontal distance between side lot lines, measured at the front building line.		
Low Impact Development	A stormwater management technique that seeks to reduce runoff volume and improve water quality by replicating natural hydrology processes.	Multi-class Lighting	Any outdoor lighting used for more than one purpose, such as security and decoration, when those purposes fall under the definitions for two or more lighting classes as defined for class 1, 2 and 3 lighting.
Luminary	The complete lighting assembly, less the support assembly.	Multi-family Dwelling	A building or portion thereof, arranged, intended, or designed for occupancy by three or more families, being separate quarters and living independently of each other. Multifamily also means three or more dwelling units on a single lot or parcel, whether attached or detached.
Masonry Wall	A wall that is constructed of brick, concrete or other grounds or buildings in a highly durable building stone such as (but not limited to) granite, limestone or travertine.		
Master Developer	RESERVED	Mountain Bike Trail	A public or private unpaved off-street path that is intended for recreational use.
Master Framework Plan	RESERVED	Nature Trail	A public or private unpaved off-street path typically four (4) to six (6) feet wide when used exclusively for pedestrians, and eight to 10 feet wide when used for multiple user groups. Not intended for equestrian use or motorized vehicles, such as golf carts or ATVs.
Middle Housing	Buildings ranging in size and density between a traditional single-family detached home and a mid-rise apartment building. A common characteristic of these multiple varieties of Missing Middle Housing is a scale comparable to a single-family house, but Missing Middle Housing always includes more than one housing unit. The varieties of Missing Middle Housing include, but are not limited to, single-family homes with ADU's, duplexes, triplexes, fourplexes, courtyard apartments, mansion apartments, bungalow courts, townhouses, multiplexes and live/work units.	Neighborhood Commercial	Lower intensity commercial land use designed to provide convenience retail within predominantly residential areas.
		One-family Dwelling	A detached building arranged, intended, or designed for occupancy by one family.
Mixed Use	The development of a lot, building or structure with two or more different types of uses designed, planned and constructed as a unit. Such types of uses include, but are not limited to, residential, office, retail, public uses, personal service or entertainment uses.	Open Space, Common	Open space or recreational area, within or related to a development, intended for the exclusive use and enjoyment of residents or occupants of the development, and their guests.

Open Space, Private	Open space or outdoor living area, intended for the private use and enjoyment of the resident/s or occupant/s of a dwelling unit or building. Private open space may include, but is not limited to, yard areas, landscaped areas, private patios, balconies, courtyards or similar areas designated for outdoor living, recreation or retention of an area in its natural state.	Park Lot	A platted lot that contains, or is proposed to contain, a park use.
Outdoor Light Fixture	<p>All outdoor illuminating devices, reflective surfaces, lamps and other devices, either permanently installed or portable, which are used for illumination or advertisement. Such devices shall include, but are not limited to, search, spot and floodlights for:</p> <ul style="list-style-type: none"> • buildings and structures; • recreational areas; • parking lot lighting; • landscape and architectural lighting; • billboards and other signs (advertising or other); • street lighting, excluding antique street and pedestrian lighting as approved by the City or such other person as they may authorize; • product display area lighting; • building overhangs and open canopies; and • security lighting. 	Park, Community	<p>District-maintained parks accessible by multiple neighborhoods and should focus on meeting community-based recreational needs, as well as preserving unique landscapes and open spaces. Community Parks are generally larger in scale than neighborhood parks, but smaller than regional parks and are designed typically for residents who live within a three-mile radius. When possible, the park may be developed adjacent to a school. Community Parks provide recreational opportunities for the entire family and often contain facilities for specific recreational purposes: athletic fields, tennis courts, extreme sports amenity, loop trails, picnic areas, reservable picnic shelters, sports courts, restrooms with drinking fountains, large turf and landscaped areas and a playground or spray ground. Passive outdoor recreation activities such as meditation, quiet reflection, and wildlife watching also take place at Community Parks. Community Parks generally range from 10 to 75 acres depending on the community. Community Parks serve a larger area – radius of one to three miles and contain more recreation amenities than a Neighborhood Park.</p> <p>Examples of a community park may include:</p> <ul style="list-style-type: none"> • Sports Park: a park intended to provide a variety of structured or formal recreation opportunities, such as team competitions, physical skills development and training. May include multi-purpose community facilities. • Active Use Park: a park intended to provide facilities for active recreation such as sport courts, playgrounds, open playfields, trails, gathering areas and group picnic facilities. • Informal Use Park: A park intended to provide a variety of casual recreational opportunities such as play, picnicking, and large social or community gatherings. Informal use parkland may also protect or enhance landscape amenity values.
Patio, Attached	A private open space that is roofed, or unroofed with a code required hand rail, that is attached to a single family dwelling, excluding balconies. Unattached, roofed patios shall follow Accessory Structure standards.		
Park	<p>Land that is designated as park space for passive and active recreational uses and may include integrated stormwater conveyance and management. Park includes six sub-categories, each being further defined herein:</p> <ul style="list-style-type: none"> • Community Park; • Greenbelt/Conservation Park/Trails; • Pocket Park. 		

Park, Greenbelt/Conservation Park/Trail	Connectors in a park system are typically within a floodway or floodplain and serve multiple goals including recreation, transportation, water quality, flood control and habitat protection/preservation of riparian corridors.	Pavilion/Shade Structure	An open air, roofed structure that provides a shaded area.
Park, Natural Area/Easement	Primarily undeveloped lands or engineered corridors that are managed for both natural and ecological value and light-impact recreational use. These areas can range in size from one to thousands of acres, and may include wetlands, wildlife habitat, viewpoints or stream and river corridors. Natural areas provide opportunities for nature-based recreation, such as bird-watching and environmental education. Natural areas also provide opportunities for some active recreation activities such as walking and running, bicycle riding, and hiking. These areas can provide relief from urban density and may also preserve or protect environmentally sensitive areas such as endangered animal habitat and native plant communities. Natural areas often include, wetlands, floodplains, streams, creeks, lakes, ponds, forests, prairies, meadows, pastures and agricultural lands, timber lands, and vistas.	Planning Commission	Has the meaning set forth in the Development Agreement.
		Planning Director	Has the meaning set forth in the Development Agreement.
		Plat	A Final Plat.
		Plat Note	A notation on the face of a Plat that affects future development.
		Plat, Final	A plan prepared in accordance with 1.4.1.
		Play/Sports Court	A recreation area for open-air games, including but not limited to tennis, volleyball and/or basketball. Bleachers or grandstands may be provided.
		Playscape	A freestanding, integrated play apparatus, exclusively for use by children.
		Plaza	A publicly accessible gathering space that is integrated into the Street network and may allow vehicular, bicycle and/or pedestrian travel.
Park, Pocket	A small outdoor open space usually 0.25 acres up to three (3) acres, most often located in an urban area surrounded by commercial or dense residential. These parks serve various short-term functions or activities like small events, lunch breaks, or tot lots. These spaces are inviting and social places.	Project	Has the meaning set forth in the Development Agreement.
Park, Private	Parkland that is developed as part of the Project, but not generally open to the public, including Pocket Parks and Recreation Centers	Public Safety Facility	A government facility for public safety and emergency services, including fire, EMS, police and related administrative facilities.
Path, Shared Use	A bicycle and pedestrian facility physically separated from motorized vehicular traffic by a green space or barrier. They can be located within road rights of way, parks, and trail corridors and are shared by multiple users. Two types of surface treatments may be used: crushed granite or hard surface pavement. Anticipated use and location must be considered when selecting surface treatment, which should also meet the City of New Braunfels' Park Standards.	Quartile	An organizing measure representing community development in quarters. Assuming a 6,000 residential unit community, each quartile represents 1,500 completed residential units.
		Recreation Center	Private facilities, such as clubhouses, gyms, swimming pools, tennis courts, etc., which are intended to function as private parks under the Development Standards.

Recreation Establishment, Commercial Indoor	A private indoor facility, with or without seating for spectators, and providing facilities for a variety of individual, organized or franchised sports, including but not limited to basketball, gymnastics, wrestling, soccer, tennis, volleyball, racquetball or handball. Such facilities may also provide other regular organized or franchised events, health and fitness club facilities, swimming pool, bowling alley, snack bar, restaurant, retail sales of related sports, health or fitness items and other support facilities. Does not include any other indoor recreation facility that may be herein defined separately.	Retail Establishment, Liner	A row of small retail establishments sharing a common wall with one or more other establishments/tenancies located on one or more contiguous lots.
		Retail Establishment, Medium	A retail establishment or any combination of retail establishments in a single building or in separate but adjoining buildings occupying 10,001 – 25,000 sq. ft. GFA.
		Retail Establishment, Small	A retail establishment, or any combination of retail establishments in a single building or in separate but adjoining buildings, occupying equal to or less than 10,000 sq. ft. GFA.
Recreation Establishment, Commercial Outdoor	A private open or partially enclosed facility, with or without seating for spectators, and providing facilities for a variety of individual, organized or franchised sports, including but not limited to basketball, soccer, tennis and volleyball. Such facilities may also provide other regular organized or franchised events, swimming pool, batting cages, snack bar, retail sales of related sports, health or fitness items and other support facilities. Does not include any other outdoor recreation facility that may be herein defined separately.	Right of Way	A lot or parcel of land occupied, or intended to be occupied, by a public road, street or alley.
		Roadway, Major	Any road identified as an expressway, parkway, arterial or collector road on the City's adopted Regional Transportation Plan.
		Roadway, Minor	A collector road, local street or alley not on the City's adopted Regional Transportation Plan.
		Sector	Has the meaning set forth in the Development Agreement.
Residential Density	The number of dwelling units divided by the number of acres.	Sector Plan	An application prepared in accordance with 1.3.1 or an approved Sector Plan depending on the context of the term's usage.
Residential Lot	A platted lot that contains, or is proposed to contain, a residential use.	Sector Plan Note	A notation on the face of a Sector Plan that affects future development.
Residential Use	A use identified in Section 7.1 as a residential use.	Sector Plan TIA	Updated Traffic Impact Analysis provided with Sector Plan submittal.
Retail Establishment	An establishment in which 60 percent or more of the GFA is devoted to the sale or rental of goods, including stocking, to the general public for personal or household consumption. The term includes services incidental to the sale or rental of such goods.	Security Lighting	Lighting designed to illuminate a lot for the purpose of visual security. This includes fully shielded lighting designed to be left on during nighttime hours as well as motion sensing lighting fixtures.
Retail Establishment, Large	A retail establishment or any combination of retail establishments in a single building or in separate but adjoining buildings occupying more than 25,000 sq. ft. GFA.		

Sensitive Feature	Karst features classified as sensitive by TCEQ or habitat identified by a qualified ecologist, in accordance with US Fish and Wildlife Service, high value trees as defined by a Tree Preservation Plan or any other applicable federal or state agency's standards.	Sign, Billboard	advertise a business, service, or special event and not mounted in a permanent rigid frame. An off-premise sign on any flat surface erected on a framework or on any structure, or attached to posts and used for, or designed to be used for, the display of bills, posters, or other advertising material.
Service Industry Establishment	An establishment or place of business primarily for industrial activities that have no external air, noise or odor emissions and can be suitably located with non-industrial uses, including but not limited to audio visual repair, film processing, jewelry making, locksmith, shoe repairs.	Sign, Freestanding	A sign permanently attached to or constructed in or on the ground.
Setback Line	A line within a lot parallel to and measured from a corresponding lot line, establishing the minimum required yard and governing the placement of structures and uses on the lot.	Sign, High Profile Monument	A sign that is attached directly to the ground or is supported by a sign structure that is placed on or anchored in the ground.
Sidewalk	As guided by City code, a public or private paved accessway located within the street ROW or access easement, abutting, but physically separated from the vehicular travelled way, intended for pedestrian travel, regardless of whether such an accessway may be designated for non-exclusive use by pedestrians.	Sign, Low Profile Pole	A sign that is mounted on one or more freestanding poles or other support so that the bottom edge of the sign face is not in direct contact with a solid base or the ground.
Sight Distance	The triangular area formed by a diagonal line connecting two points located on intersecting ROW lines.	Sign, Monument	A sign which is attached directly to the ground or is supported by a sign structure that is placed on or anchored in the ground and is independent from any building or other structure.
Sign	Any device or surface on which letters, illustrations, designs, figures or symbols are painted, printed, stamped, raised, projected or in any manner outlined or attached and used for advertising purposes.	Sign, Off-premise	An outdoor sign advertising a business activity or use not principally offered, sold, or conducted upon the same premises on which the sign is located.
Sign, Area Directional	An off-premise sign designed with panels that may be replaced or changed to advertise multiple entities, services, real estate, businesses or other content and that direct, with an arrow, for instance, persons to those entities.	Sign, On-premise	An outdoor sign advertising a business or use principally offered, sold or conducted upon the same premises on which the sign is located. On-premise signs include: <ul style="list-style-type: none"> • signs advertising a real estate development located on premises being developed or proposed for development; • signs identifying a real estate development which are located at the entrance of such development; and • signs located on premises where model homes are constructed.
Sign, Banner	Any sign made of fabric, plastic or other non-rigid material designed to hang from rope or wire to		

Sign, Pole or Pylon	A freestanding sign that is supported by one or more freestanding shafts, posts, or piers extending from and permanently attached to the ground by a foundation or footing, with a clearance between the ground and the sign face.	Temporary Lighting	Lighting which will not be used for more than one 45-day period within a calendar year. Temporary lighting is intended for uses that by their nature are of limited duration; e.g. holiday decorations, civic events, or construction projects.
Site	a tract of property that is the subject of a development application.	Throughway Zone	The part of the streetside between the frontage zone and the furnishing zone in which pedestrians and bicyclists travel, including sidewalks and bike paths.
Site Plan	A plan submitted with an application for Building Permit as per City of New Braunfels Code of Ordinances.	Traffic Impact Analysis (TIA)	A study which assesses the adequacy of the existing or future transportation infrastructure to accommodate additional trips generated by a proposed development, redevelopment or land rezoning.
Site Plan Note	A notation on the face of a Site Plan that affects future development.	TIA Update	A report prepared in accordance to section 118-46. (y) of the Code of Ordinances.
Story	Part of a building included between the surface of one floor and the surface of the ceiling above. A top story attic is a half story when the main line of the wall plates is not above the middle of the interior height of such story. A basement that is no more than 4 ft. above average grade shall not be considered a story.	TIA Worksheet	A report prepared in accordance to section 118-46. (y) of the Code of Ordinances.
Street	A public or private ROW that provides primary vehicular movement, whether designated as a street, highway, thoroughfare, parkway, avenue, boulevard, road, drive aisle, alley or however otherwise designated.	Total Outdoor Light Output	The maximum total amount of light, measured in lumens, from all outdoor light fixtures on a lot. For lamp types that vary in their output as they age (such as high pressure sodium and metal halide), the initial output, as defined by the manufacturer, is the value to be considered.
Street View	Visible at eye-level on the closest sidewalk on an abutting street, excluding an alley.	Tree Protection Plan	A plan prepared in accordance to section 144-5.3-1 (c) of the Code of Ordinances.
Street, Private	A private vehicular accessway, including an alley, that is shared by and that serves two or more lots, which is not dedicated to the public, and which is not publicly maintained.	Tree Replacement Plan	A plan prepared in accordance to section 144-5.3-1 (c) of the Code of Ordinances.
Streetside	The part of the ROW between the back of the curb and the front lot line of abutting lots.	Tree Survey	A plan prepared in accordance to section 144-5.3-1 (c) of the Code of Ordinances.
Supporting Framework Plan	A plan prepared in accordance with Appendix ...	Tree Survey, Preliminary	A plan prepared in accordance to section 144-5.3-1 (c) of the Code of Ordinances.
		Tree, High Value	Any tree having a minimum 8 in. caliper measured 4.5 ft. above the ground (DBH), and in good health with no signs of disease.

Tree, Low Value	Any tree that is not a high value tree.
Unshielded Fixture	A fixture that allows light to be emitted above the horizontal directly from the lamp or indirectly from the fixture or a reflector.
Urban Forester	The Urban Forester, City of New Braunfels, Texas.
Utility	Public and private utility infrastructure including, but not limited to, water mains, recycled water mains, gravity wastewater mains, wastewater force mains, wastewater lift stations, wastewater treatment plants, storm drains, overhead electric, underground electric, gas mains and communication lines.
Wholesale Trade Establishment	An establishment or place of business greater than 50,000 sq. ft. GFA, primarily engaged in selling and/or distributing merchandise to retailers; to industrial, commercial, institutional, or professional business users, or to other wholesalers; or acting as agents or brokers and buying merchandise for, or selling merchandise to, such individuals or companies.

16. Traffic Impact Analysis
(attached separately).



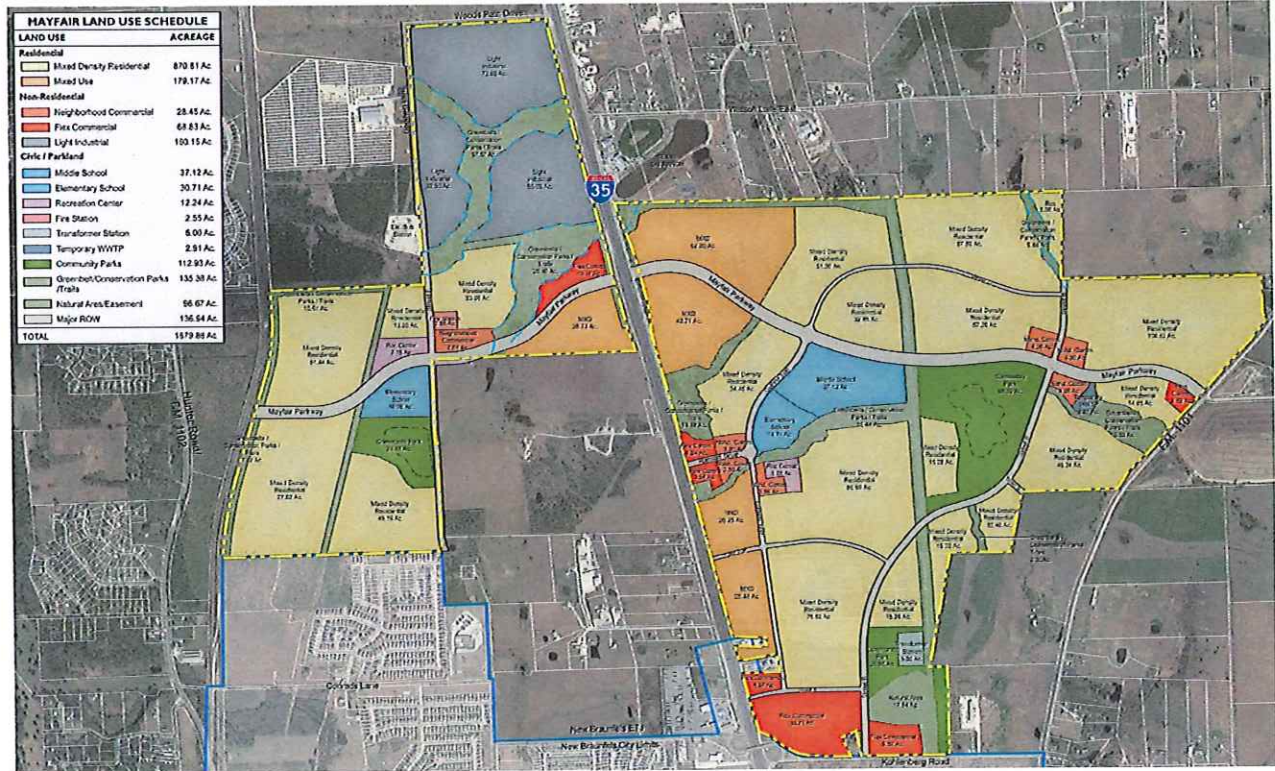
SOUTHSTAR

Exhibit E

(Master Framework Plan)



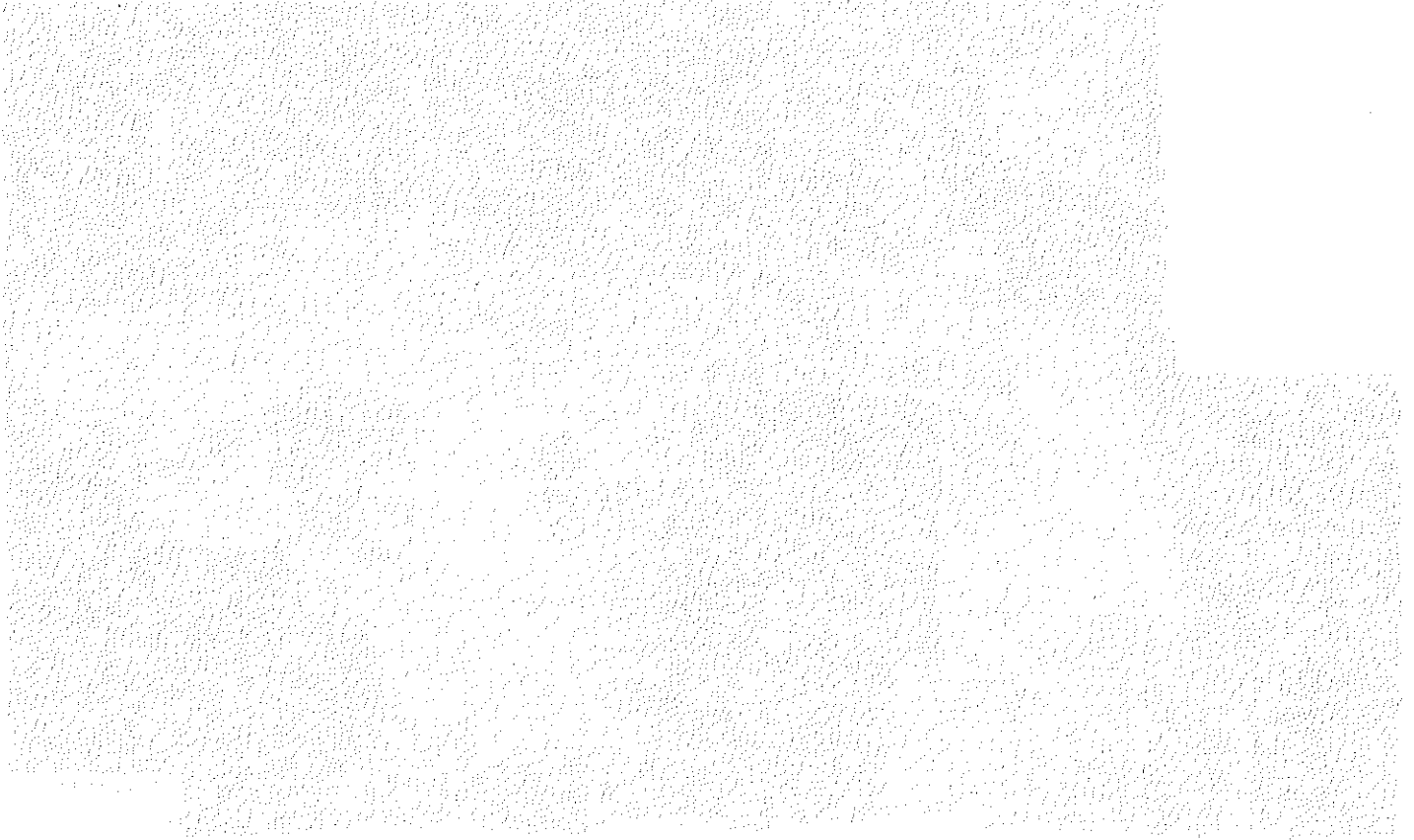
Mayfair Master Framework Plan



Updated 11/14/2023

Exhibit F

(Traffic Impact Analysis – Project Transportation Plan)





MAYFAIR

City of New Braunfels ETJ. Texas

Comal County

Planning Level

Traffic Impact Analysis

March 2021

(Rev. November 2020)

(Rev. March 2021)



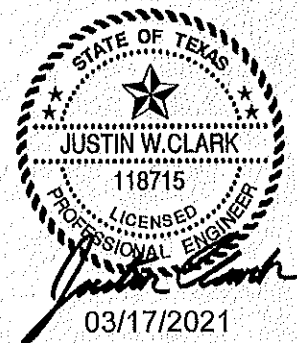
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- B Trip Generation Data
- C Traffic Count Data
- D FDOT Roadway sizing
- E TxDOT Roadway Improvements
- F Level of Service Descriptions
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- I Detailed Cost Estimate
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- K Preliminary Master Development Plan (MDP)

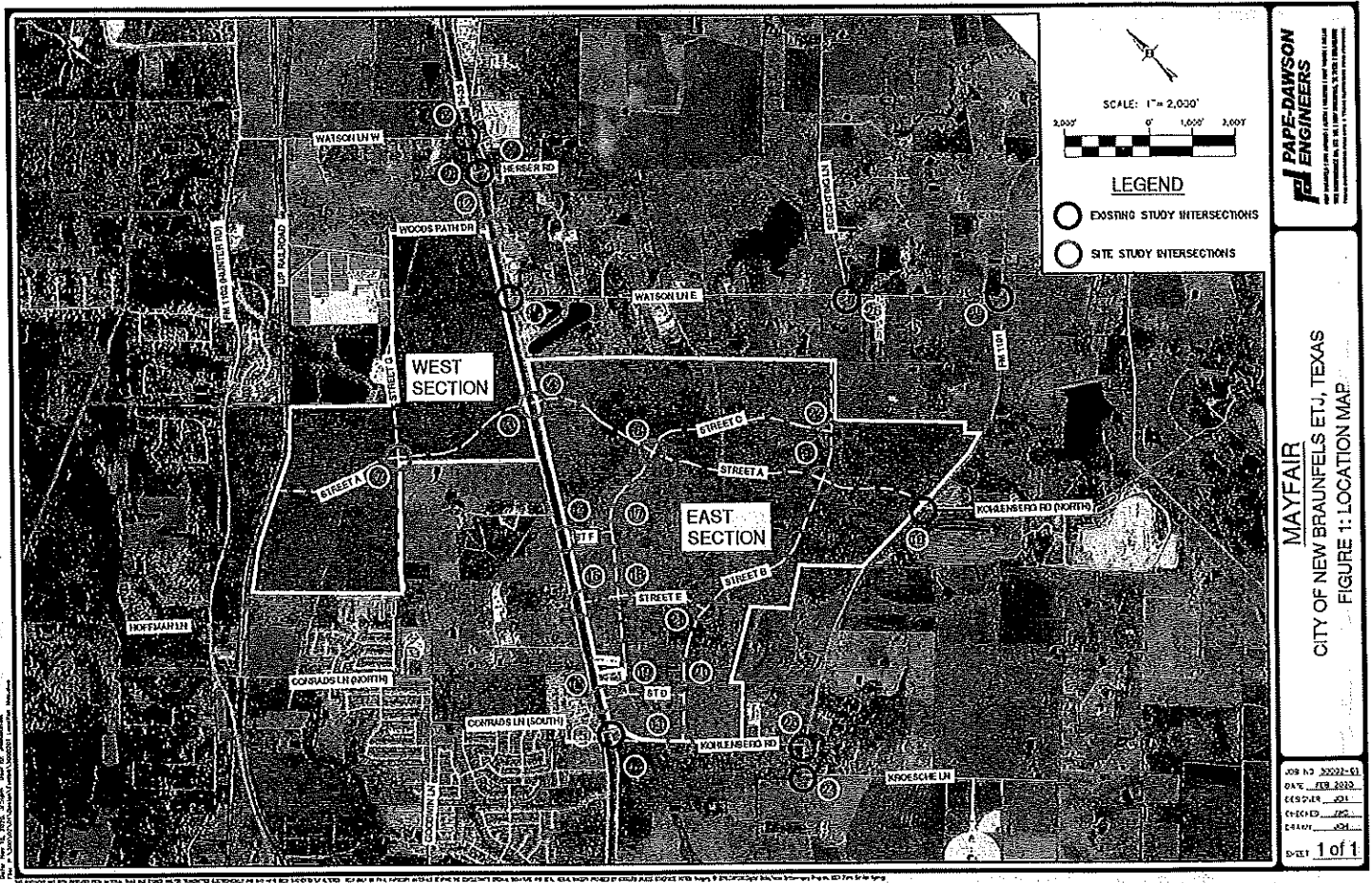
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INTRODUCTION

Pape-Dawson Engineers, Inc. was retained to prepare a Planning Level Traffic Impact Analysis (TIA) for the Mayfair development. Mayfair is a mixed-use development of approximately 1,888 acres located along IH-35 north of Conrads Lane/Kohlenberg Road and south of W Watson lane and E Watson Lane in the City of New Braunfels Extraterritorial Jurisdiction (ETJ), Comal County, Texas (see **Figure 1**). Mayfair will be developed primarily with single-family residential, as well as two elementary schools, a middle school, a high school, multi-family, light industrial, and commercial uses. **Figure 2** shows the schematic master development plan with the internal roadway layout for Mayfair. The Mayfair development is expected to be completed over a period of approximately twenty (20) years. As the site develops the land use densities and locations will change. However, the intent of this study is to plan the overall roadway network needed to support the development, size the roadways and right-of-way, and determine likely major intersection improvements.

In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements are required.



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PURPOSE

This study assesses important transportation and circulation issues in the absence of detailed land use and density information for the site. This Planning Level Traffic Impact Analysis will establish the existing transportation network, identify planned projects and roadway improvements in the area, project future trips generated by the development, distribute and assign the trips onto roadways, and recommend the transportation network layout and site access points. It will further define roadway hierarchies and right-of-way requirements for both roadway segments and major intersections.

STUDY PROCEDURE

The following sections provide a summary of field data, engineering analyses, and conclusions and recommendations. The following tasks were completed during the study:

- Determined analysis parameters during a meeting with City of New Braunfels staff as outlined in the Conference Memo contained in **Appendix J**.
- Established the boundaries of the study area and identified the major roadways and intersections serving the site.
- Identified planned roadway and preliminary intersection improvements through the study area.
- Projected No Build Condition traffic volumes by growing out existing volumes to the year 2040 by applying an annual growth rate and combining any external development site trips.
- Estimated the projected number of trips to be generated by the development during the AM and PM peak hours and daily using the trip generation rates provided in *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers¹.
- Prepared a global trip distribution based on the existing and future roadway network.
- Assigned entering and exiting site traffic to site roadways and to the local street network using the global trip distribution.
- Developed Build Condition volumes for (2040) by combining the site-generated traffic with No Build Condition volumes.

¹ Institute of Transportation Engineers (ITE). *Trip Generation, 10th Edition*, 2017, Washington, D.C.

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- Evaluated right-of-way adequacy for internal and external roadways within the immediate boundaries of the project site based on projected future traffic volumes.
- Performed capacity analyses of study intersections for No Build and Build Conditions for the AM and PM peak hours.
- The evaluation of peak hour operations for each intersection and scenario was performed using Synchro, Version 10.2². All intersections were analyzed with traffic volumes, intersection geometry, and traffic control.
- The general characteristics associated with each level of service for unsignalized and signalized intersections based on the Highway Capacity Manual³ are presented in **Appendix F**, and the detailed Synchro Capacity Analysis Worksheets can be found in **Appendix G**.
- Traffic impacts are identified when the Build Condition level of service (LOS) at the study intersections is below LOS C.
- Compared and analyzed the results of the capacity analyses to identify potential traffic impacts and propose suitable mitigation measures.
- Provided functional design recommendations for lane configurations at major intersections within the immediate boundaries of the project site.

AREA CONDITIONS

Mayfair is located along IH-35 north of Conrads Lane/Kohlenberg Road and south of W Watson lane and E Watson Lane and is currently undeveloped.

ROADWAY NETWORK

IH-35 and FM 1101 are expected to provide regional access to Mayfair. The study area encompasses the following key intersections:

- 1) IH-35 Northbound Frontage Road at Watson Lane (West)
- 2) IH-35 Southbound Frontage Road at Watson Lane (West)
- 3) IH-35 Southbound Frontage Road at Proposed Street A (future bridge)

² Trafficware®. 2019. *Synchro Studio 10.2, Synchro Plus SimTraffic and 3D Viewer*. Sugarland, Texas.

³ Transportation Research Board/National Research Council. 2000. *Highway Capacity Manual. Third Edition*, Washington, D.C.

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- 4) IH-35 Northbound Frontage Road at Proposed Street A (future bridge)
- 5) IH-35 Southbound Frontage Roads at Conrad Lane/Kohlenberg Road (x2)
- 6) IH-35 Northbound Frontage Roads at Conrad Lane/Kohlenberg Road (x2)
- 7) Proposed Street G at Proposed Street A
- 8) Proposed Street A at Proposed Street C
- 9) Proposed Street A at Proposed Street B
- 10) Proposed Street A/Kohlenberg Rd (north) at FM 1101
- 11) Kohlenberg Road at Proposed Street B
- 12) IH-35 Southbound Frontage Road at Woods Path Drive
- 13) IH-35 Northbound Frontage Road at Watson Lane (East)
- 14) IH-35 Northbound Frontage Road at Proposed Street F
- 15) IH-35 Northbound Frontage Road at Proposed Street E
- 16) IH-35 Northbound Frontage Road at Proposed Street D
- 17) Proposed Street F at Proposed Street C
- 18) Proposed Street C at Proposed Street E
- 19) Proposed Street C at Proposed Street D
- 20) Proposed Street D at Proposed Street B
- 21) Proposed Street B at Proposed Street E
- 22) Proposed Street B at Proposed Street C
- 23) Kohlenberg Road (South) at FM 1101
- 24) Kroesche Lane at FM 1101
- 25) Watson Lane East at FM 1101
- 26) Watson Lane East at Soechting Lane
- 27) IH-35 Frontage Roads Northbound Frontage Road at Herber Road (existing bridge)
- 28) IH-35 Frontage Roads Southbound Frontage Road at Herber Road (existing bridge)

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Each of the existing study intersections are shown in **Figure 1**. Brief descriptions of each roadway are provided below. TxDOT roadway improvements can be found in **Appendix E**.

IH-35

IH-35, which is under TxDOT jurisdiction, is identified on the City of New Braunfels 2012 Major Thoroughfare Plan (MTP) as an interstate with 300 feet to 450 feet of right-of-way. The segment of IH-35 through the study area will be upgraded to a freeway section with continuous one-way frontage roads that generally runs in a north-south direction. In addition, the ramps will be converted to a x-pattern and a new overpass is proposed at Street A. Also, the Conrads Lane/Kohlenburg Road interchange is being replaced and the Herber Road bridge will be relocated to Watson Lane W. TxDOT schematic is shown in **Appendix E**.

FM 1101

FM 1101 is shown on the City of New Braunfels 2012 MTP as a Principal Arterial with 150 feet of right-of-way. It generally runs in a north-south direction through the study area. Currently it is a two-lane, undivided rural highway. The posted speed limit is 55 miles per hour.

Herber Road

Herber Road is a two-lane, undivided roadway that runs in an east-west direction. The posted speed limit is 30 miles per hour. Herber Road aligns with an existing IH-35 turnaround bridge north of the site. With the proposed TxDOT roadway improvements on IH-35, this turnaround will be removed as shown in **Appendix E**.

Woods Path Drive

Woods Path Drive is a two-lane, undivided rural roadway that begins at IH-35 and terminates at Goodwin Lane. It generally runs in an east-west direction through the study area. The posted speed limit is 30 miles per hour.

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Goodwin Lane

Goodwin Lane is a two-lane disconnected, undivided rural roadway that begins at FM 306 and terminates at Conrads Lane. There is also another segment of Goodwin Lane that starts at an electrical service station and terminates at Woods Path Drive. It generally runs in a north-south direction through the study area. The posted speed limit is 30 miles per hour.

Kohlenberg Road (South)

Kohlenberg Road (South) is a two-lane, undivided rural roadway that begins at IH-35 and terminates at FM 1101. It generally runs in an east-west direction through the study area. The posted speed limit is 40 miles per hour.

Kohlenberg Road (North)

Kohlenberg Road (North) is a two-lane, undivided rural roadway that begins at FM 1101 and terminates at Schwartzlose Road. It generally runs in an east-west direction through the study area. The posted speed limit is 30 miles per hour.

Conrads Lane

Conrads Lane is identified on the City of New Braunfels 2012 MTP as a Major Collector with 90 feet of right-of-way. The posted speed limit is 40 miles per hour. It generally runs in an east-west direction through the study area. Currently it is a two-lane, undivided roadway that consists of two disconnected segments. The north segment runs between FM 1102 and Goodwin Lane, and the south segment runs between Goodwin Lane and IH-35 approximately 1,000 feet south of the northern segment. The 2012 MTP align the two disconnected segments with a proposed major collector.

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Soechting Lane

Soechting Lane is identified on the City of New Braunfels 2012 MTP as a Minor Collector with 60 feet of right-of-way. The posted speed limit is 30 miles per hour. It generally runs in a north-south direction near the study area. Currently it is a two-lane, undivided roadway that begins at Watson Lane (East) and terminates at York Creek Road.

Kroesche Lane

Kroesche Lane is a two-lane, undivided roadway that begins at FM 1101 and terminates at Westmeyer Road. The posted speed limit is 30 miles per hour. It generally runs in an east-west direction near the study area.

New Braunfels 2012 Regional Transportation Plan

Several roadways are included in the New Braunfels 2012 Regional Transportation Plan. **Figure 3** shows the site plan overlaid with the thoroughfare plan.

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TRAFFIC VOLUMES

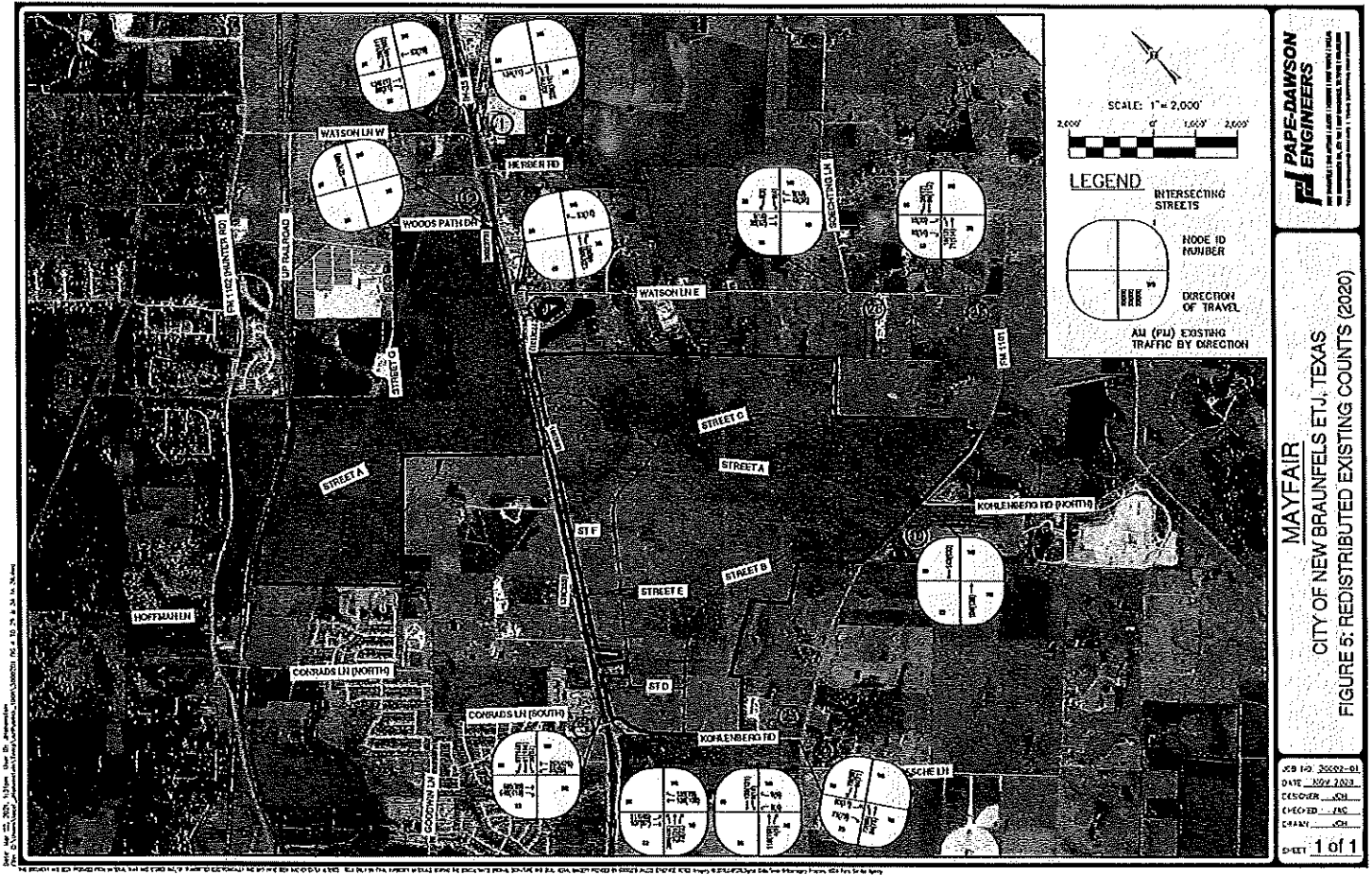
Intersection turning movement counts (TMC) were performed during the AM peak hours and PM peak hours at the key intersections. Counts were collected on Wednesday, January 22, 2020. The peak hours identified from the turning movement counts collected were 7:15-8:15 AM and 4:45-5:45 PM. Additional 24-hour bi-directional and uni-directional traffic volumes in the area were obtained using an Automatic Traffic recorder (ATR). Existing counts are presented in **Appendix C**. **Figure 4** shows the ADT data along with intersection locations with available turning movement count data. **Table 1** summarizes the daily trips on the major area roadways.

Table 1: Daily Traffic on Major Roadways (2020)

Roadway	Location	Daily Trips (vpd)
IH-35 NB Main Lanes	North of Conrads Ln/Kohlenberg Rd	44,439
IH-35 SB Main Lanes	North of Conrads Ln/Kohlenberg Rd	45,006
IH-35 NB Entrance Ramp 193	North of Conrads Ln/Kohlenberg Rd	1,710
IH-35 SB Exit Ramp 193	North of Conrads Ln/Kohlenberg Rd	3,560
IH-35 NB Exit Ramp 195	South of Watson Lane	2,135
IH-35 SB Entrance Ramp 195	South of Woods Path	2,989
Watson Lane	East of IH-35	1,437
Kohlenberg Road	Between IH-35 and FM 1101	2,725
FM 1101	Between Kohlenberg (South) and Kohlenberg (North)	2,713

REDISTRIBUTED TRAFFIC VOLUMES

TxDOT is planning major roadway improvements along IH-35. Two-way frontage roads will be converted to one-way frontage roads. Turnaround access at Herber Road will be relocated north at Watson Lane W. The IH-35 at Kohlenberg Rd/Conrads Lane intersection will be converted from a partial clover leaf to a diamond intersection. Additionally, there will ramp relocations throughout the area. **Appendix E** shows the preliminary TxDOT schematic. Due to these improvements, the existing volumes were redistributed. **Figure 5** shows the redistributed turning movement count data.



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BACKGROUND GROWTH

An annual growth rate was estimated at 2% based on historical average daily traffic (ADT) counts performed by TxDOT⁴ between 2014 and 2018. This rate represents the average growth rate for the area surrounding the site. The background growth rate will be reevaluated with each submittal of a detailed traffic study associated with sector plans or plats for development. **Table 2** illustrates historical ADT data near the development site. **Appendix A** shows the location of each projection location.

Table 2: Rate of Traffic Growth

Location	Year	AADT	Rate of Growth (%)	Growth (%)
IH -35, S of FM 306	2014	115,761		
	2015	120,760	4.3%	
	2016	131,392	8.8%	-0.8%
	2017	135,102	2.8%	
	2018	109,481	-19.0%	
IH-35, S of FM 1102	2014	100,064		
	2015	98,003	-2.1%	
	2016	103,864	6.0%	1.3%
	2017	105,734	1.8%	
	2018	105,359	-0.4%	
FM 306, W of IH-35	2014	19,381		
	2015	23,157	19.5%	
	2016	25,580	10.5%	13.6%
	2017	31,949	24.9%	
	2018	31,870	-0.2%	
Calculated Weighted Average Growth				2%

Additionally, the 2% growth rate was verified with the TxDOT Planning Map⁴ future traffic and percent growth overlay. As shown in **Table 3** all external roadways have a 2% projected growth rate. However, it should be noted that because the majority of these roadways are low volume, and there is potential for other developments to come along FM 1101, the projected growth rate may be underestimated. The background growth rate will be reevaluated with each submittal of a detailed traffic study associated with sector plans or plats for development.

⁴ TxDOT Planning Map Website, www.txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html

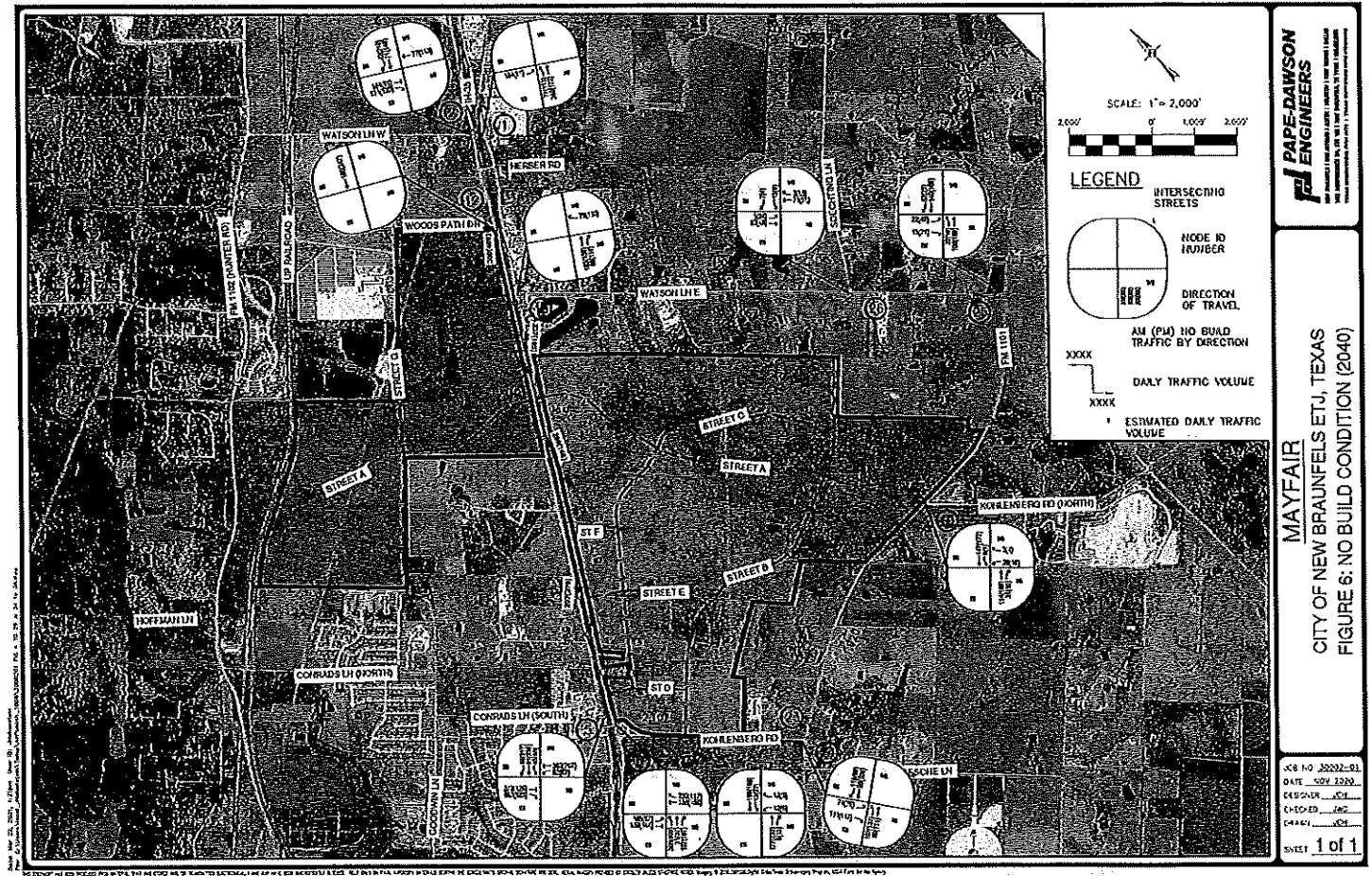
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Table 3: TxDOT Planning Map Calculated Growth

Road	2018 AADT	2038 Estimated AADT	% Growth
IH-35 NBFR	2,070	2,894	2%
IH-35 SBFR	2,552	3,573	2%
IH-35 ML	100,737	141,032	2%
Kohlenberg S	1,474	2,084	2%
FM 1101	2,418	3,385	2%
Watson E	1,067	1,494	2%
Watson W	2,618	3,665	2%
FM 1102	6,427	8,998	2%

The No Build peak hour traffic volumes were developed by applying the annual growth factor to the existing redistributed volumes to project them over a period of approximately twenty (20) years and adding any external site traffic. The No Build Condition traffic volumes and resulting weekday average daily traffic (ADT) on major internal and external roadways is summarized of the roadway network are presented in **Figure 6**.



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FIGURE 6: NO BUILD CONDITION (2040)

DATE: 10/1/2020
CHECKED: JAC
DRAWN: JAC
SHEET: 1 of 1

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PROPOSED DEVELOPMENT

PROPOSED ROADWAYS

Several roadways are being proposed to be constructed to serve Mayfair, as shown in **Figure 2**.

The site is divided into two major sections: East and West.

- Proposed Street A will serve as the primary east-west connection through sections of Mayfair.
- The proposed Street B, located in the East section of Mayfair, will generally run in a north-south direction. Street B will be constructed from north of Street C up to Kohlenberg Road (South).
- The proposed Street C, located in the East section of Mayfair, will generally run in a north-south direction and begin west of Street B and terminate north of Street D.
- The proposed Street D, located in the East section of Mayfair, will generally run in an east-west direction. Street D will be constructed from IH-35 to Street B.
- The proposed Street E, located in the East section of Mayfair, will generally run in an east-west direction. Street E will be constructed from IH-35 to Street B.
- The proposed Street F, located in the East section of Mayfair, will generally run in an east-west direction. Street F will be constructed from IH-35 to Street C.
- The proposed Street G, located in the West section of Mayfair, will generally run in a north-south direction. Street G will be constructed from Woods Path Drive and will end at the site boundary.

PROPOSED LAND USES

Mayfair is a mixed-use site that will be developed primarily for residential uses, as well as two proposed elementary schools, one middle school, one high school, multi-family sites, light-industrial, parks, offices, and commercial uses. Mayfair is anticipated to be complete over a period of approximately twenty (20) years. At the time of this study the definite land uses and densities are not available. Therefore, it is necessary to make some general assumptions that are reasonable

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and conservative in terms of projecting the trip generation for land uses and density mix. It is understood that the assumed land use and density plan is conceptual and likely to change as individual parcels are developed over time in the future. The retail/commercial land uses typically could include a variety of businesses with different trip generation rates. However, it is not feasible to make detailed assumptions for the retail/commercial land uses at the master development plan stage. **Table 4** shows the following land use density assumptions. A Floor Area Ratio (F.A.R.) is the area of land that will have a building footprint. For the various commercial land uses, conservative F.A.R. were assumed.

Table 4: Proposed Land Use Summary

Residential			
Trip Generation Land Use	Master Plan Land Use	F.A.R.	DU/ac
Single-Family Detached Housing (210)	40'-45's Single Family	-	4.9
	50'-55's Single Family	-	3.9
	60'-65's Single Family	-	3.2
	Single Family/Townhome	-	6
Multifamily Housing (Low-Rise) (220)	Multi Family	-	18
Commercial			
Trip Generation Land Use	Master Plan Land Use	F.A.R.	TSFGFA/ac
Shopping Center (820)	Flex Commercial MXD	20%	8.712
	Flex Commercial	15%	6.534
	Comm	100%	43.56
General Office Building (710)	Office	20%	8.712
General Light Industrial (110)	Light Industrial	17.5%	7.623
Fire and Rescue Station (575)	Fire	20%	8.712
Educational			
Trip Generation Land Use	Master Plan Land Use	F.A.R.	students/ac
Elementary School (520)	Elementary School	-	800
Middle School (522)	Middle/High School	-	1,100
High School (530)	Middle/High School	-	2,000

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Certain areas in the site plan are labeled Mixed Use. **Table 5** shows the assumed land uses for the Mixed Use areas.

Table 5: Proposed Land Use for Mixed Use

MXD	%
Single Family/Townhome	40
Multi Family	35
Flex Commercial	10
Office	15

Following the above assumptions, the most likely and reasonable land uses and densities for Mayfair is summarized in **Table 6**.

Table 6: Proposed Land Use Summary

Land Use	ITE Code	Size	Unit
Single-Family Homes	210	4,209	DU
Apartments	220	808	DU
Elementary School (2 schools)	520	1,600	Students
Middle School	522	1,100	Students
High School	530	2,000	Students
General Office Building	710	167.68	TSFGFA
General Light Industrial	110	1219.29	TSFGFA
Public Park	411	226.18	Acres
Fire and Rescue Station	575	21.95	TSFGFA
Shopping Center	820	1,662.34	TSFGFA

DU = Dwelling Unit; TSFGFA = 1,000 square feet gross leasable area; TSFGFA = 1,000 square feet gross floor area

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PROJECTED TRAFFIC

Trip Generation

The amount of site traffic generated by the proposed development is a function of the density and type of land use. The projected number of vehicle trips generated by the proposed development was calculated using statistical data contained in *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE) and considered an industry standard.

The traffic generated by the project was calculated for the AM and PM peak hours of traffic on the adjacent roadways, since these periods experience the greatest roadway congestion during an average weekday. The trip generation rates for each land use are summarized in **Table 7**. The resulting unadjusted projected site traffic is shown in **Table 8**. A summary of the trip generation data broken out by tract and phase is provided in **Appendix B**. It should be noted that phasing will change based on developers of future tracts.

Table 7: Trip Generation Rates

Land Use (ITE Code)	Unit	Weekday AM Peak Hour		Weekday PM Peak Hour		Weekday Daily	
		Rate Per Unit	In/Out Split	Rate per Unit	In/Out Split	Rate per Unit	In/Out Split
Single-Family Homes (210)	DU	0.74	25/75	0.99	63/37	9.44	50/50
Apartments (220)	DU	0.46	23/77	0.56	63/37	7.32	50/50
Elementary School (520)	Students	0.67	54/46	0.34	45/55	1.89	50/50
Middle School (522)	Students	0.58	54/46	0.35	46/54	2.13	50/50
High School (530)	Students	0.52	67/66	0.14	48/52	2.03	50/50
General Office Building (710)	TSFGFA	1.16	86/14	1.15	16/84	9.74	50/50
General Light Industrial (110)	TSFGFA	0.7	88/12	0.63	13/84	4.96	50/50
Public Park (411)	Acres	0.02	59/41	0.11	55/45	0.78	50/50
Fire and Rescue Station (575)	TSFGFA	NA	NA	NA	NA	0.48	50/50
Shopping Center (820)	TSFGFA	0.94	62/38	3.81	48/52	37.75	50/50

DU = Dwelling Unit; TSFGFA = 1,000 square feet gross leasable area; TSFGFA = 1,000 square feet gross floor area

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Table 8: Projected Site Traffic

Land Use (ITE Code)	Size	Unit	AM Peak Hour		PM Peak Hour		Daily Total
			Enter	Exit	Enter	Exit	
East Section							
Single-Family Homes (210)	3,108	DU	574	1,727	1,938	1,137	29,341
Apartments (220)	629	DU	66	223	222	131	4,605
Elementary School (520)	800	Students	289	247	122	150	1,512
Middle School (522)	1,100	Students	345	293	177	208	2,343
High School (530)	2,000	Students	697	343	134	146	4,060
General Office Building (710)	130.45	TSFGFA	131	20	24	127	1,270
General Light Industrial (110)	-	TSFGFA	-	-	-	-	-
Public Park (411)	137.18	Acres	1	1	8	8	107
Fire and Rescue Station (575)	-	TSFGFA	-	-	-	-	-
Shopping Center (820)	1,273.79	TSFGLA	742	454	2,330	2,525	48,084
			2,845	3,308	4,955	4,432	91,322
			6,153		9,387		
West Section							
Single-Family Homes (210)	1,101	DU	203	611	687	402	10,393
Apartments (220)	179	DU	19	63	63	37	1,310
Elementary School (520)	800	Students	289	247	122	150	1,512
Middle School (522)	-	Students	-	-	-	-	-
High School (530)	-	Students	-	-	-	-	-
General Office Building (710)	37.23	TSFGFA	37	6	7	36	363
General Light Industrial (110)	1219.29	TSFGFA	751	103	100	668	6,048
Public Park (411)	89.00	Acres	0	0	5	4	69
Fire and Rescue Station (575)	21.95	TSFGFA	0	0	0	0	11
Shopping Center (820)	388.55	TSFGLA	226	139	711	770	14,668
Subtotal			1,525	1,169	1,695	2,067	34,374
Total			2,694		3,762		
Total							
Single-Family Homes (210)	4,209	DU	777	2,338	2,625	1,539	39,734
Apartments (220)	808	DU	85	286	285	168	5,915
Elementary School (520)	1,600	Students	578	494	244	300	3,024
Middle School (522)	1100	Students	345	293	177	208	2,343
High School (530)	2000	Students	697	343	134	146	4,060
General Office Building (710)	167.68	TSFGFA	168	26	31	163	1,633
General Light Industrial (110)	1219.29	TSFGFA	751	103	100	668	6,048
Public Park (411)	226.18	Acres	1	1	13	12	176
Fire and Rescue Station (575)	21.95	TSFGFA	0	0	0	0	11
Shopping Center (820)	1,662.34	TSFGLA	968	593	3,041	3,295	62,752
Subtotal			4,370	4,477	6,650	6,499	125,696
Total			8,847		13,149		

DU = Dwelling Unit; TSFGFA = 1,000 square feet gross leasable area; TSFGFA = 1,000 square feet gross floor area

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TRIP REDUCTIONS

Internal Trips

Internal trips are defined as trips occurring between uses contained on the site. These internal trips are captured on the site as traffic and are not required to exit the site to use the external roadway network. Internal capture rates are the percentage reductions that can be applied to trip generation estimates based on the relationship of the uses contained on the site. No internal trip reduction was considered for the purposes of this study because all trips will be using the internal roadways and should be part of the roadway sizing calculations.

Pass-By Trips

Pass-by trips are defined as intermediate stops on the way from an origin to a primary destination. Pass-by traffic is traffic already on the roadway traveling by the site. In other words, pass-by traffic would not be new traffic added to the roadway network. Factoring for pass-by trips does not affect the site driveway volumes, but it may reduce the amount of project traffic added to the adjacent street network. No pass-by trip reduction was considered for the purposes of this study.

TRIP DISTRIBUTION

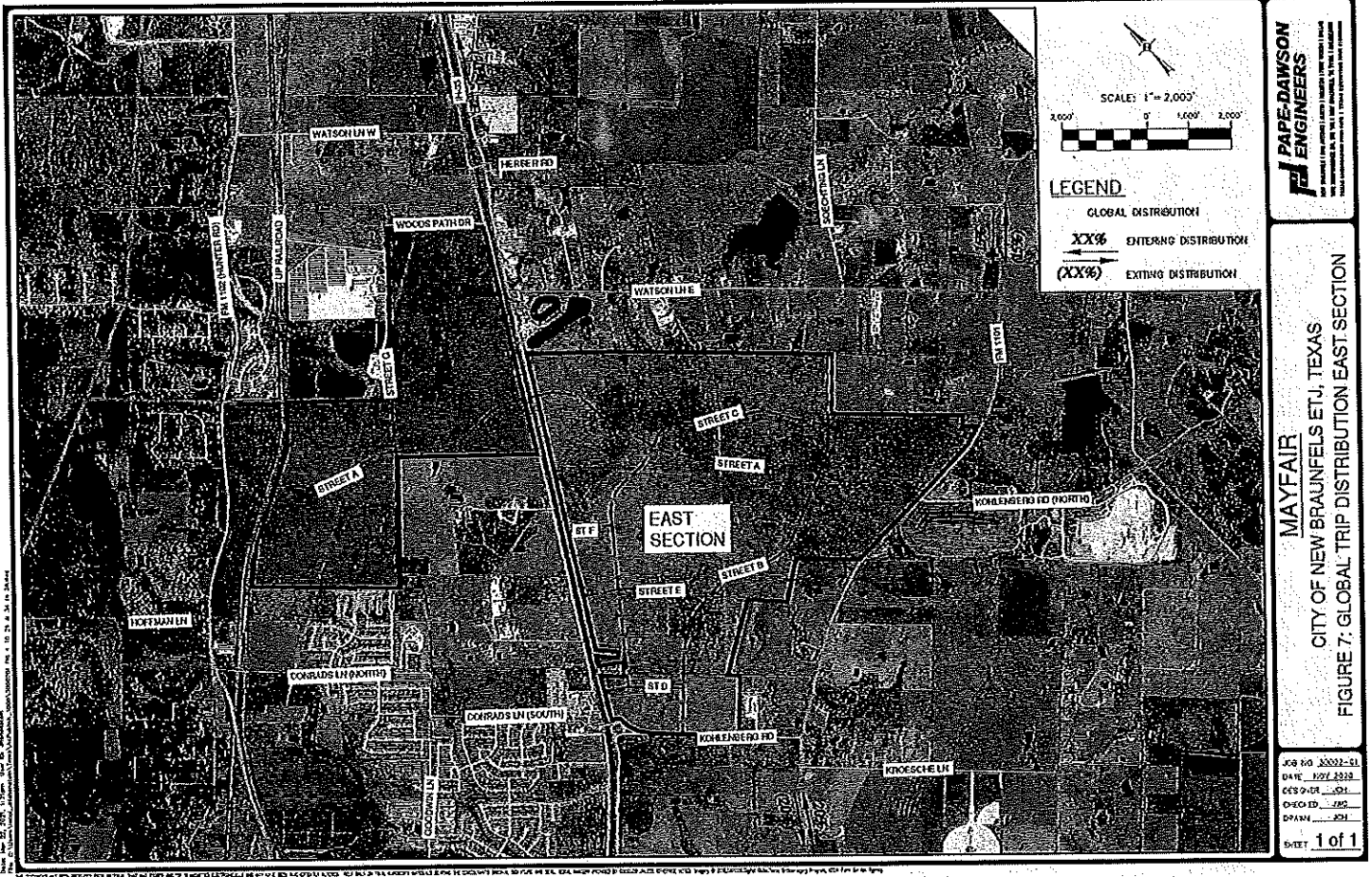
The directions from which drivers are expected to approach and depart the site are based on several variables. These variables include the configuration and characteristics of the existing and future external street network, the proposed internal roadway layout, traffic volumes on the street network, and the population distribution within the region. A special emphasis is placed on viable arterials and freeways that provide access to the site. The expected global trip distribution for the proposed development is presented in **Table 9** and **Figure 7** through **Figure 8**.

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Table 9: Global Trip Distribution per Section

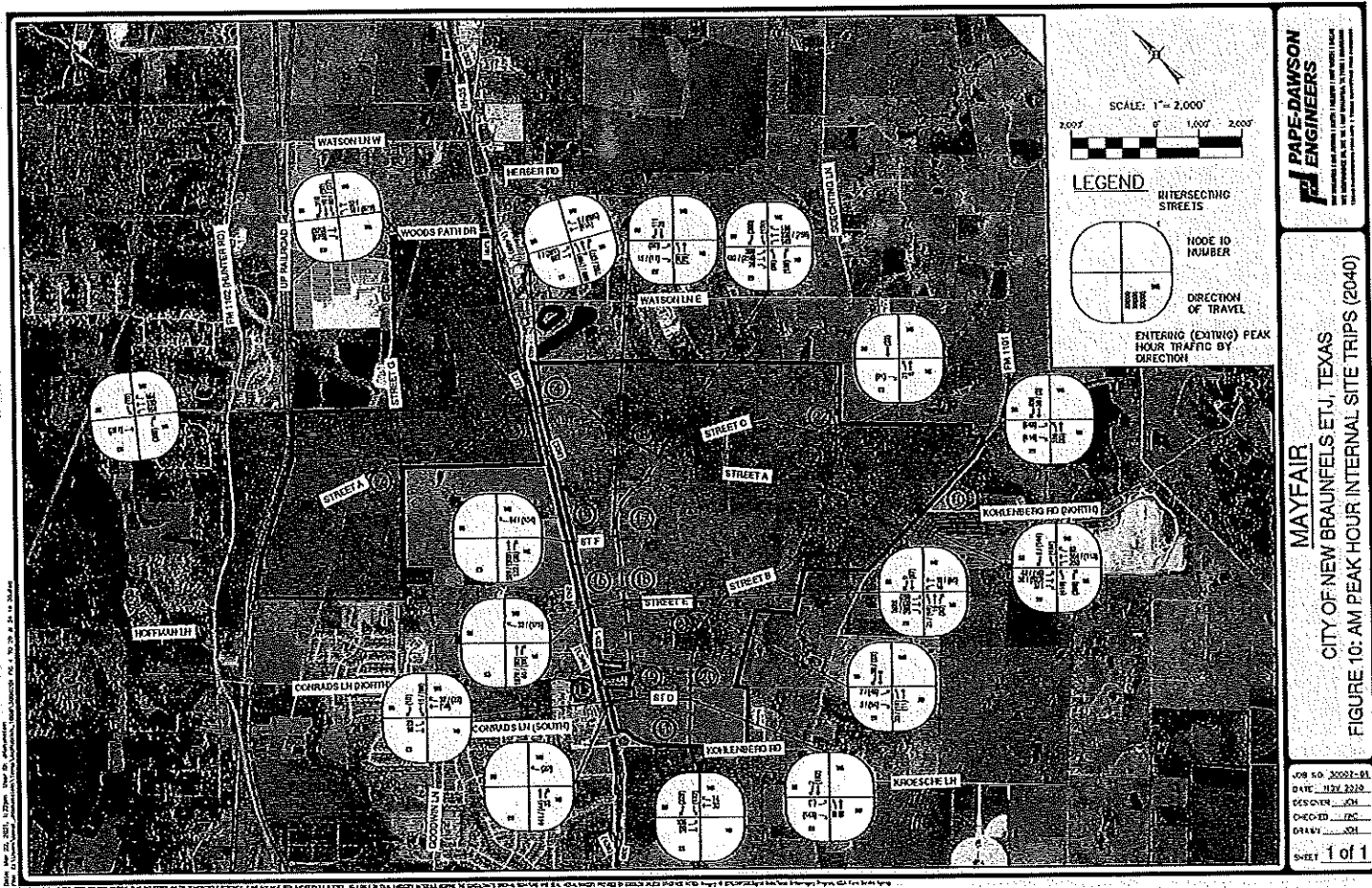
Direction	Primary Roadways	% of Site Traffic	Daily Volume
East Section			
North	IH-35	30%	27,397
North	FM 1101	15%	13,698
South	IH-35	35%	31,963
South	FM 1101	20%	18,264
Total		100%	91,322
West Section			
North	IH-35	35%	12,031
South	IH-35	65%	22,343
Total		100%	34,374



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SITE TRAFFIC ASSIGNMENT

Trip distributions along major internal roadways were performed for site generated traffic using the global trip distribution in conjunction with the area roadway system expected to be in place when the development is complete. The net projected site traffic presented in **Table 8** was assigned to the local roadway network for the AM peak hour, PM peak hour, and daily using the trip distribution. The site traffic peak hour volumes are shown in **Figure 9** through **Figure 12** for the AM and PM peak hours, respectively. Ramp volumes were also included. The Build Condition peak hour traffic volumes were developed by combining the No Build Condition volumes with the site-generated volumes. The Build Condition volumes for the AM and PM peak hours of the roadway network are illustrated in **Figure 13** and **Figure 14**. The resulting weekday average daily traffic (ADT) of site generated trips on major internal and external roadways is summarized in **Figure 15**. The site peak hour trips, daily trips, and Build Condition will be reevaluated with each submittal of a detailed traffic study associated with sector plans or plats for development.





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FIGURE 11: PM PEAK HOUR EXTERNAL SITE TRIPS (2040)

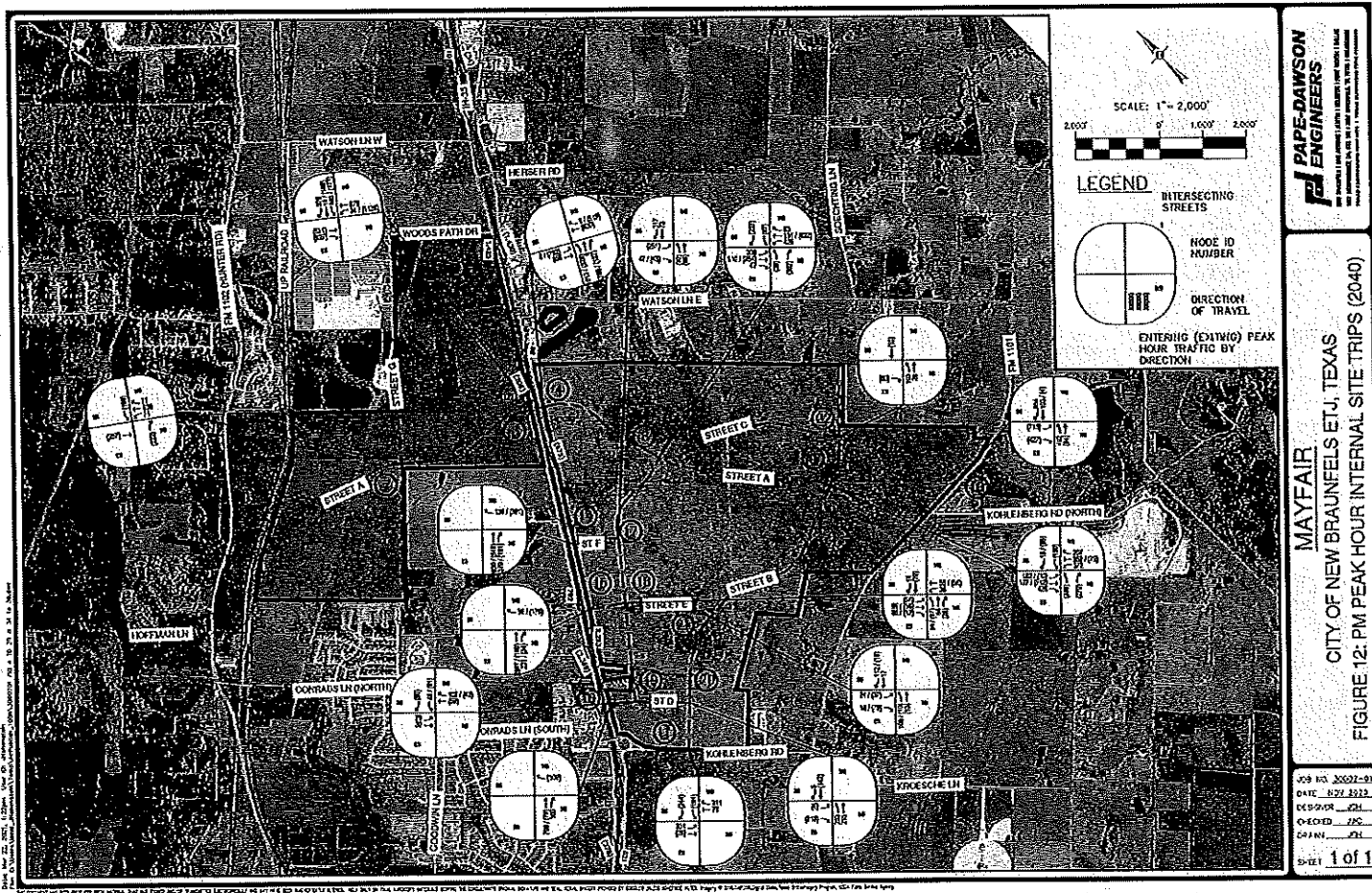
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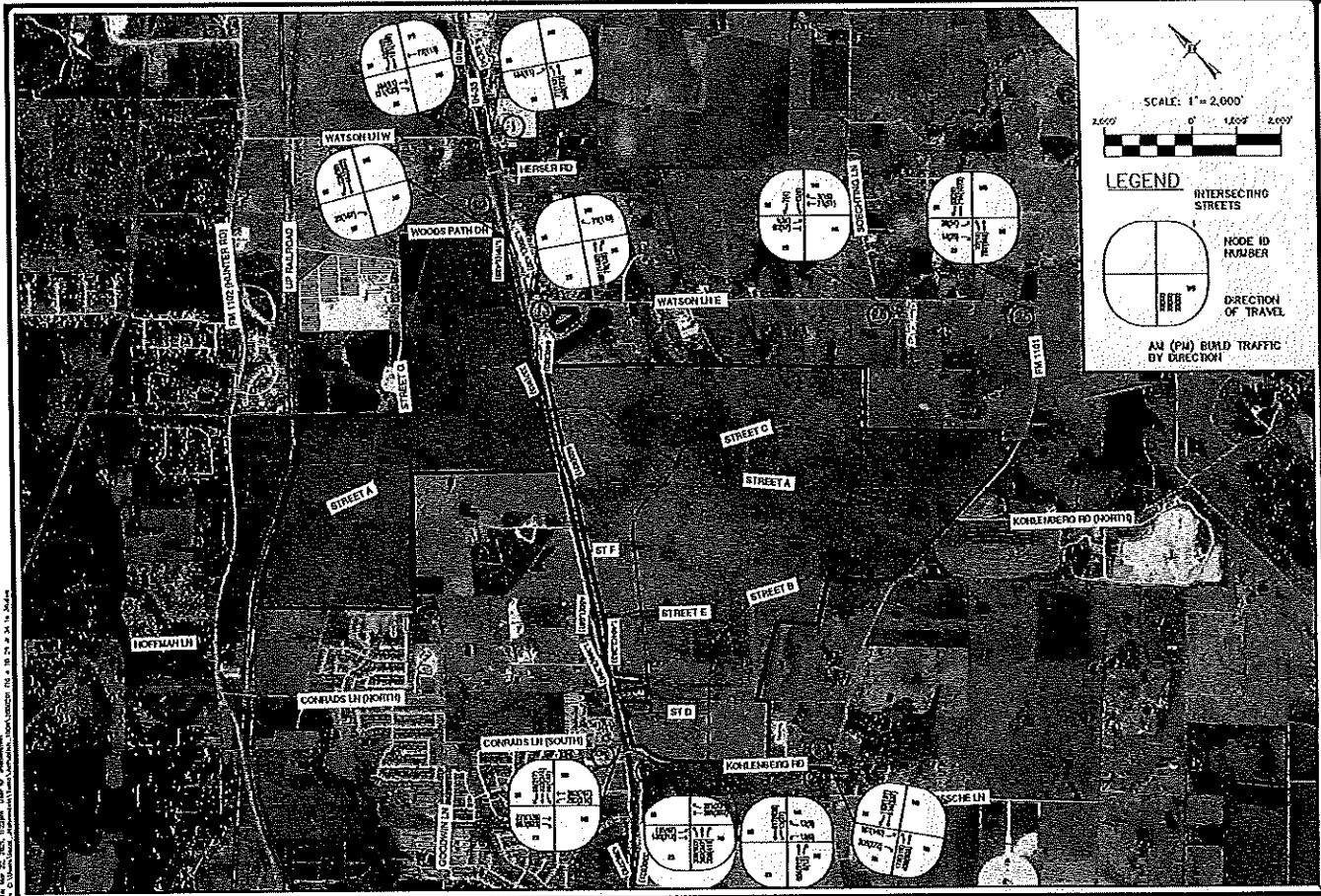
DESIGNER: JCH

CHECKED: JMC

DRAWN: JCH

D-11 1 of 1





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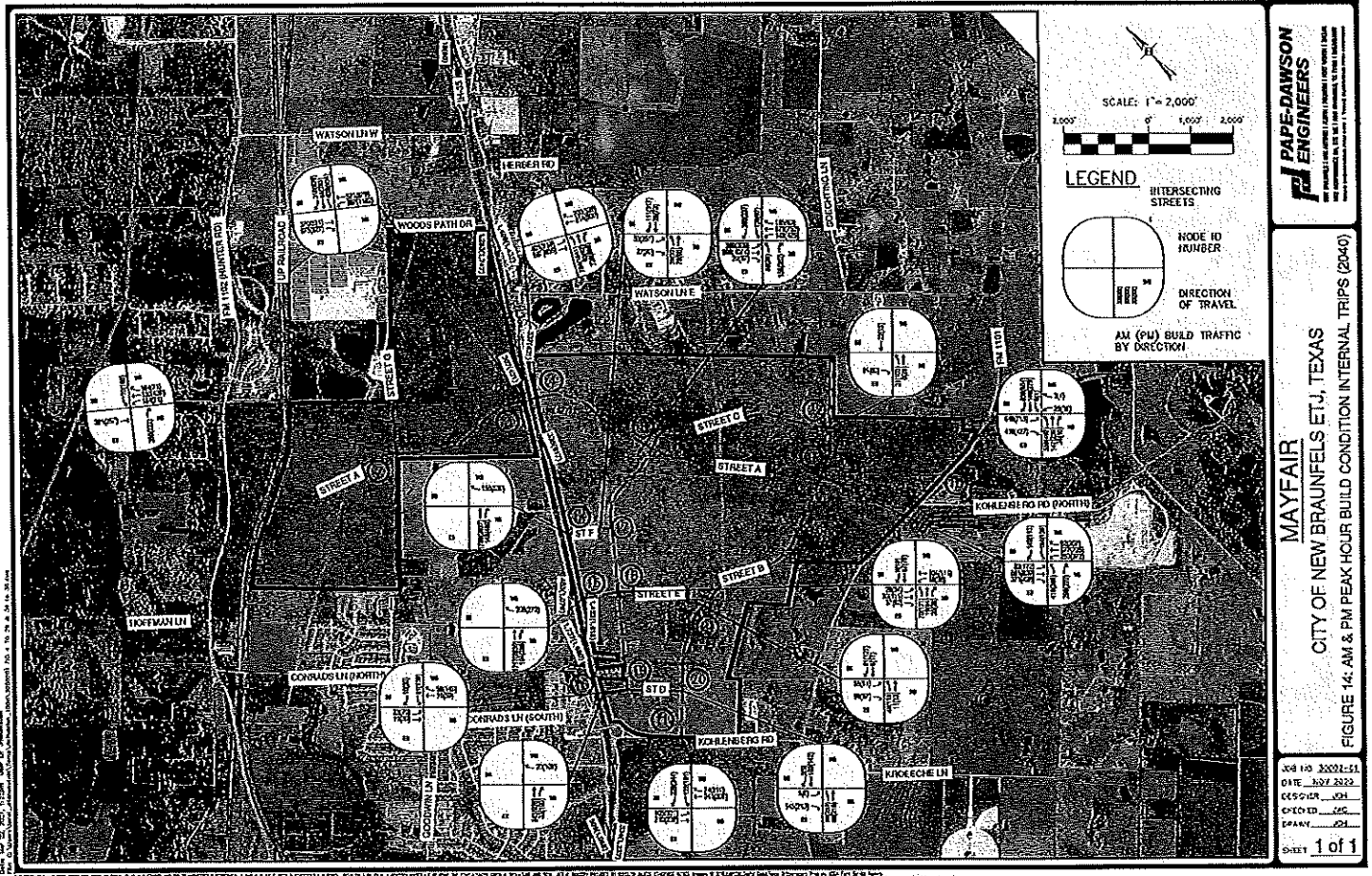
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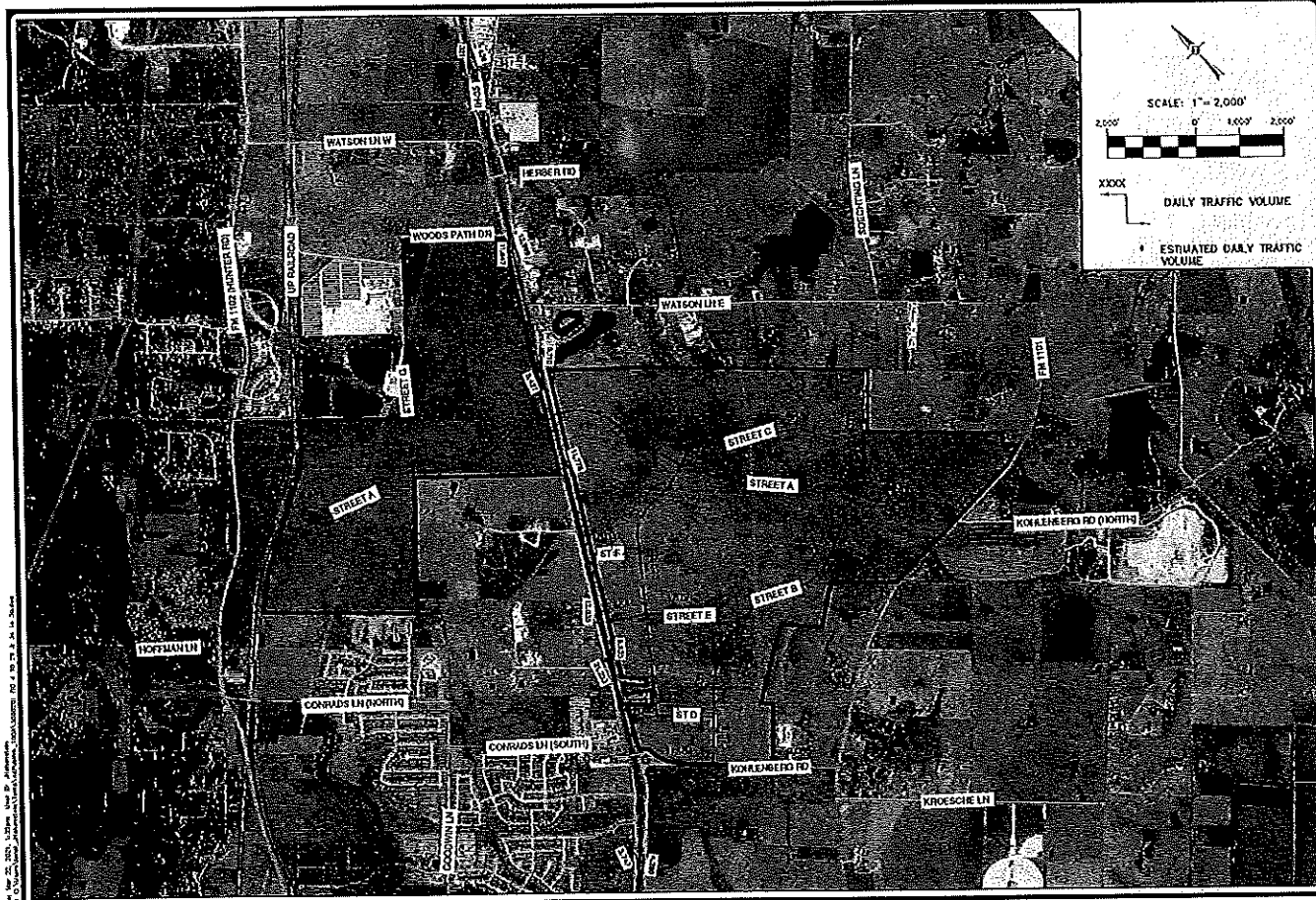
CITY OF NEW BRAUNFELS ETJ, TEXAS

FIGURE 13: AM & PM PEAK HOUR BUILD CONDITION EXTERNAL TRIPS (2040)

JOB NO. 2002-01
 DATE 10/01/2002
 DESIGNED BY JCH
 CHECKED BY JCH
 DRAWN BY JCH
 SHEET 1 of 1

DATE: 10/01/2002, 10:23am, User: JCH
 FILE: C:\Users\jch\Documents\Projects\Mayfair\Map\Map13.mxd
 TITLE: MAYFAIR - AM & PM PEAK HOUR BUILD CONDITION EXTERNAL TRIPS (2040)





SCALE: 1"=2,000'



XXX

DAILY TRAFFIC VOLUME.

ESTIMATED DAILY TRAFFIC VOLUME

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FIGURE 15: BUILD 2040 AVERAGE DAILY TRAFFIC (ADT)

CA 100 30022-04

DATE 15/1/2022

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Page 1 of 1

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PROPOSED ROAD NETWORK

Daily Trip Volume

The 2040 No Build and Build Daily Volumes were calculated and are shown in Table 10. The percent of daily volume from the development is also calculated and included. The No Build and Build Daily Volumes will be reevaluated with each submittal of a detailed traffic study associated with sector plans or plats for development.

Table 10: 2040 Daily Volume on External Roadways and Percentage from Development

Location	No Build	Site	Build	% from Developer
Watson Ln E	2,135	93	2,228	4%
FM 1101	4,032	10,945	14,977	73%
Kohlenberg, W of ST B	4,049	7,135	11,184	64%
Kohlenberg, E of ST B	4,049	5,037	9,086	55%
IH-35 NBFR, between Kohlenberg and St A	817	29,754	30,571	97%
IH-35 SBFR, between Kohlenberg and St A	969	29,274	30,243	97%

Site Access

IH-35 and FM 1101 are expected to provide regional and direct access to Mayfair. Mayfair is analyzed with access to FM 1101 through Street A and IH-35 through Street A, Street D, Street E, and Street F. Access will be provided to Kohlenberg Road through Street B. Additionally Street B and Street C will provide north-south connectivity for the East Section. In the west section, access will be provided to IH-35 through Street A and Woods Path Drive. Street G will provide north-south connectivity for the East Section. The proposed Streets C, D, E, F and G will provide internal connections within Mayfair.

RIGHT-OF-WAY RECOMMENDATIONS

Major roadways and intersections falling within the immediate boundaries of Mayfair were evaluated for right-of-way adequacy and intersection lane configurations, using the projected site traffic. As the project evolves, individual tracts within the site will be developed within different time frames. A TIA should be performed for each sector plan and individual parcels platted or submitted for site plan approval. Each subsequent TIA submitted should be checked against this study for conformance or to ascertain that justification for a deviation is provided in the TIA.

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The projected site-generated average daily traffic presented in **Figure 15** in conjunction with ADT Threshold from Florida DOT "Generalized Annual Average Daily Volumes" Table 2 was ⁵used to evaluate the right-of-way requirements for the major roadways serving Mayfair. The 2012 FDOT Quality/Level of Service Handbook Tables for roadway volumes was used in determining roadway sizing since the City of New Braunfels does not have daily volume thresholds by street type and operating agency. In addition, separate FDOT QLOS tables are developed for different area types. For the development roadway sizing the transitioning area was selected since the site within the City of New Braunfels ETJ which is currently mostly undeveloped. The transitioning area tables provide a lower maximum volume threshold compared to the urban area which provides a conservative roadway sizing. In addition, a +10% adjustment factor was applied for both the left-turn and right-turn lanes with a LOS D as the threshold values. **Appendix D** shows how the threshold values are calculated for each roadway type. The projected future traffic volumes were also used to evaluate lane configurations at major intersections. The right-of-way recommendations for major site roadways are shown in **Figure 30**. **Table 11** shows the recommended roadway types and threshold volumes.

Table 11: Roadway Types and Thresholds

Roadway Types	R.O.W.	Min Volume	Max Volume
Local Street (one-family large lot)*	60'	0	1,000
Local Street (one & two family)*	50'	0	1,000
Local Street (multi-family, industrial, & commercial)*	60'	0	1,000
Residential Collector(Non-TxDOT Roads)*	60'	0	5,000
Residential Collector(TxDOT Roads)*	60'	0	13,300
Minor Collector without bike lanes	60'	5,000	13,300
Minor Collector with bike lanes	72'		
Major Collector with bike lanes	90'	13,300	31,680
Major Collector with bike lanes	102'		
Minor Arterial without bike lanes	98'	31,680	39,050
Minor Arterial with bike lanes	110'		
Principal Arterial	150'	39,050	58,850
Parkway	200'	58,850	

*From New Braunfels Platting Ordinance Ch 18 Article IV Section 118-46 (s)

⁵ 2009 Quality /Level of Service Handbook, Florida Department of Transportation, 2009, Tallahassee

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For the minor collector with bike lanes, it is recommended that the minor collector have a shared use path instead of a buffered bike lane because of the high speed and high volume. **Figure 16** from the FHWA Bikeway Selection Guide⁶ shows what type of bike facility is recommended based on volume and speed.

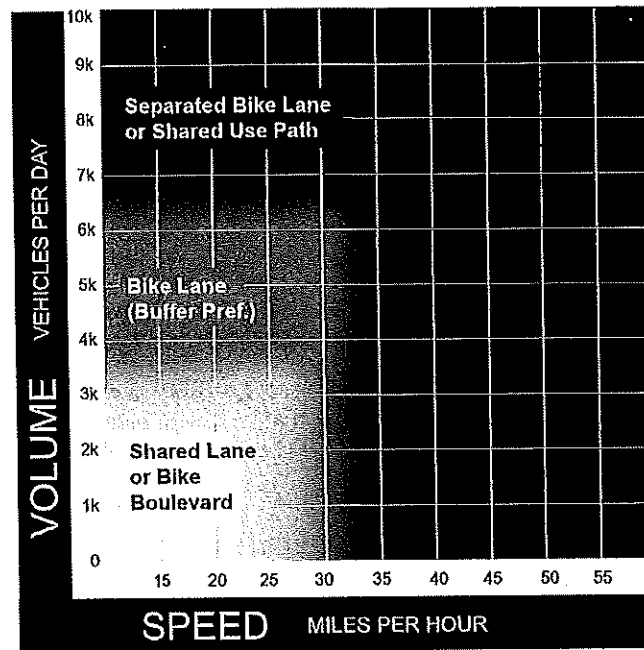


Figure 16: FHWA Bikeway Selection Guide

Additionally, a protected bike loop trail will be provided in the east section along Street A, B, C, D and various on-street and off-street nature trails as shown in **Appendix K**.

⁶ 2019 Bikeway Selection Guide, FHWA, 2019, USDOT

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Mayfair

The major roadways that were evaluated for right-of-way adequacy within the study area of Mayfair include:

1. IH-35 Northbound Frontage Road and IH-35 Southbound Frontage Road
2. FM 1101
3. Wood Path Drive
4. Kohlenberg Road (South)
5. Proposed Streets A, B, C, D, E, F, and G

FM 1101

FM 1101 is an existing two-lane, undivided rural highway with 28 feet of pavement and is a TxDOT Roadway. It will need to be widened when the daily volume is increases higher than 13,300 daily trips. FM 1101 is identified on the City of New Braunfels Major Thoroughfare Plan as a Principal Arterial with 150 feet of right-of-way. The results suggest that a minimum right-of-way of 150 feet should be reserved to accommodate three travel lanes in each direction with a 30-foot median. The projected 20-year build volume is estimated to be 14,977 daily trips. A Major Collector would be able to accommodate the projected Build volume. However, a 4-lane minor arterial with 98 feet of right-of-way is recommended to be more conservative. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at FM 1101.

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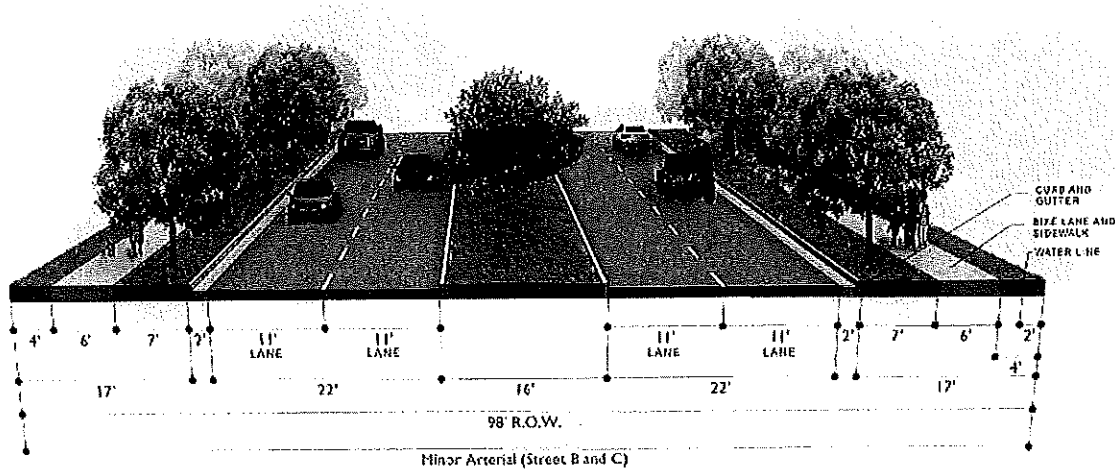


Figure 17: Proposed FM 1101 Minor Arterial 98' ROW

Woods Path Drive

Woods Path Drive is an existing two-lane, undivided roadway with 24 feet of pavement and is a non-TxDOT Roadway. It will need to be widened when it increases higher than the 5,000 daily trip threshold. Woods Path Drive is not identified on the City of New Braunfels Major Thoroughfare Plan. The projected 20-year build volume is estimated to be 1,674 daily trips. A Residential Collector would be able to accommodate the projected Build volume. However, it is recommended to be conservative that a minimum right-of-way of 60 feet should be reserved to accommodate one travel lanes in each direction and a two-way left-turn lane for a Minor Collector cross-section. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Woods Path Drive.

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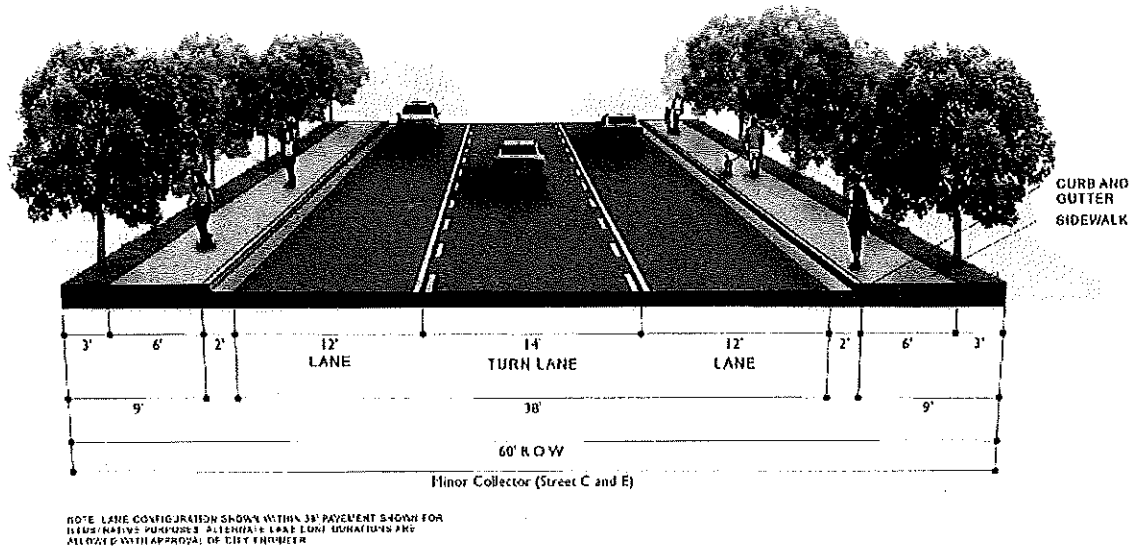


Figure 18: Woods Path Drive Minor Collector 60' ROW

Kohlenberg Road (South)

Kohlenberg Road (South) is an existing two-lane, undivided roadway with 24 feet of pavement. It will need to be widened when it increases higher than the 5,000 daily trip threshold. Kohlenberg Road (South) is not identified on the City of New Braunfels Major Thoroughfare Plan. Kohlenberg is planned to be included in the next MTP update as a minor arterial, was considered in the 2019 bond program, and is being submitted in the AAMPO 2021 Call for Projects. The projected 20-year build volume is estimated to be 11,184 daily trips. A Minor Collector would be able to accommodate the projected Build volume. However, it is recommended to be conservative that a Minor Arterial with a minimum right-of-way of 98 feet should be reserved to accommodate two travel lanes in each direction with a 12-foot median between IH-35 and Street B for site traffic. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Kohlenberg Road (South).

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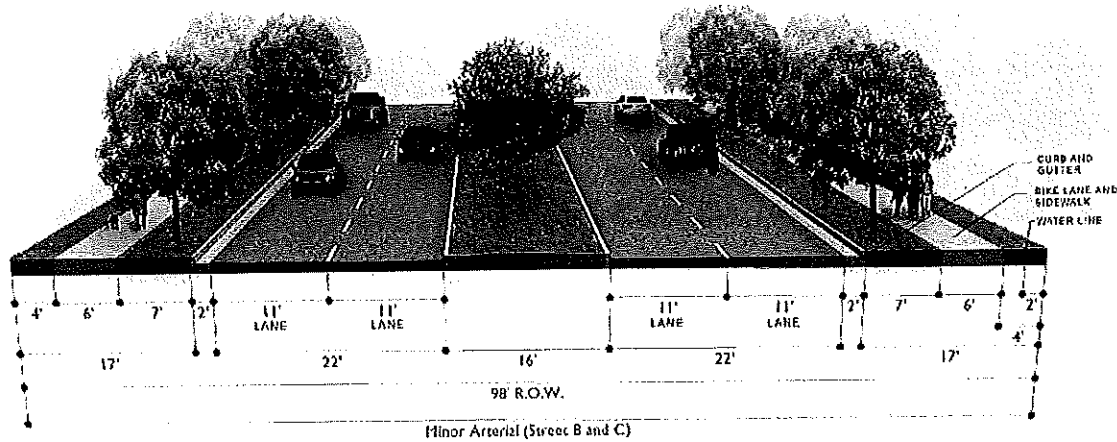


Figure 20: Kohlenberg Road (South) Minor Arterial 98' ROW

Proposed Street A

Proposed Street A will be a primary east-west interconnection for both the east and west sections of the site. It is identified on the City of New Braunfels Major Thoroughfare Plan as a Parkway with 200 feet of right-of-way. The projected 20-year build volume is estimated to be 27,483 daily trips. A Major Collector would be able to accommodate the projected Build volume. The results suggest that a minimum right-of-way of 200 feet should be reserved to accommodate four travel lanes in each direction with median. However, only a 4-lane Major Collector is needed with site traffic and with projected 20-year build volume traffic. Additionally, a separated bike facility will be provided along Street A from Street B to Street C as part of the protected bike loop trail. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Street A.

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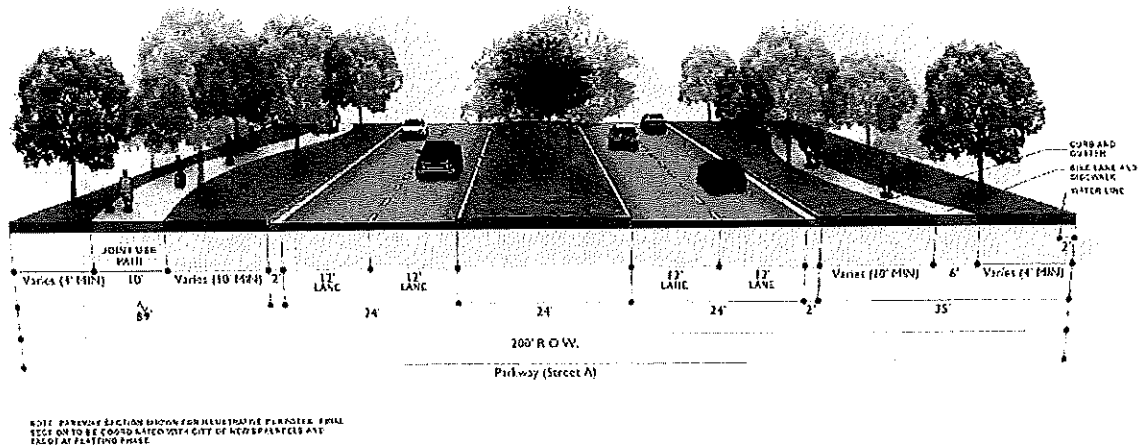


Figure 21: Proposed Street A Parkway 200' ROW

Proposed Street B

The proposed Street B will be a primary north-south interconnection for the residential and commercial uses within the east section of Mayfair site. Street B is identified on the City of New Braunfels Major Thoroughfare Plan as a Minor Collector with 60 feet of right-of-way. The projected 20-year build volume is estimated to be 9,575 daily trips. A Minor Collector would be able to accommodate the projected Build volume. However, to be conservative Street B should be upsized and planned as a Minor Arterial with 98 feet of right-of-way. Additionally, a separated bike facility will be provided along Street B from Street A to Street D as part of the protected bike loop trail. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Street B.

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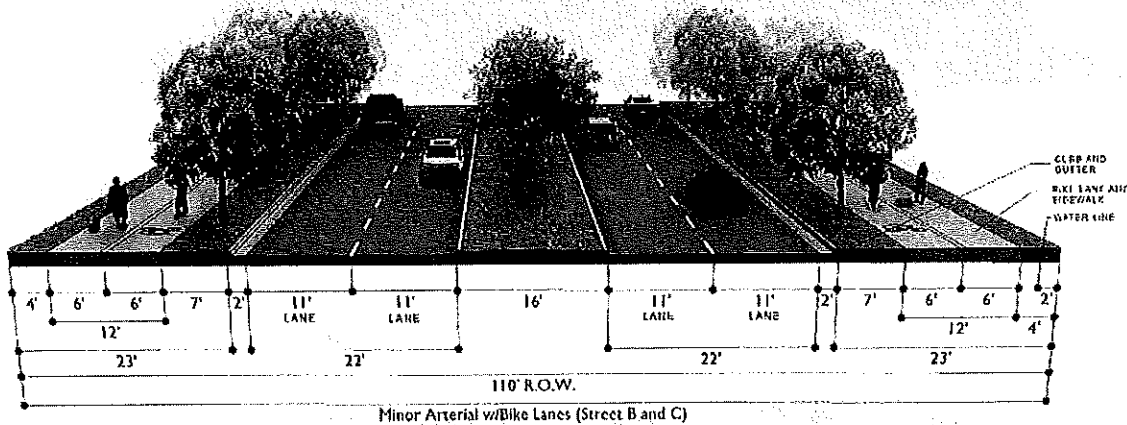
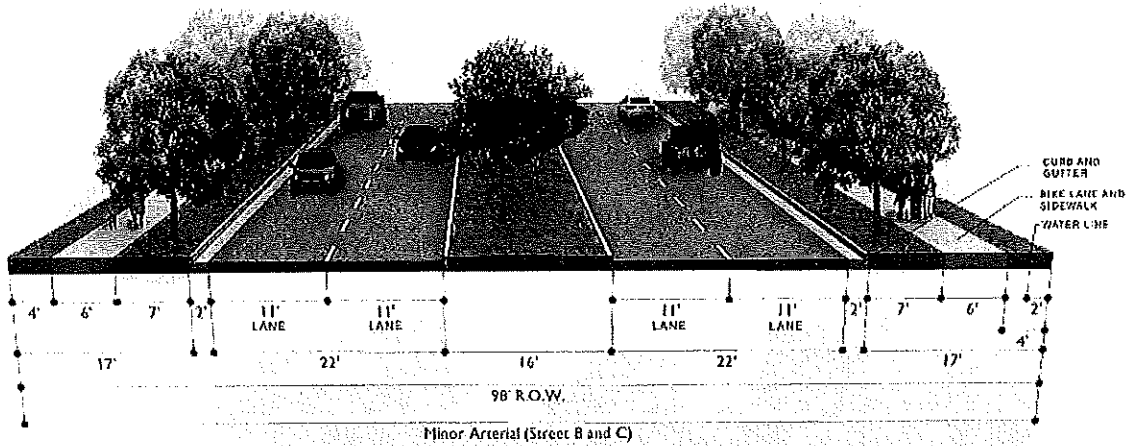


Figure 23: Proposed Street B Modified Minor Arterial 110' ROW

Proposed Street C

The proposed Street C will be a primary north-south interconnection for the residential and school uses within the east section of the Mayfair site. A separated bike facility will be provided along Street C from Street A to Street D as part of the protected bike loop trail. The projected 20-year build volume is estimated to be 10,378 daily trips. A Minor Collector would be able to accommodate the projected Build volume. However, to be conservative Street C adjacent to the schools not between Street A to Street D should be planned as a Major Collector with no bike facility with a right-of-way of 90 feet and as a Major Collector with bike facility with a right-of-way of 102 feet adjacent to the schools between Street A and Street D. It should also be planned

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adjacent to the single-family homes not between Street A to Street D as a Minor Collector with no bike facility with 60 feet of right-of-way and as a Minor Collector with bike facility with 72 feet of right-of-way between Street A and Street D. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Street C.

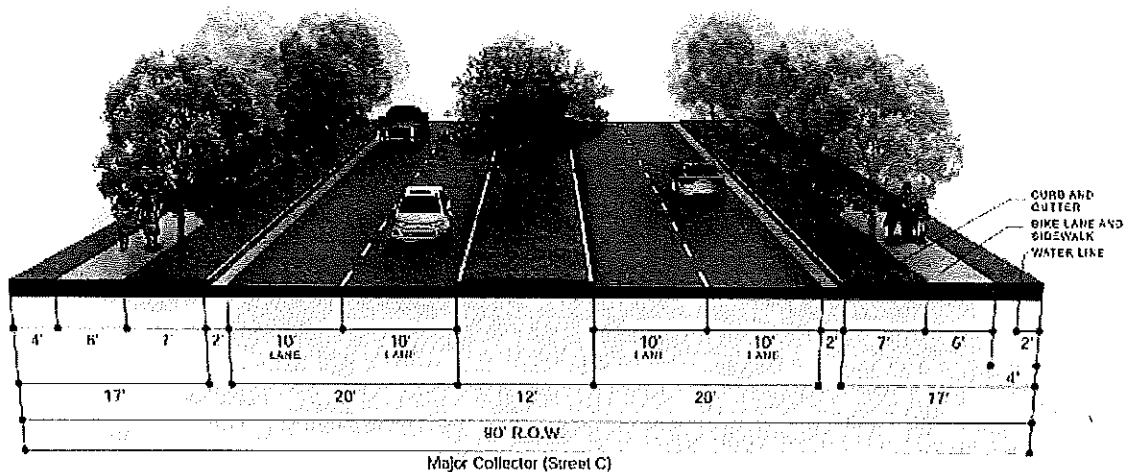


Figure 24: Proposed Street C Major Collector Adjacent to School 90' ROW

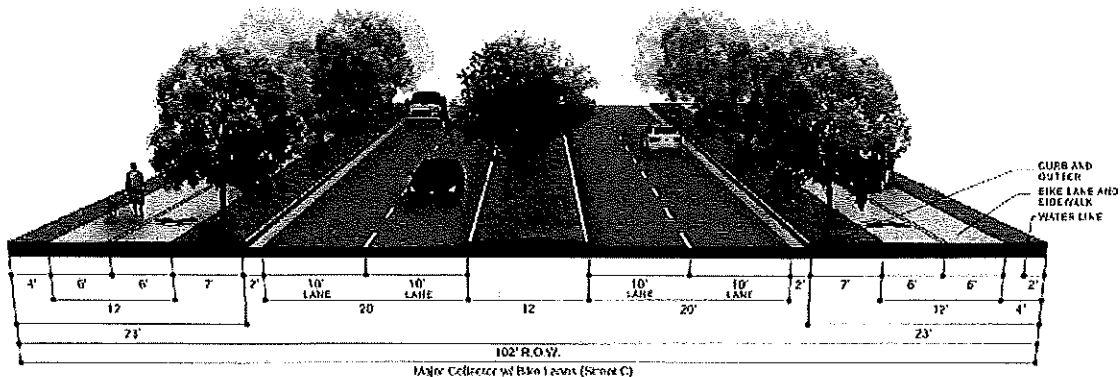


Figure 25: Proposed Street C Major Collector Adjacent to School with Separated Bike Lanes 102' ROW

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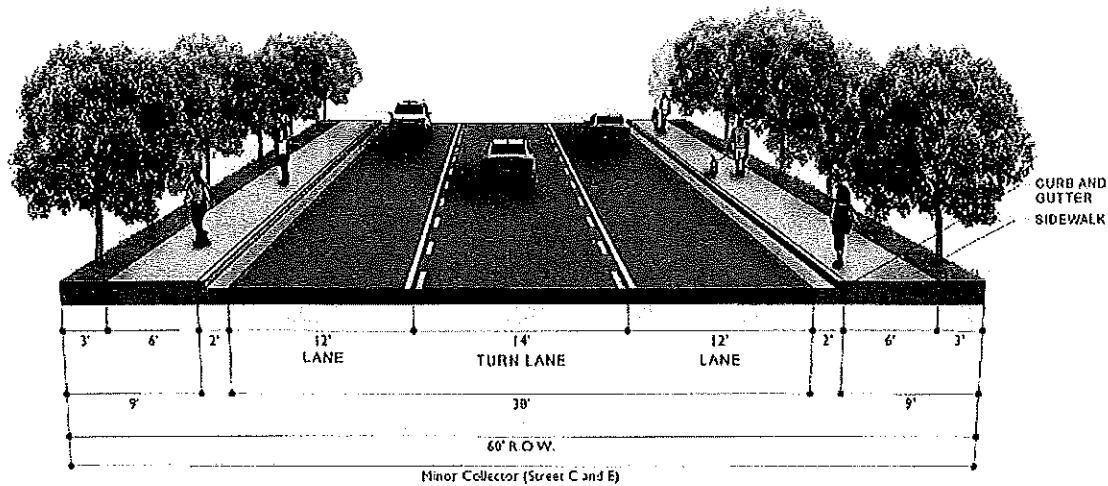


Figure 26: Proposed Street C Minor Collector Adjacent to Single-Family Homes 60' ROW

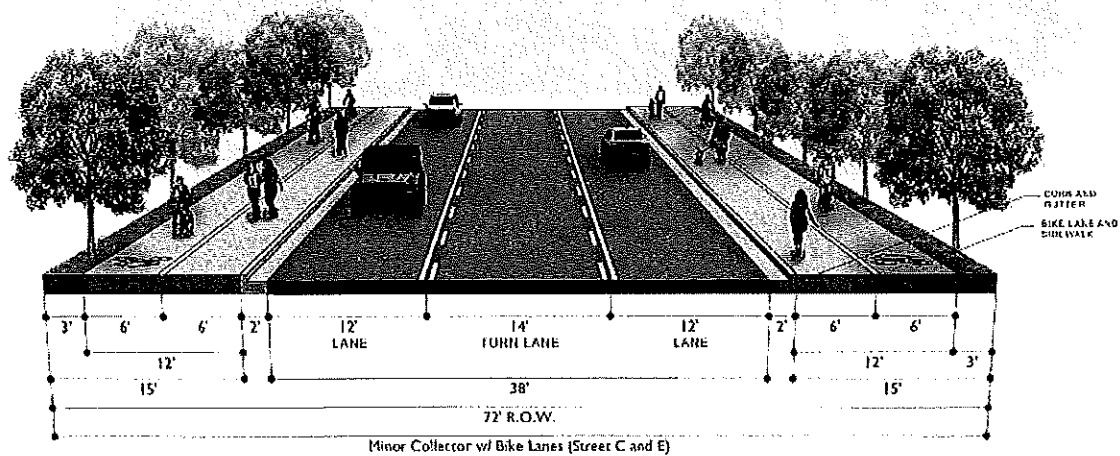


Figure 27: Proposed Street C Minor Collector Adjacent to Single-Family Homes with Separated Bike Lanes 72' ROW

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Proposed Street D

The proposed Street D will be an east-west interconnection for the residential and commercial uses within the east section of the Mayfair site. The projected 20-year build volume is estimated to be 4,729 daily trips. A Residential Collector would be able to accommodate the projected Build volume. However, to be conservative Street D should be planned as a Minor Collector with a right-of-way of 60 feet. Additionally, a separated bike facility will be provided along Street D from Street B to Street C as part of the protected bike loop trail with a right-of-way of 72 feet. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Street D.

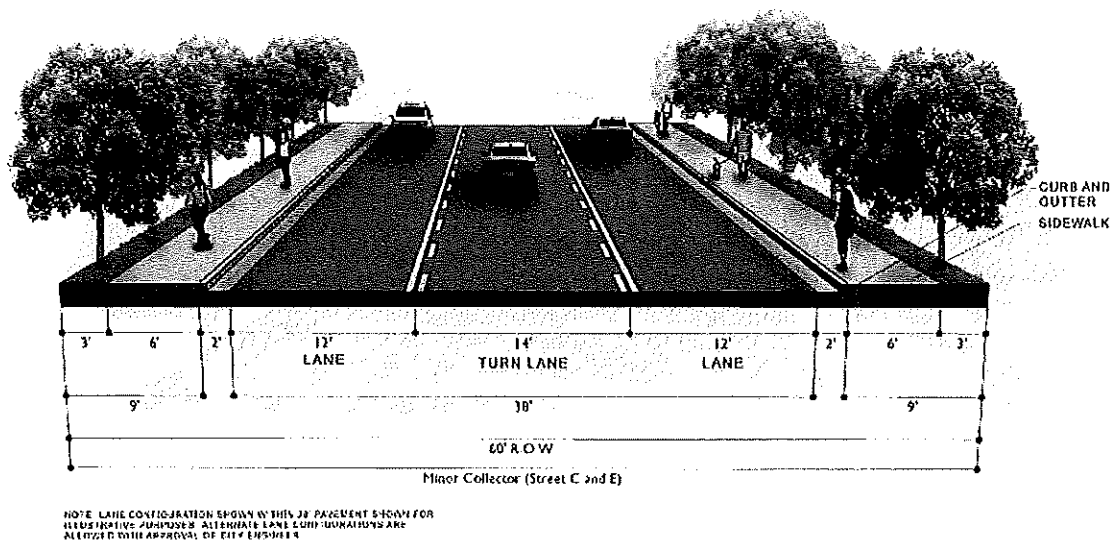
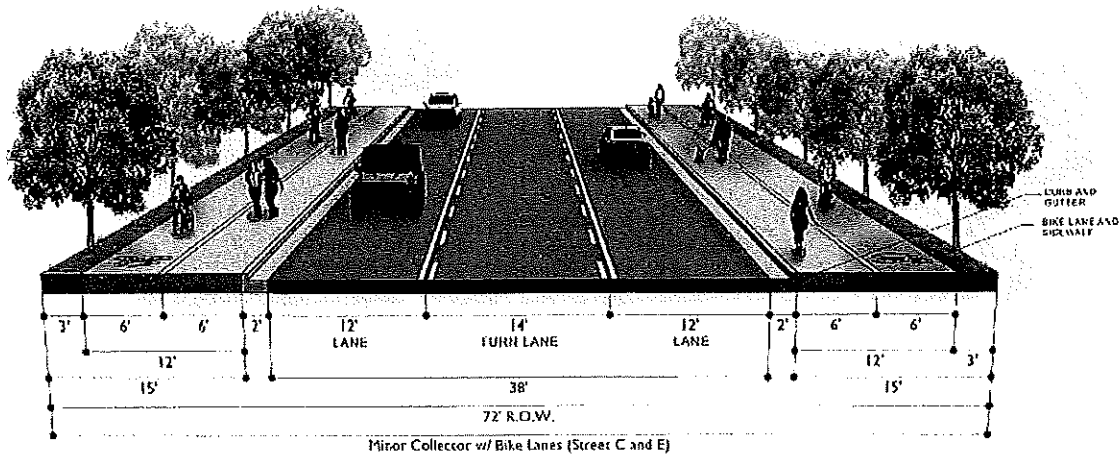


Figure 28: Proposed Street D Minor Collector 60' ROW

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NOTE: LANE WIDTH DIMENSIONS SHOWN WITHIN THE PAVEMENT SECTION FOR ILLUSTRATIVE PURPOSES. ALTERNATE LANE CONFIGURATIONS ARE ALLOWED WITH APPROVAL OF CITY ENGINEER.

Figure 29: Proposed Street D Modified Minor Collector from Street B to Street C 72' ROW

Proposed Street E

The proposed Street E will be a primary east-west interconnection for the residential and commercial uses within the east section of the Mayfair site. The projected 20-year build volume is estimated to be 5,564 daily trips. The results suggest that Street E should be planned as a Minor Collector with 80 feet of right-of-way. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Street E.

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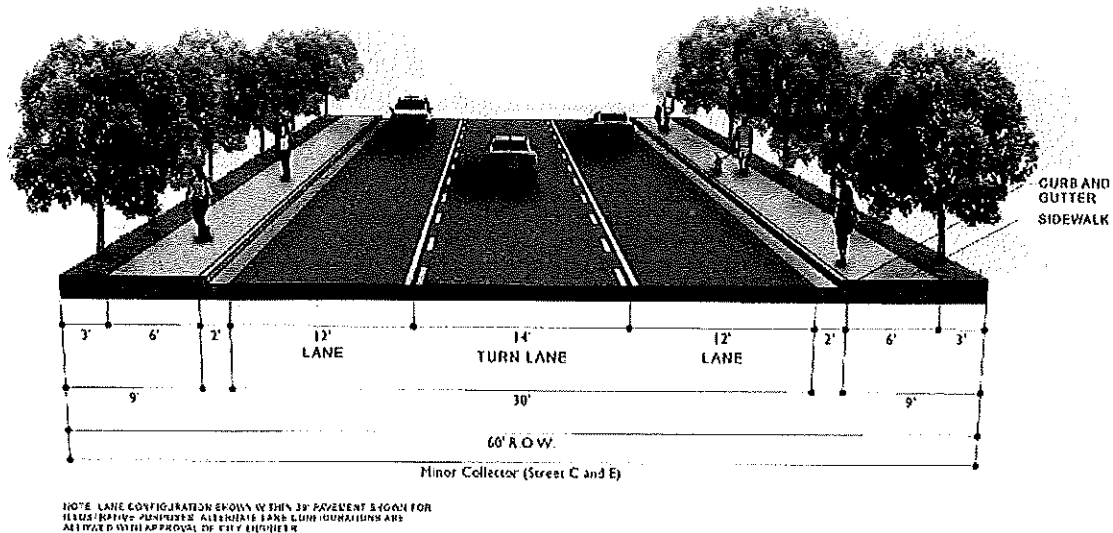


Figure 30: Proposed Street E Minor Collector 60' ROW

Proposed Street F

The proposed Street F will be a primary east-west interconnection for the residential and commercial uses within the east section of the Mayfair site. The projected 20-year build volume is estimated to be 10,032 daily trips. A Minor Collector would be able to accommodate the projected Build volume. However, to be conservative Street F should be planned as a Major Collector with 90 feet of right-of-way. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Street F.

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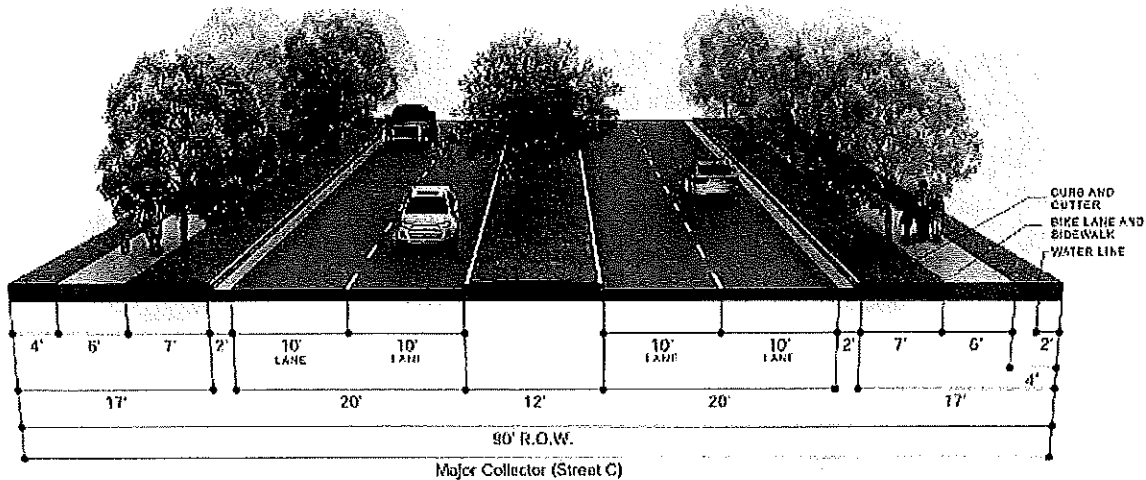


Figure 31: Proposed Street F Major Collector 90' ROW

Street G

Street G is identified on the City of New Braunfels Major Thoroughfare Plan as a Minor Arterial with 100 feet of right-of-way. The projected 20-year build volume is estimated to be 3,343 daily trips. A Residential Collector would be able to accommodate the projected Build volume. However, to be conservative a minimum right-of-way of 98 feet should be reserved to accommodate two travel lanes in each direction with a 12-foot median and a 6-foot sidewalk. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine what improvements is required at Street G.

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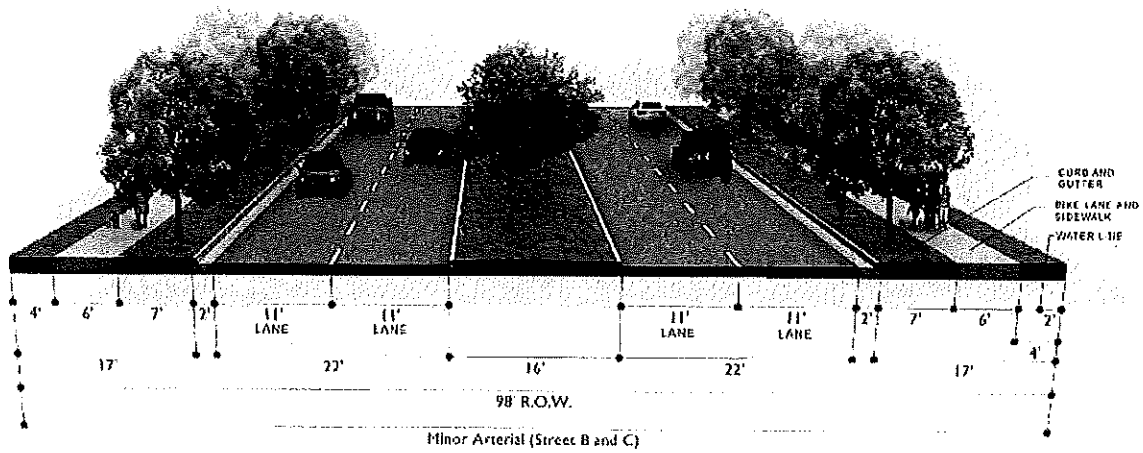


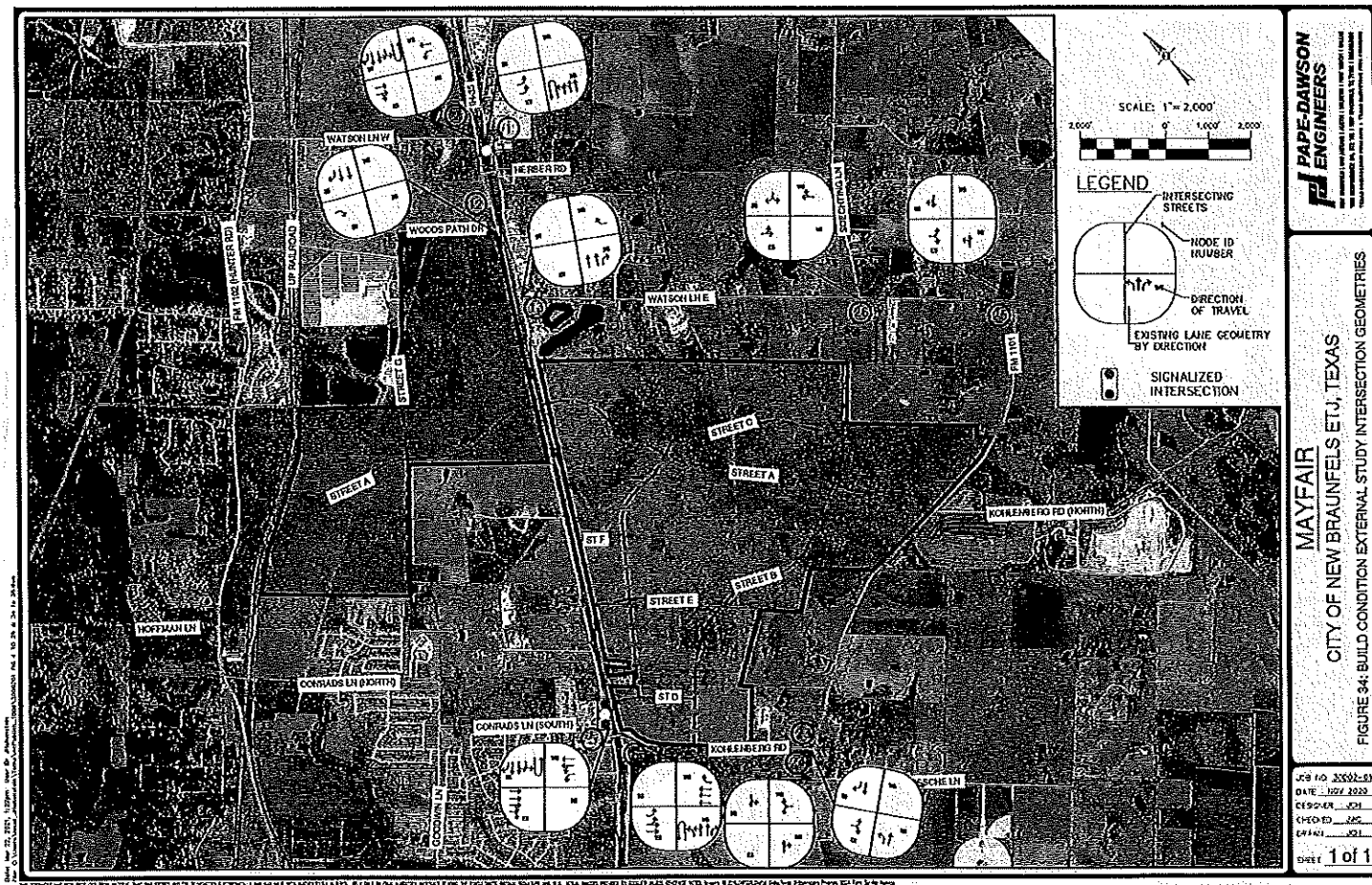
Figure 32: Proposed Street G Minor Arterial 98' ROW

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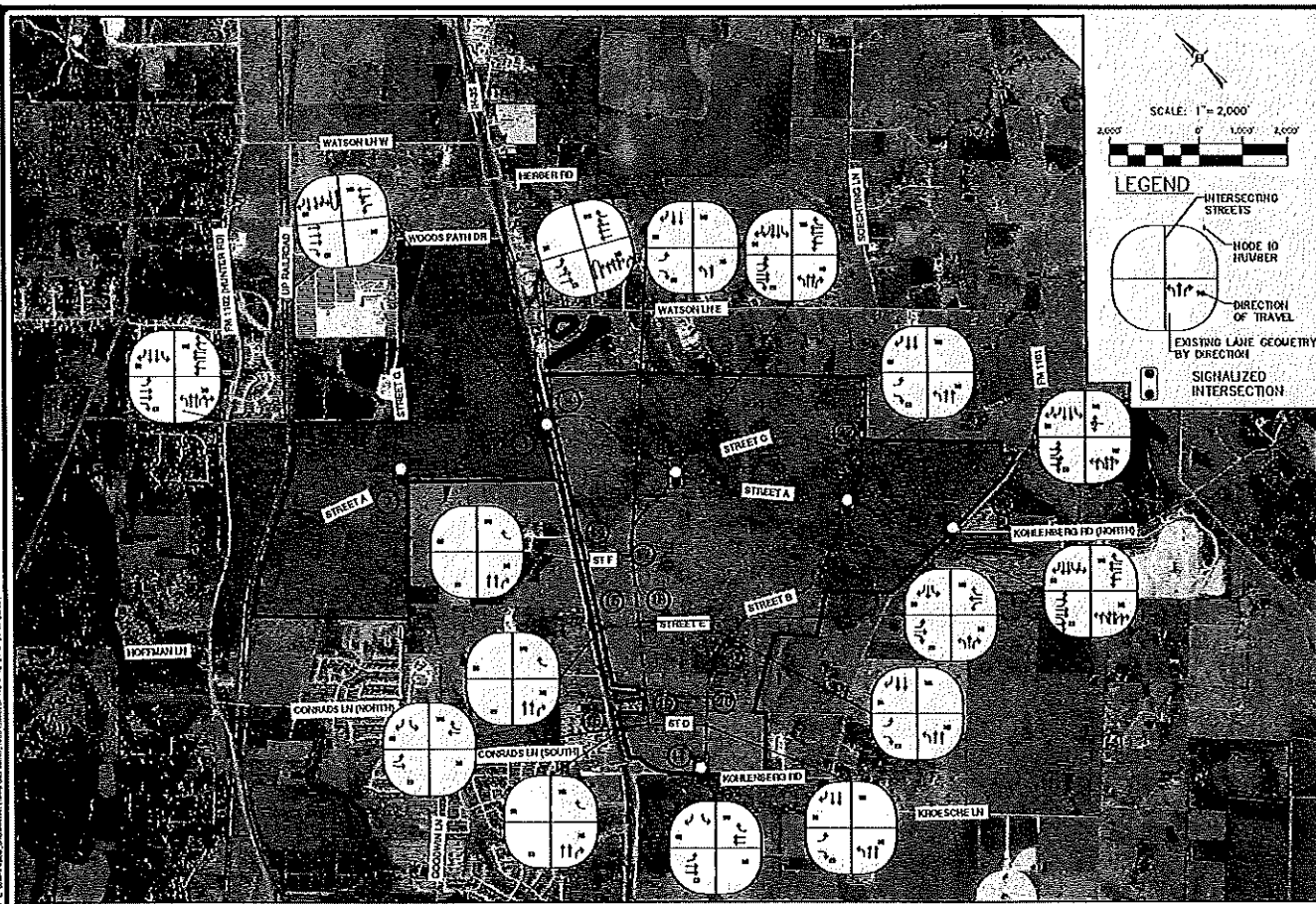
IMPACT ANALYSIS

Build Synchro Model Improvements – 2040

Build improvements including turn lanes and signalization were recommended for any internal intersections with heavy turn lane volumes and where significant impacts have been identified. The cycle length was assumed to be 90 seconds for all signals. The signals are coordinated along Proposed Street A and the offset was optimized. At the intersection of IH-35 Southbound Frontage Road at Conrads Lane/Kohlenberg Road the recommended proposed eastbound configuration differs from the proposed TxDOT schematic configuration. Instead of a T-T-T-R a T-T-TR-R is recommended to help alleviate the heavy eastbound right-turn volume. These recommendations are summarized in **Figure 34** and **Figure 35**. These figures show the geometries used for the Synchro Models during the Build Condition. In the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to confirm how signals will operate.



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FIGURE 3-18-20-24: BUILD CONDITION INTERNAL STUDY INTERSECTION GEOMETRIES

JOB NO.	25502-01
DATE	MAY 2020
DESIGNER	ASH
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Build HCM Results– 2040

The capacity analyses for the key intersections of the development are summarized in **Table 12** for the Build Condition. Detailed Capacity Analysis Worksheets are presented in **Appendix G**.

Table 12: Intersection Capacity Analysis (2040)

No.	Intersection	Condition	Approach	Movement	AM Peak Hour		PM Peak Hour	
					LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
Signalized Intersections:								
1	IH-35 NBFR at Watson Ln W	Build			B	15.1	B	10.7
2	IH-35 SBFR at Watson Ln W	Build			C	21.4	C	20.6
3	IH-35 SBFR at Street A	Build			D	52.3	F	167.4
4	IH-35 NBFR at Street A	Build			D	37.5	E	69.9
5	IH-35 SBFR at Conrads Ln/Kohlenberg Rd	Build			C	22.6	C	23.7
6	IH-35 NBFR at Conrads Ln/Kohlenberg Rd	Build			C	30.7	C	28.8
7	Street G at Street A	Build			C	24.0	C	23.4
8	Street C at Street A	Build			C	30.8	C	32.9
9	Street B at Street A	Build			C	28.7	C	29.0
10	FM 1101 at Street A/ Kohlenberg Rd (north)	Build			C	25.4	C	28.5
11	Kohlenberg Rd at Street B	Build			C	27.9	C	28.9
Unsignalized Intersections:								
12	IH-35 SBFR at Woods Path	Build	EB	R	A	9.9	B	10.5
14	IH-35 NBFR at Street F*	Build	WB	R	E	42.6	F	1728.3
15	IH-35 NBFR at Street E*	Build	WB	R	F	62.9	F	906.5
16	IH-35 NBFR at Street D*	Build	WB	R	B	10.4	C	15.2
17	Street F at Street C	Build	EB	L-R	A	9.4	B	11.2
			NB	L	A	7.6	A	8.3
18	Street C at Street E	Build	EB	L	A	7.5	A	7.6
			WB	L	A	7.4	A	7.8
			NB	L-T-R	B	10.3	B	12.8
			SB	L-T-R	B	10.5	B	12.2
19	Street C at Street D	Build	EB	L	A	7.4	A	7.8

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Planning Level Traffic Impact Analysis

No.	Intersection	Condition	Approach	Movement	AM Peak Hour		PM Peak Hour	
					LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
20	Street B at Street D	Build	SB	L	A	9.2	B	10.3
			EB	L-R	A	9.7	B	10.2
			NB	L	A	7.9	A	8.1
21	Street B at Street E	Build	EB	L-R	A	9.0	A	9.7
			NB	L	A	7.4	A	7.8
			EB	L-R	A	8.7	A	8.6
22	Street B at Street C	Build	NB	L	A	7.3	A	7.4
			EB	LR	F	317.5	F	Err
			NB	LT	A	5.1	A	9.8
24	FM 1101 at Kroesche Ln	Build	WB	LR	C	21.9	D	31.1
			SB	LT	A	0.4	A	1.1
			EB	LR	E	43.2	F	390.2
25	FM 1101 at Watson Ln E	Build	NB	LT	A	0.8	A	1.2
			EB	LT	A	0.1	A	2.3
			SB	LR	A	9.1	A	9.2

*2010 HCM

The results in Table 12 show that eight (8) intersections will operate a LOS D or worse; therefore, mitigation improvements are required. The capacity analyses will be reevaluated with each submittal of a detailed traffic study associated with sector plans or plats for development.

MAYFAIR Planning Level Traffic Impact Analysis

MITIGATION IMPROVEMENTS – 2040

Mitigation improvements and associated probable costs are required for any intersections where impacts have been identified. As shown in **Table 12**, fifteen (15) intersections will experience impacts due to the traffic generated by the proposed Mayfair development; therefore, mitigation improvements are required.

Summary of Recommended Mitigation

Although mitigation results will be reevaluated with each submittal of a detailed traffic study associated with sector plans or plats for development, the following are initial recommendations using the best-known information about future condition.

The mitigation measures and turn lanes required to bring the intersections to an acceptable level of service is shown in **Table 13** and summarized in **Figure 36**. However, in the future, when detailed internal site plans are developed and sector planned and platted, traffic impact analyses will be prepared for each sector to determine and verify what improvements are required. The intersections of IH-35 Northbound Frontage Road at Street F and IH-35 Northbound Frontage Road at Street E initially assumed stop-control for the westbound approach. With the proposed acceleration lanes, the westbound approaches are proposed to operate free in the Synchro model, because they will be able to turn into their acceleration lanes on IH-35 Northbound Frontage Road without any conflicts. The acceleration lane along IH-35 northbound frontage road will need to be verified with TxDOT.

Only the external intersections with recommended mitigation are shown in **Table 13**. Several intersections could not be mitigated without recommending additional thru-lanes. Because this is an initial recommendation, these intersections will be reevaluated in the future with each sector plan TIAs with more accurate recommendations. More detail is explained in **Appendix H**. For the internal intersection recommendations refer to **Figure 35**.

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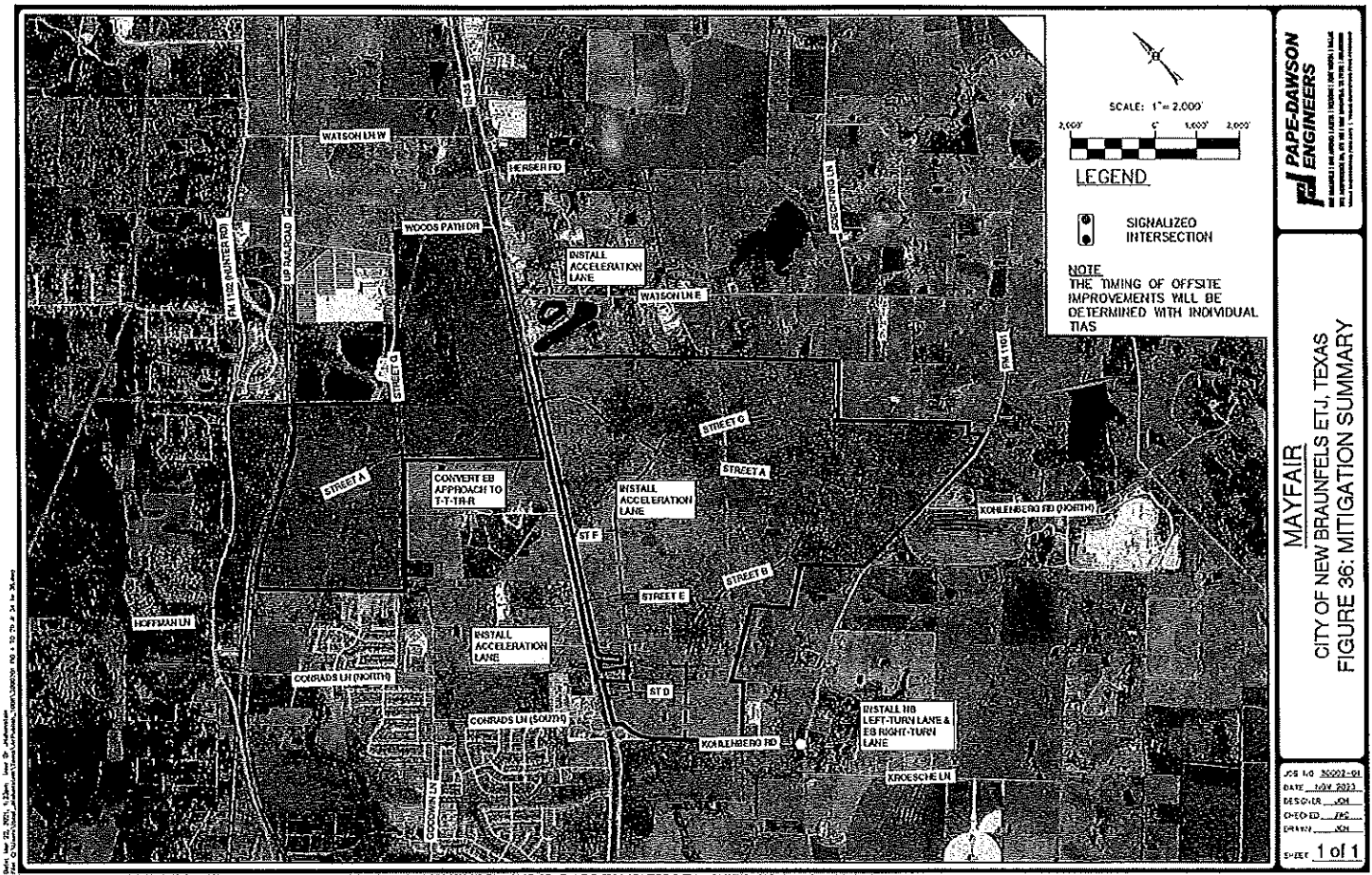
Planning Level Traffic Impact Analysis

Table 13: Mitigation Summary--(2040)

No.	Intersection	Condition	Movement	AM Peak Hour		PM Peak Hour		Recommended Improvements
				LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	
3	IH-35 SBFR at Street A	Build		D	52.3	F	167.4	Convert EB Approach to T-T-TR-R
		Mitigation		D	37.0	F	97.3	
4	IH-35 NBFR at Street A	Build		D	37.5	E	69.9	
		Mitigation		D	37.5	E	69.4	
14	IH-35 NBFR at St F*	Build	WB: R	E	42.6	F	1728.3	Install Acceleration Lane
		Mitigation	WB: R	A	0.0	A	0.0	
15	IH-35 NBFR at St E*	Build	WB: R	F	62.9	F	906.5	Install Acceleration Lane
		Mitigation	WB: R	A	0.0	A	0.0	
23	FM 1101 at Kohlenberg Rd	Build	EB: LR	F	317.5	F	Err	Install Signal, NB Left-turn Lane, & EB Right-turn Lane
			NB: LT	A	5.1	A	9.8	
		Mitigation		A	8.7	C	22.6	

*HCM 2010

Detailed cost estimates were calculated for the roadway widening and mitigation improvements. They are shown in **Appendix I**. The timing of offsite improvements will be determined with individual sector plan TIAs.



MAYFAIR Planning Level Traffic Impact Analysis

CONCLUSIONS AND RECOMMENDATIONS

This Planning Level Traffic Impact Analysis assesses important transportation and circulation issues in the absence of detailed land use and density information for the Mayfair Development. Based on the current Master Development Plan, the most likely and reasonable land-use plan for the tract was established to calculate trip generation. The Mayfair Development is estimated to generate 8,847 AM peak-hour trips, 13,149 PM peak-hour trips, and a total of 125,696-weekday trips in approximately 20 years. Based on projected volumes generated by the development, the following recommendations are provided:

- Traffic volumes along the Proposed Street A/Kohlenberg Road (North) at FM 1101, the Proposed Street A at Street B, the Proposed Street A at Street C, the Proposed Street A at IH-35, the Proposed Street A at Street G, and Street B at Kohlenberg Road (South) intersections are expected to meet one or more warrants for signalization. Appropriate spacing should be reserved between major intersections to ensure safe and efficient traffic flow progression through the site. A summary is also shown in **Figure 34**.
- Traffic volumes along Street C at Street B, Street C at Street F, Street C at Street E, Street C at Street D, Street B at Street E, and Street B at Street D intersections are expected to operate at an acceptable level-of-service with two-way stop-control (TWSC). Appropriate spacing should be reserved between major intersections to ensure safe and efficient traffic flow progression through the site.
- The following table summarizes the recommended mitigation, site improvements and roadway sizes:

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Planning Level Traffic Impact Analysis

Mitigation, Site Improvements, and Roadway Sizes Summary--(2040)

Mitigation, Site Improvements, and Roadway Sizes Summary – (2045)								
No.	Intersection	Condition	Movement	AM Peak Hour		PM Peak Hour		Recommended Improvements
				LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	
Mitigation Summary (Figure 37)								
3	IH-35 SBFR at Street A	Build		D	52.3	F	167.4	Signalize & Convert EB Approach to T-T-TR-R
		Mitigation		D	37.0	F	97.3	
4	IH-35 NBFR at Street A	Build		D	37.5	E	69.9	
		Mitigation		D	37.5	E	69.4	
14	IH-35 NBFR at St F*	Build	WB: R	E	42.6	F	1728.3	Install Acceleration Lane
		Mitigation	WB: R	A	0.0	A	0.0	
15	IH-35 NBFR at St E*	Build	WB: R	F	62.9	F	906.5	Install Acceleration Lane
		Mitigation	WB: R	A	0.0	A	0.0	
23	FM 1101 at Kohlenberg Rd	Build	EB: LR	F	317.5	F	Err	Install Signal, NB Left-turn Lane, & EB Right-turn Lane
			NB: LT	A	5.1	A	9.8	
		Mitigation		A	8.7	C	22.6	

Site Improvements Summary (Build Condition Figure 36)

No.	Intersection	Condition	Movement	AM Peak Hour		PM Peak Hour		Recommended Improvements
				LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	
7	Street G at Street A	Build		C	24.0	C	23.4	Signalize
8	Street C at Street A	Build		C	30.8	C	32.9	Signalize
9	Street B at Street A	Build		C	28.7	C	29.0	Signalize
10	FM 1101 at Street A/ Kohlenberg Rd (north)	Build		C	25.4	C	28.5	Signalize
11	Kohlenberg Rd at Street B	Build		C	27.9	C	28.9	Signalize

*HCM 2010

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External Recommended Roadway Sizes (Figure 34)

Roadway	Roadway Classification	R.O.W.
Woods Path Dr	Minor Collector without Bike Lane	60'
FM 1101	Minor Arterial without Bike Lane	98'
Kohlenberg Rd (South)	Minor Arterial without Bike Lane	98'

Internal Roadway Sizes (Figure 34)

Roadway	Roadway Classification	R.O.W.
Street A	Parkway	200'
Street B excluding from Street A to Street D	Minor Arterial without Bike Lane	98'
Street B from Street A to Street D	Minor Arterial with Bike Lane	110'
Street C Adjacent to Single-family homes excluding from Street A to Street D	Minor Collector without Bike Lane	60'
Street C Adjacent to Single-family homes from Street A to Street D	Minor Collector with Bike Lane	72'
Street C Adjacent to School excluding from Street A to Street D	Major Collector without Bike Lane	90'
Street C Adjacent to School from Street A to Street D	Major Collector with Bike Lane	102'
Street D excluding from Street B to Street C	Minor Collector without Bike Lane	60'
Street D from Street B to Street C	Minor Collector with Bike Lane	72'
Street E	Minor Collector without Bike Lane	60'
Street F	Major Collector without Bike Lane	90'
Street G	Minor Arterial without Bike Lane	98'

- Access Management practices should be implemented along the Proposed Street A. Specifically, median openings should be limited and adequately spaced. Driveways located within ¼ mile of a major intersection should be restricted to right-in/right-out only operation.
- As the Mayfair Development evolves, individual tracts will be developed within different time frames. A TIA should be performed for each individual sector planned or platted or submitted for site plan approval in accordance with the guidelines of the Unified Development Code. Each subsequent TIA submitted should be checked against this study for conformance or to ascertain that justification for a deviation is provided in the TIA.

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Planning Level Traffic Impact Analysis

- Signs and markings should conform to the latest edition of the Texas Manual on Uniform Traffic Control Devices.
- Adequate turning radii and on-site circulation should be provided to accommodate delivery trucks. Signs directing delivery trucks to the appropriate location may be provided around the site.
- Driveway throat lengths should be constructed in accordance with the City of New Braunfels requirements to facilitate safe and efficient traffic flow.
- Landscaping, parking, and signs should be placed so they do not obstruct visibility for motorists exiting streets and site driveways.

APPROVED FOR CONSTRUCTION

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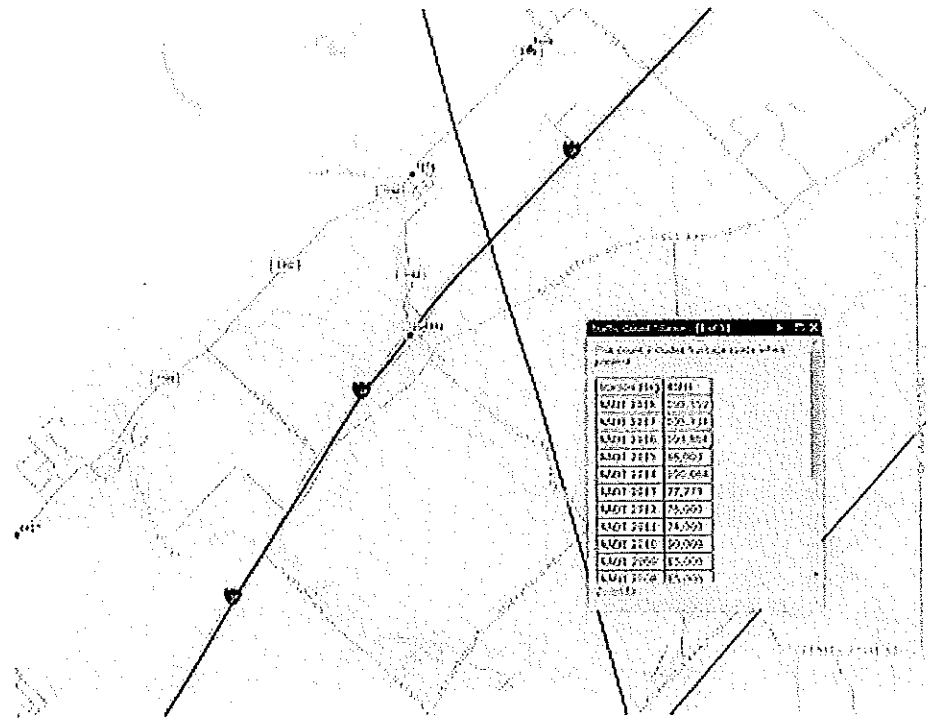
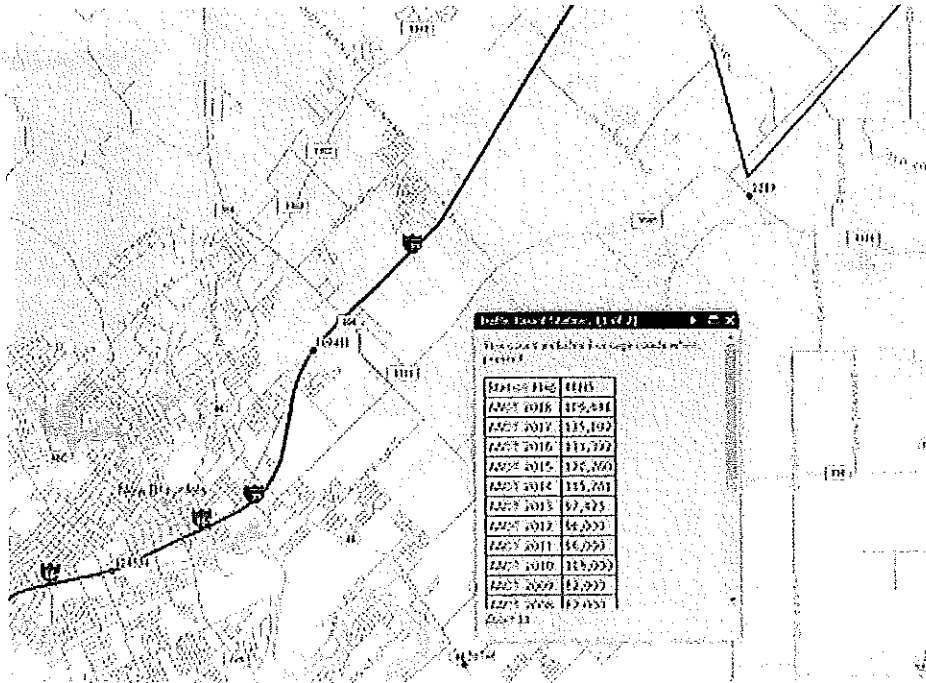
APPENDIX A

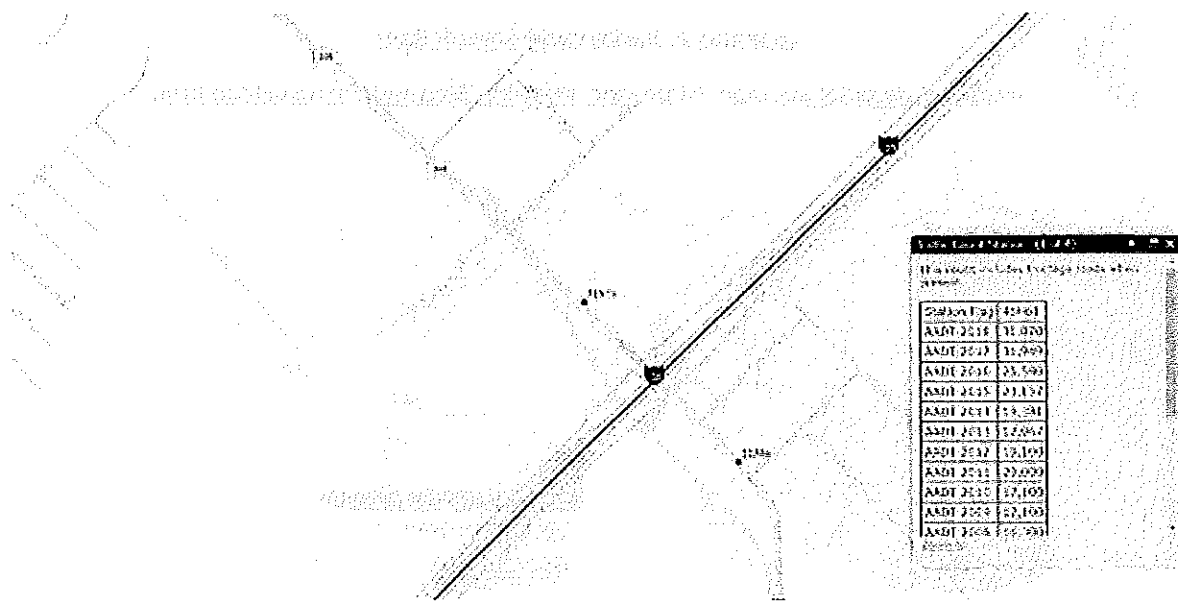
Background Growth Rate

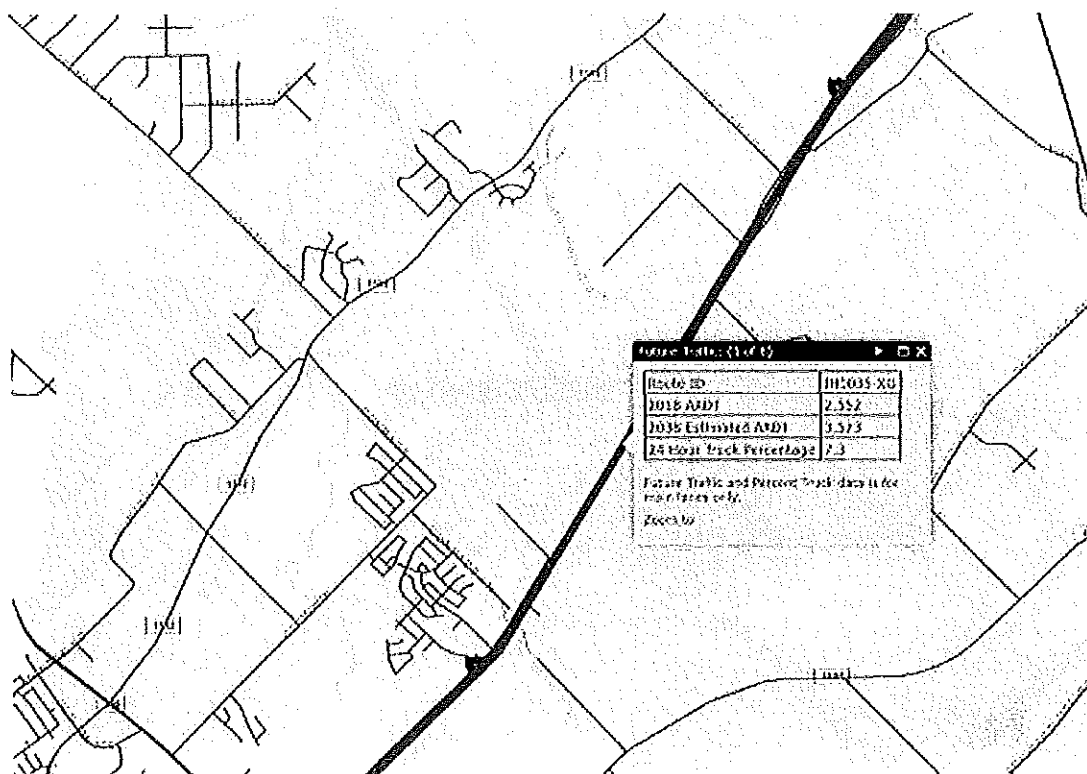
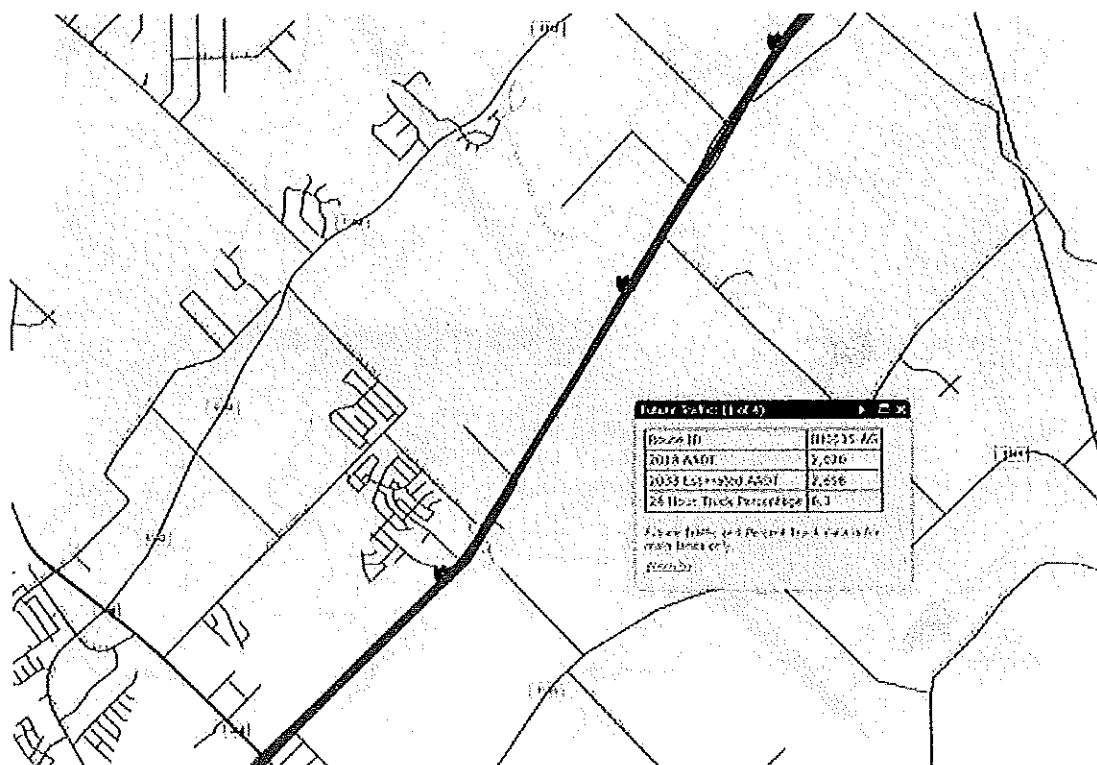
Source: *U.S. Census Bureau*

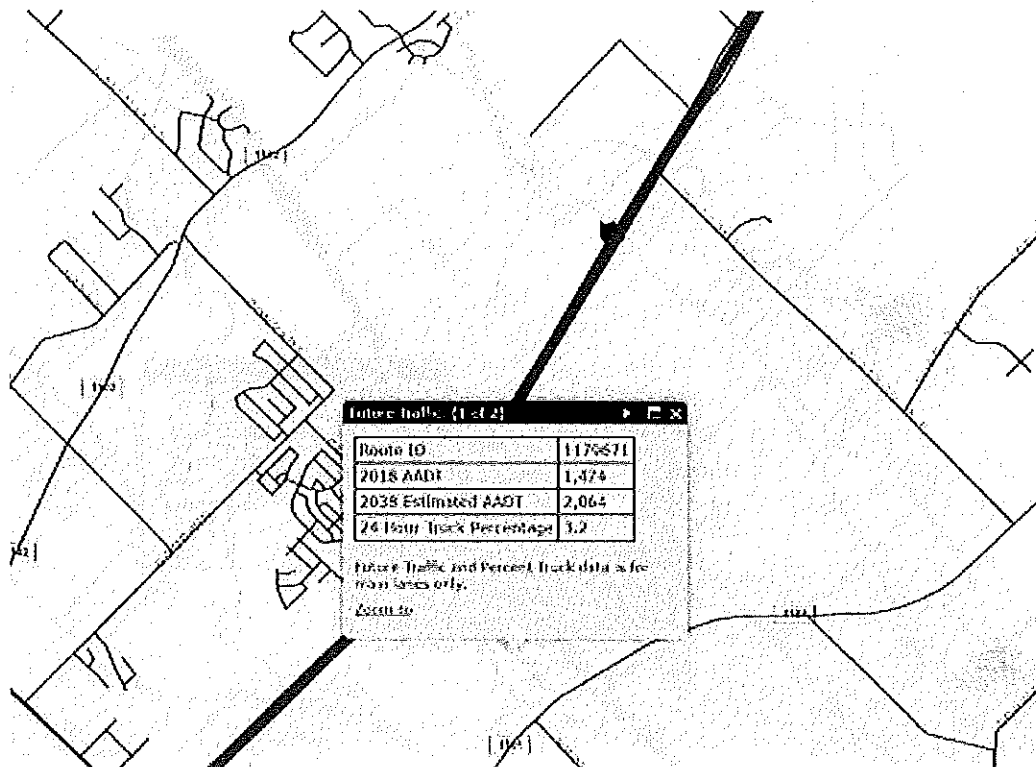
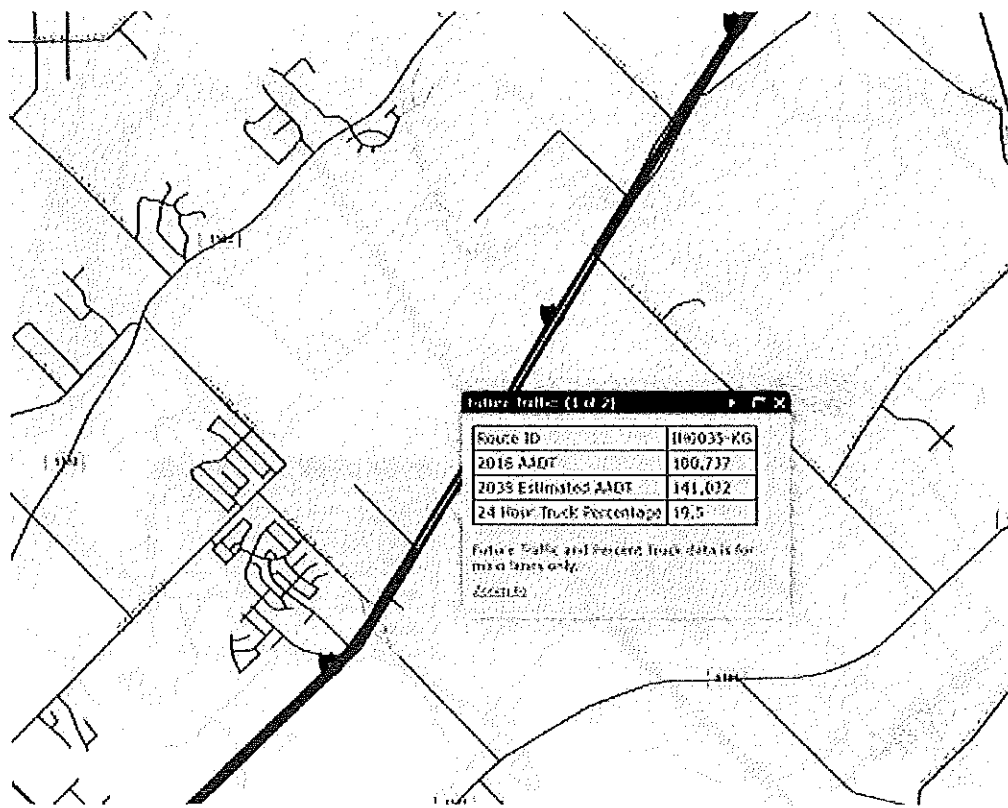
Appendix A: Background Growth Rate

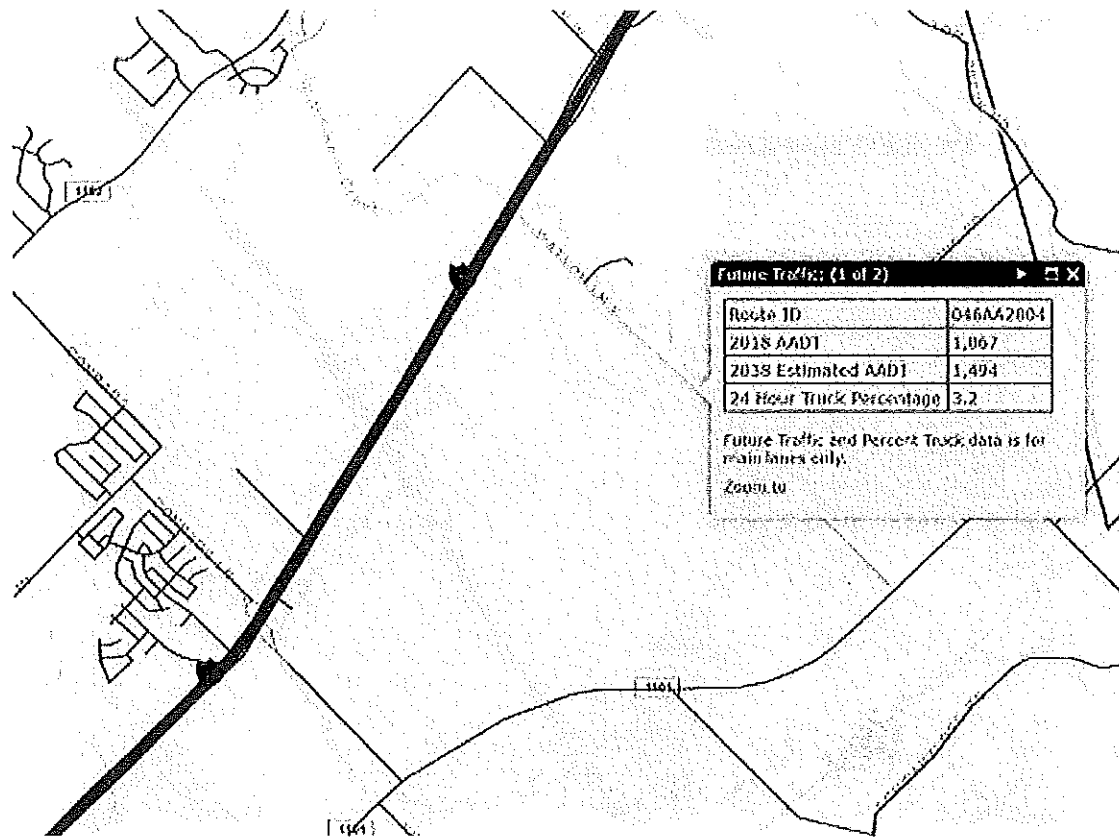
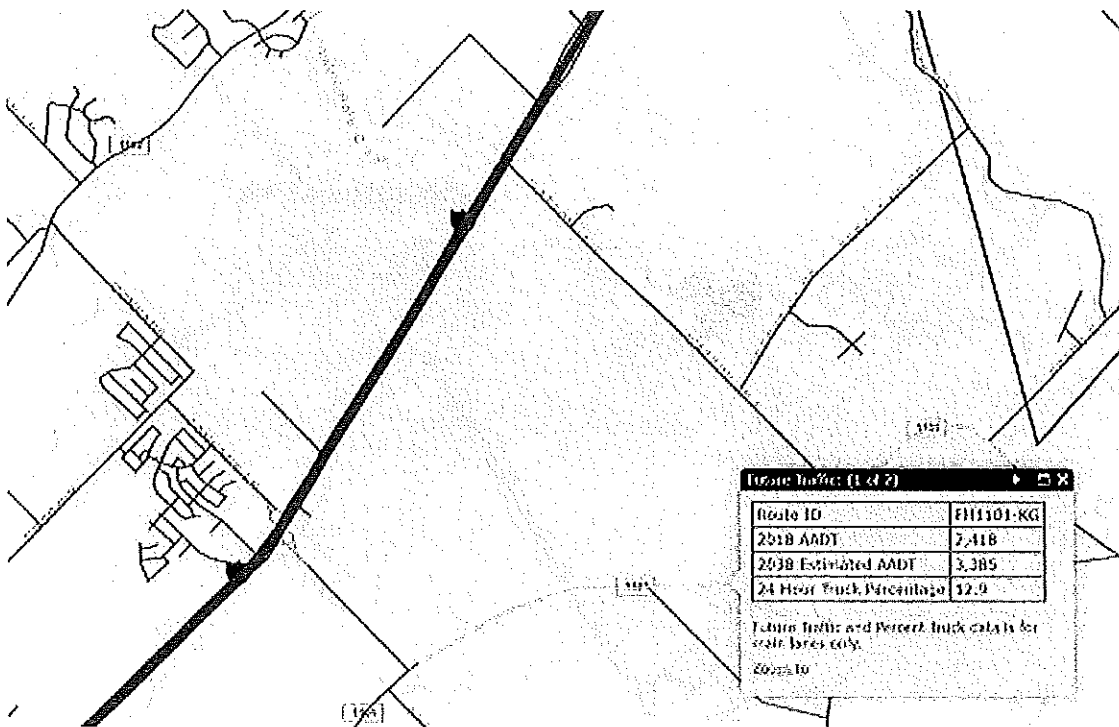
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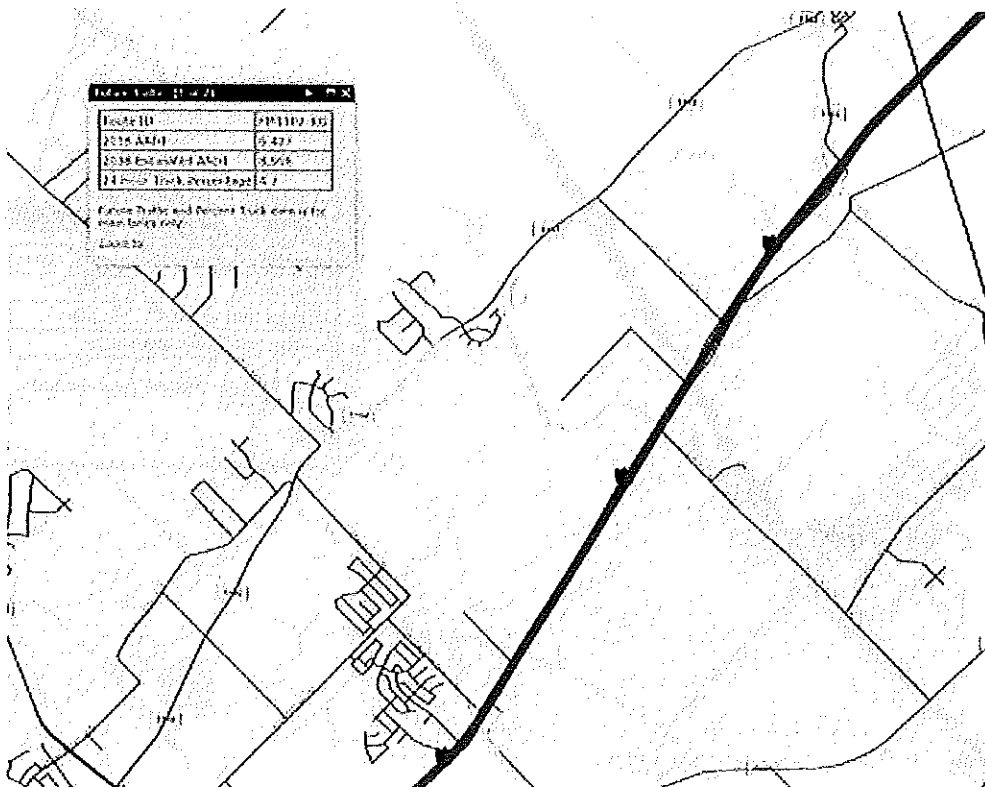
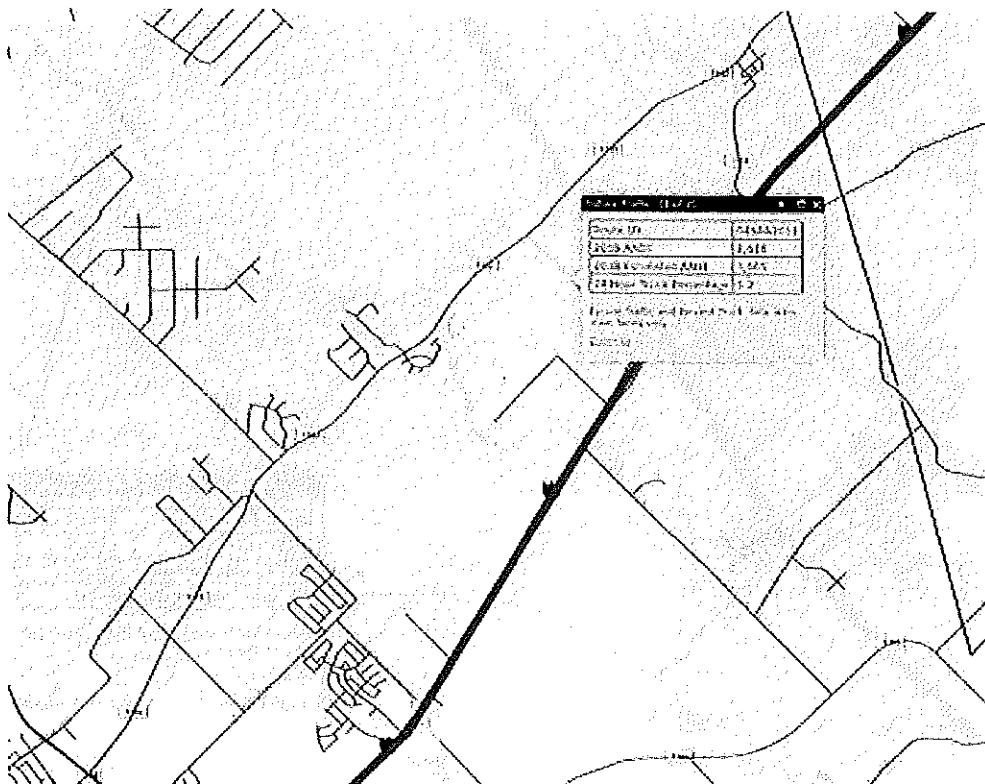












APPENDIX B

Trip Generation Data

Tract	E/W	AC	Landuse From Master Plan (11/10/2020)	Size	Units	AM Peak Hour		PM Peak Hour		Daily	AM Peak Hour		PM Peak Hour		Daily
						Enter	Exit	Enter	Exit		Enter	Exit	Enter	Exit	
E-1	E	106.01	40'-45's Single Family	520	DU	0.19	0.56	0.62	0.37	9.44	96	289	324	190	4909
E-2	E	58.64	40'-45's Single Family	288	DU	0.19	0.56	0.62	0.37	9.44	53	160	180	105	2719
E-3	E	76.09	40'-45's Single Family	373	DU	0.19	0.56	0.62	0.37	9.44	69	207	233	137	3521
E-5	E	20.77	50'-55's Single Family	82	DU	0.19	0.56	0.62	0.37	9.44	15	46	51	30	774
E-7	E	37.9	50'-55's Single Family	148	DU	0.19	0.56	0.62	0.37	9.44	27	82	92	54	1397
E-4	E	8	40'-45's Single Family	40	DU	0.19	0.56	0.62	0.37	9.44	7	22	25	15	378
E-26	E	4.05	Comm	176.42	TSFGLA	0.58	0.36	1.83	1.98	37.75	103	63	323	350	6660
E-8	E	96.02	50'-55's Single Family	375	DU	0.19	0.56	0.62	0.37	9.44	69	208	234	137	3540
E-12	E	17.75	60'-65's Single Family	57	DU	0.19	0.56	0.62	0.37	9.44	11	32	36	21	538
E-10	E	33.02	50'-55's Single Family	129	DU	0.19	0.56	0.62	0.37	9.44	24	72	80	47	1218
E-11	E	18.97	60'-65's Single Family	61	DU	0.19	0.56	0.62	0.37	9.44	11	34	38	22	576
E-13	E	57.53	60'-65's Single Family	185	DU	0.19	0.56	0.62	0.37	9.44	34	103	115	68	1746
E-14	E	13.16	50'-55's Single Family	52	DU	0.19	0.56	0.62	0.37	9.44	10	29	32	19	491
E-19	E	20.67	MXD	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
E-19.1	E	8.268	Single Family/Townhome	50	DU	0.19	0.56	0.62	0.37	9.44	9	28	31	18	472
E-19.2	E	7.2345	Multi Family	130	DU	0.11	0.35	0.35	0.21	7.32	14	46	46	27	952
E-19.3	E	2.067	Flex Commercial MXD	18.01	TSFGLA	0.58	0.36	1.83	1.98	37.75	10	6	33	36	680
E-19.4	E	3.1005	Office	27.01	TSFGFA	1.00	0.16	0.18	0.97	9.74	27	4	5	26	263
E-20, 21	E	5.92	Comm	257.88	TSFGLA	0.58	0.36	1.83	1.98	37.75	150	92	472	511	9735
E-A1	E	121.15	Middle/High School	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
E-A1.1	E		Middle School	1100	students	0.31	0.27	0.16	0.19	2.13	345	293	177	208	2343
E-A1.2	E		High School	2000	students	0.35	0.17	0.07	0.07	2.03	697	343	134	146	4060
E-A6	E	36.81	40'-45's Single Family	181	DU	0.19	0.56	0.62	0.37	9.44	33	100	113	66	1709
E-A3	E	9.78	Rec Center	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
E-A4	E	71.15	Regional Park	71.15	Acres	0.01	0.01	0.06	0.05	0.78	1	1	4	4	55
W-A4	W	18	Elementary School	800	Students	0.36	0.31	0.15	0.19	1.89	289	247	122	150	1512
W-11	W	72.8	Light Industrial	554.95	TSFGFA	0.62	0.08	0.08	0.55	4.96	342	47	45	304	2753
W-A3	W	7.02	Rec Center	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
W-A2	W	2.52	Fire	21.95	TSFGFA	0.00	0.00	0.00	0.00	0.48	0	0	0	0	11
E-A5	E	2.5	Water Tower	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
E-9	E	76.65	40'-45's Single Family	376	DU	0.19	0.56	0.62	0.37	9.44	70	209	235	138	3549
E-18	E	25.88	MXD	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
E-18.1	E	10.352	Single Family/Townhome	63	DU	0.19	0.56	0.62	0.37	9.44	12	35	39	23	595
E-18.2	E	9.058	Multi Family	163	DU	0.11	0.35	0.35	0.21	7.32	17	58	58	34	1193
E-18.3	E	2.588	Flex Commercial MXD	22.55	TSFGLA	0.58	0.36	1.83	1.98	37.75	13	8	41	45	851
E-18.4	E	3.882	Office	33.82	TSFGFA	1.00	0.16	0.18	0.97	9.74	34	5	6	33	329
E-24	E	44.14	MXD	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
E-24.1	E	17.656	Single Family/Townhome	106	DU	0.19	0.56	0.62	0.37	9.44	20	59	66	39	1001
E-24.2	E	15.449	Multi Family	278	DU	0.11	0.35	0.35	0.21	7.32	29	98	98	58	2035
E-14.3	E	4.414	Flex Commercial MXD	38.45	TSFGLA	0.58	0.36	1.83	1.98	37.75	22	14	70	76	1451
E-24.4	E	6.621	Office	57.68	TSFGFA	1.00	0.16	0.18	0.97	9.74	58	9	11	56	562
E-25	E	9.14	MXD	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A					
E-25.1	E	3.656	Single Family/Townhome	22	DU	0.19	0.56	0.62	0.37	9.44	4	12	14	8	208
E-25.2	E	3.199	Multi Family	58	DU	0.11	0.35	0.35	0.21	7.32	6	21	20	12	425
E-25.3	E	0.914	Flex Commercial MXD	7.96	TSFGLA	0.58	0.36	1.83	1.98	37.75	5	3	15	16	300
E-25.4	E	1.371	Office	11.94	TSFGFA	1.00	0.16	0.18	0.97	9.74	12	2	2	12	116
E-A7	E	16.55	Unear Park	16.55	Acres	0.01	0.01	0.06	0.05	0.78	0	0	1	1	13

P:\300\02\01\Excel\Trip Generation - Reduced West Section.xlsm

							AM Peak Hour		PM Peak Hour		Daily	AM Peak Hour		PM Peak Hour		Daily	
Tract	E/W	AC	Landuse From Master Plan (11/10/2020)	Size	Units		Enter	Exit	Enter	Exit		Enter	Exit	Enter	Exit		
E-22_23	E	6.88	Comm	299.69	TSFGLA		0.58	0.36	1.83	1.98	37.75	175	107	548	594	11313	
E-17	E	4.41	Flex Commercial	28.81	TSFGLA		0.58	0.36	1.83	1.98	37.75	17	10	53	57	1088	
E-16	E	24.56	Flex Commercial	160.48	TSFGLA		0.58	0.36	1.83	1.98	37.75	94	57	293	318	6058	
W-6	W	34.03	60'-65's Single Family	109	DU		0.19	0.56	0.62	0.37	9.44	20	60	68	40	1029	
W-2	W	49.66	50'-55's Single Family	194	DU		0.19	0.56	0.62	0.37	9.44	36	108	121	71	1831	
W-5	W	12.61	50'-55's Single Family	50	DU		0.19	0.56	0.62	0.37	9.44	9	28	31	18	472	
W-1	W	78.73	40'-45's Single Family	386	DU		0.19	0.56	0.62	0.37	9.44	71	214	241	141	3644	
W-4	W	59.68	40'-45's Single Family	293	DU		0.19	0.56	0.62	0.37	9.44	54	163	183	107	2766	
W-8	W	28.49	MXD	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A						
W-8.1	W	11.396	Single Family/Townhome	69	DU		0.19	0.56	0.62	0.37	9.44	13	38	43	25	651	
W-8.2	W	9.9715	Multifamily	179	DU		0.11	0.35	0.35	0.21	7.32	19	63	63	37	1310	
W-8.3	W	2.849	Flex Commercial MXD	24.82	TSFGLA		0.58	0.36	1.83	1.98	37.75	14	9	45	49	937	
W-8.4	W	4.2735	Office	37.23	TSFGFA		1.00	0.16	0.18	0.97	9.74	37	6	7	36	363	
W-7	W	9	Flex Commercial	58.81	TSFGLA		0.58	0.36	1.83	1.98	37.75	34	21	108	117	2220	
W-9	W	55.59	Light Industrial	423.76	TSFGFA		0.62	0.08	0.08	0.55	4.96	261	36	35	232	2102	
W-3	W	7	Comm	304.92	TSFGLA		0.58	0.36	1.83	1.98	37.75	178	109	558	604	11511	
W-10	W	31.56	Light Industrial	240.58	TSFGFA		0.62	0.08	0.08	0.55	4.96	148	20	20	132	1193	
EA-6	E	31.44	Regional Park	31.44	Acres		0.01	0.01	0.06	0.05	0.78	0	0	2	2	25	
WA-5	W	27.95	Linear Park	27.95	Acres		0.01	0.01	0.06	0.05	0.78	0	0	2	1	22	
WA-6	W	40.1	Linear Park	40.1	Acres		0.01	0.01	0.06	0.05	0.78	0	0	2	2	31	
WA-1	W	20.95	Regional Park	20.95	Acres		0.01	0.01	0.06	0.05	0.78	0	0	1	1	16	
E-A2	E	0	Elementary School	800	Students		0.36	0.31	0.15	0.19	1.89	289	247	122	150	1512	
E-15	E	3.05	Comm	132.86	TSFGLA		0.58	0.36	1.83	1.98	37.75	77	47	243	263	5015	
E-27	E	3	Comm	130.68	TSFGLA		0.58	0.36	1.83	1.98	37.75	76	47	239	259	4933	
E-A5	E	2.96	Linear Park	18.04	Acres		0.01	0.01	0.06	0.05	0.78	0	0	1	1	14	
												Total	4370	4477	6650	6499	125696

APPENDIX C


Traffic Count Data

North/South Street		IH35 Frontage Rd										
East/West Street		Herber Rd /										
Job	AM	Date	22-Jan-20		Synchronite		1	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
Time	Northbound			Southbound			Eastbound			Westbound		
	IH35 Frontage Rd			IH35 Frontage Rd			Herber Rd					
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	16	32	0	0	0	7	30	0	5	0	0	0
7:15 AM	18	20	0	0	1	11	31	0	2	0	0	0
7:30 AM	25	17	0	0	1	7	38	0	2	0	0	0
7:45 AM	34	19	0	0	1	7	48	0	9	0	0	0
8:00 AM	23	10	0	0	1	5	29	0	10	0	0	0
8:15 AM	22	16	0	0	0	5	37	0	7	0	0	0
8:30 AM	32	9	0	0	1	18	20	0	7	0	0	0
8:45 AM	24	10	0	0	2	6	19	0	6	0	0	0
Total	194	133	0	0	7	66	252	0	48	0	0	0
Peak Hour	93	88	0	0	3	32	147	0	18	0	0	0

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.68	1.00	0.00	0	0.00
30	4	0	0	0.00
0.76	146	0	100	66
0.00	0	0	0.74	0.83
0.58	23	0	0	0.00

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:00 AM-08:00 AM




North/South Street	IH35 Frontage Rd											
East/West Street	Herber Rd /											
Job	PM	Day	22-Jan-20			Scenario Code	1 Day Data P:\300\02\01\Data\RAW\Pape-Dawson - 01					
	Westbound			Eastbound			Eastbound			Westbound		
	IH35 Frontage Rd			IH35 Frontage Rd			Herber Rd					
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	21	10	0	0	2	13	11	0	5	0	0	0
4:15 PM	32	19	0	0	2	13	19	0	9	0	0	0
4:30 PM	36	14	0	0	0	12	18	0	9	0	0	0
4:45 PM	32	12	0	0	3	13	13	0	4	0	0	0
5:00 PM	35	20	0	0	1	19	13	0	11	0	0	0
5:15 PM	41	9	0	0	3	17	13	0	5	0	0	0
5:30 PM	24	12	0	0	4	7	20	0	7	0	0	0
5:45 PM	22	20	0	0	2	4	11	0	4	0	0	0
Total	243	116	0	0	17	98	118	0	54	0	0	0
Peak Hour	135	65	0	0	6	57	63	0	33	0	0	0

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.74	0.65	0.00	0	0.00
56	11	0	0	0.00
0.74	59	0	132	53
0.00	0	0	0	0.00
0.61	27	0	0	0.00

Diagram for: 04:45 PM-05:45 PM
Peak Hour: 04:15 PM-05:15 PM




North/South Street		IH35 Frontage Rd / Herber Rd										
Job	AM	Date	22-Jan-20		Synchro Node		2	Raw Data: P:\300\02\01\Data\RAW\Pape-Dawson - 01				
			Northbound			Southbound			Eastbound			Westbound
			IH35 Frontage Rd			IH35 Frontage Rd						Herber Rd
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	0	3	0	37	27	0	0	0	0	31	0	13
7:15 AM	0	0	1	35	22	0	0	0	0	11	0	15
7:30 AM	0	0	3	50	19	0	0	0	0	17	0	22
7:45 AM	0	3	0	41	21	0	0	0	0	22	0	17
8:00 AM	0	0	5	40	20	0	0	0	0	13	0	8
8:15 AM	0	0	3	36	28	0	0	0	0	25	0	12
8:30 AM	0	0	1	24	18	0	0	0	0	24	0	13
8:45 AM	0	1	3	21	12	0	0	0	0	21	0	8
Total	0	7	16	284	167	0	0	0	0	164	0	108
Peak Hour	0	6	4	163	89	0	0	0	0	81	0	67

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.00	0.93	0.83	62	0.70
0	82	166	0	0.00
0.00	0	0	63	0.72
0.00	0	0	0	3
0.00	0	0	0	9
			0.00	0.25
				0.45

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:00 AM-08:00 AM



North/South Street East/West Street		IH35 Frontage Rd / Herber Rd										
ID:	PM	Date:	22-Jan-20		Vehicle Model:		2 Raw Data:		P:\300\02\01\Data\RAW\Pape-Dawson - 01			
			Northbound			Southbound			Westbound			
			IH35 Frontage Rd			IH35 Frontage Rd			Herber Rd			
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	0	3	3	16	22	0	0	0	0	20	0	19
4:15 PM	0	0	3	27	24	0	0	0	0	32	0	21
4:30 PM	0	0	2	19	19	0	0	0	0	21	0	23
4:45 PM	0	2	4	13	20	0	0	0	0	19	0	19
5:00 PM	0	0	2	26	31	0	0	0	0	50	0	20
5:15 PM	0	2	5	16	27	0	0	0	0	30	0	21
5:30 PM	0	1	2	19	18	0	0	0	0	17	0	11
5:45 PM	0	2	2	11	26	0	0	0	0	5	0	21
Total	0	10	23	147	187	0	0	0	0	194	0	149
Peak Hour	0	2	11	85	94	0	0	0	0	122	0	83

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.00	0.77	0.71	71	0.85
0	96	74	0	0.00
0.00	0	0	116	0.58
0.00	0	0	0	5
0.00	0	0	0.00	0.63


Diagram for: 04:45 PM-05:45 PM
Peak Hour: 04:15 PM-05:15 PM

North/South Street		IH35 Frontage Rd										
East/West Street		/ Watson Ln										
Job	AM	Date	22-Jan-20			Synchro Node	3 Raw Data			P:\300\02\01\Data\RAW\Pape-Dawson - 01		
Time	Northbound			Southbound			Northbound			Westbound		
	IH35 Frontage Rd			IH35 Frontage Rd						Watson Ln		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	0	43	12	5	1	0	0	0	0	0	0	15
7:15 AM	0	36	4	4	0	0	0	0	0	0	0	6
7:30 AM	0	33	5	1	1	0	0	0	0	2	0	11
7:45 AM	0	33	8	6	2	0	0	0	0	3	0	21
8:00 AM	0	21	9	9	1	0	0	0	0	0	0	10
8:15 AM	0	24	6	6	0	0	0	0	0	3	0	15
8:30 AM	0	25	5	6	2	0	0	0	0	0	0	14
8:45 AM	0	23	6	8	2	0	0	0	0	0	0	8
Total	0	238	55	45	9	0	0	0	0	8	0	100
Peak Hour	0	145	29	16	4	0	0	0	0	5	0	53

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.00	0.50	0.56		48	0.57
0	4	20	←	0	0.00
			↓	5	0.42
0.00	0		↗		
0.00	0		↑	0	123
0.00	0		↖	0.00	0.85
					0.71

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:00 AM-08:00 AM


**PAPE-DAWSON
ENGINEERS**

North/South Street		IH35 Frontage Rd										
East/West Street		/ Watson Ln										
POB	PM	Date	22-Jan-20			Synchro Node	3 Raw Data			P:\300\02\01\Data\RAW\Pape-Dawson - 01		
	Northbound			Southbound			Eastbound			Westbound		
	IH35 Frontage Rd			IH35 Frontage Rd						Watson Ln		
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	0	22	6	6	1	0	0	0	0	1	0	16
4:15 PM	0	33	7	8	1	0	0	0	0	0	0	15
4:30 PM	0	38	7	7	1	0	0	0	0	0	0	9
4:45 PM	0	32	11	6	1	0	0	0	0	0	0	8
5:00 PM	0	29	12	14	1	0	0	0	0	2	0	28
5:15 PM	0	30	9	4	2	0	0	0	0	0	0	19
5:30 PM	0	14	13	11	1	0	0	0	0	1	0	16
5:45 PM	0	37	9	3	2	0	0	0	0	2	0	8
Total	0	235	74	59	10	0	0	0	0	6	0	119
Peak Hour	0	132	37	35	4	0	0	0	0	2	0	60

North/South Street		IH35 Frontage Rd										
East/West Street		Watson Ln /										
Job	AM	Date	22-Jan-20		Synchron Node		4	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
			Northbound			Southbound			Eastbound			Westbound
			IH35 Frontage Rd			IH35 Frontage Rd			Watson Ln			
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	15	3	0	0	6	4	1	0	56	0	0	0
7:15 AM	9	5	0	0	9	11	1	0	47	0	0	0
7:30 AM	14	5	0	0	5	7	2	0	61	0	0	0
7:45 AM	16	6	0	0	12	4	0	0	55	0	0	0
8:00 AM	8	1	0	0	13	6	0	0	46	0	0	0
8:15 AM	10	0	0	0	16	7	0	0	55	0	0	0
8:30 AM	14	0	0	0	8	2	0	0	24	0	0	0
8:45 AM	8	2	0	0	9	4	0	0	24	0	0	0
Total	94	22	0	0	78	45	4	0	368	0	0	0
Peak Hour	54	19	0	0	32	26	4	0	219	0	0	0

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.64	0.75	0.00	0	0.00
28	39	0	0	0.00
0.38	3	0	47	17
0.00	0	0	0.73	0.71
0.86	209	0	0	0.00

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:00 AM-08:00 AM

North/South Street		IH35 Frontage Rd											
East/West Street		Watson Ln /											
MOD:	PM	Date:	22-Jan-20			Synchro Node:			4	Raw Data:	P:\300\02\01\Data\RAW\Pape-Dawson - 01		
	Northbound			Southbound			Eastbound			Westbound			
	IH35 Frontage Rd			IH35 Frontage Rd			Watson Ln						
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
4:00 PM	14	2	0	0	12	22	0	0	27	0	0	0	
4:15 PM	9	0	0	0	14	31	1	0	37	0	0	0	
4:30 PM	23	0	0	0	16	22	0	0	22	0	0	0	
4:45 PM	20	2	0	0	9	29	0	0	24	0	0	0	
5:00 PM	21	0	0	0	14	37	0	0	46	0	0	0	
5:15 PM	21	1	0	0	16	38	0	0	28	0	0	0	
5:30 PM	11	1	0	0	12	37	0	0	24	0	0	0	
5:45 PM	23	1	0	0	10	29	0	0	27	0	0	0	
Total	142	7	0	0	103	245	1	0	235	0	0	0	
Peak Hour	76	3	0	0	52	141	0	0	125	0	0	0	

Pedestrians

	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				











0.93	0.80	0.00		0	0.00
141	51	0		0	0.00
				0	0.00
0.00	0			73	4
0.00	0			0	0.00
0.66	122		0.87	0.50	0.00

Diagram for: 04:45 PM-05:45 PM
Peak Hour: 05:00 PM-06:00 PM



North/South Street		Conrads/Kohlenberg Crossover / Driveway												
East/West Street		Conrads Ln												
Time	AM	Date	22-Jan-20			Synchro Node	5	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01					
			Northbound			Southbound			Eastbound			Westbound		
			Conrads/Kohlenberg Crossover			Driveway			Conrads Ln			Conrads Ln		
Time			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM			28	4	37	0	1	6	4	61	41	4	7	0
7:15 AM			18	2	41	1	1	2	5	68	46	3	12	0
7:30 AM			43	6	32	0	3	0	2	89	53	5	11	8
7:45 AM			50	10	66	0	4	1	4	65	33	12	14	0
8:00 AM			34	5	40	1	2	3	4	63	38	5	13	0
8:15 AM			44	7	29	4	4	3	3	61	24	6	12	0
8:30 AM			36	6	42	1	1	5	2	43	26	5	7	0
8:45 AM			30	5	39	1	2	5	4	45	20	2	9	0
Total			283	45	326	8	18	25	28	495	281	42	85	8
Peak Hour			145	23	179	2	10	6	15	285	170	25	50	8

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.50	0.63	0.50	8	0.25
6	10	2	50	0.89
0.75	15		25	0.51
0.60	285		145	23
0.80	170		179	
			0.73	0.58
			0.68	

Diagram for: Peak Hour
Peak Hour: 07:15 AM-08:15 AM

North/South Street		Conrads/Kohlenberg Crossover / Driveway											
East/West Street		Conrads Ln											
TOD:	PM	Date:	22-Jan-20			Synchro Node:	5 Raw Data: P:\300\02\01\Data\RAW\Pape-Dawson - 01						
Northbound				Southbound			Eastbound			Westbound			
Conrads/Kohlenberg Crossover				Driveway			Conrads Ln			Conrads Ln			
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
4:00 PM	60	6	66	2	4	5	5	46	16	6	23	0	
4:15 PM	76	3	69	2	2	7	9	32	14	8	16	0	
4:30 PM	91	8	68	1	4	2	5	39	15	3	20	1	
4:45 PM	67	5	54	0	4	3	5	50	12	7	28	0	
5:00 PM	72	7	69	2	2	9	2	51	26	5	16	1	
5:15 PM	70	4	63	1	2	3	2	42	19	12	17	0	
5:30 PM	74	6	54	1	6	7	5	47	19	9	27	0	
5:45 PM	74	3	62	4	3	5	5	33	12	5	25	0	
Total	584	42	505	13	27	41	38	340	133	55	172	2	
Peak Hour	306	23	260	5	12	21	21	172	67	23	80	2	

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.61	0.58	0.50		1	0.25
22	14	4		88	0.79
0.70	14			33	0.69
0.93	190			283	22
0.73	76			0.96	0.79
					0.87

Diagram for: 04:45 PM-05:45 PM
Peak Hour: 04:15 PM-05:15 PM

North/South Street		IH35 Frontage Rd										
East/West Street		Conrads Ln /										
Time	AM	DATE	22-Jan-20			Synchro Node	6	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
			Northbound			Southbound			Eastbound			Westbound
			IH35 Frontage Rd			IH35 Frontage Rd			Conrads Ln			
Time			Left	Through	Right	Left	Through	Right	Left	Through	Right	
7:00 AM			0	0	0	0	10	12	5	0	87	0
7:15 AM			0	0	0	0	14	11	3	0	95	0
7:30 AM			0	0	0	0	12	19	3	0	112	0
7:45 AM			0	0	0	0	13	27	7	0	121	0
8:00 AM			0	0	0	0	22	25	5	0	118	0
8:15 AM			0	0	0	0	12	14	4	0	95	0
8:30 AM			0	0	0	0	15	17	0	0	79	0
8:45 AM			0	0	0	0	15	17	3	0	93	0
Total			0	0	0	0	113	142	30	0	800	0
Peak Hour			0	0	0	0	59	85	19	0	446	0

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.76	0.69	0.00	0	0.00
82	61	0	0	0.00
0.64	18	0	0	0.00
0.00	0	0	0	0
0.92	446	0	0	0.00

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:30 AM-08:30 AM

North/South Street		IH35 Frontage Rd										
East/West Street		Conrads Ln /										
ROD:	PM	Date:	22-Jan-20		Synchro Node:		6 Raw Data:		P:\300\02\01\Data\RAW\Pape-Dawson - 01			
	Northbound			Southbound			Eastbound			Westbound		
	IH35 Frontage Rd			IH35 Frontage Rd			Conrads Ln					
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	0	0	0	0	23	27	2	0	113	0	0	0
4:15 PM	0	0	0	0	31	29	5	0	108	0	0	0
4:30 PM	0	0	0	0	26	21	3	0	107	0	0	0
4:45 PM	0	0	0	0	34	36	1	0	102	0	0	0
5:00 PM	0	0	0	0	34	22	3	0	103	0	0	0
5:15 PM	0	0	0	0	57	28	3	0	120	0	0	0
5:30 PM	0	0	0	0	30	32	2	0	94	0	0	0
5:45 PM	0	0	0	0	34	37	1	0	117	0	0	0
Total	0	0	0	0	269	232	20	0	864	0	0	0
Peak Hour	0	0	0	0	155	119	9	0	434	0	0	0

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North/South Street East/West Street		IH35 Frontage Rd / Kohlenberg Rd												
Time	AM	Date	22-Jan-20		Synchro Node		7	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01					
			Northbound			Southbound			Eastbound			Westbound		
			IH35 Frontage Rd			IH35 Frontage Rd						Kohlenberg Rd		
Time			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM			0	7	53	1	0	0	0	0	0	0	0	36
7:15 AM			0	7	47	1	0	0	0	0	0	0	0	36
7:30 AM			0	2	62	3	0	0	0	0	0	0	0	45
7:45 AM			0	9	85	1	0	0	0	0	0	0	0	48
8:00 AM			0	3	84	0	0	0	0	0	0	0	0	26
8:15 AM			0	6	57	0	0	0	0	0	0	0	0	30
8:30 AM			0	7	68	1	0	0	0	0	0	0	0	22
8:45 AM			0	4	61	1	0	0	0	0	0	0	0	19
Total			0	45	517	8	0	0	0	0	0	0	0	262
Peak Hour			0	20	288	4	0	0	0	0	0	0	0	149


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North/South Street:		IH35 Frontage Rd												
East/West Street:		/ Kohlenberg Rd												
TOB:	PM	Date:	22-Jan-20			Synchro/Node:	7 Raw Data:		P:\300\02\01\Data\RAW\Pape-Dawson - 01					
			Northbound			Southbound			Eastbound			Westbound		
			IH35 Frontage Rd			IH35 Frontage Rd						Kohlenberg Rd		
Time			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM			0	6	129	3	0	0	0	0	0	0	0	12
4:15 PM			0	5	124	2	0	0	0	0	0	0	0	20
4:30 PM			0	7	125	3	0	0	0	0	0	0	0	19
4:45 PM			0	9	113	1	0	0	0	0	0	0	0	17
5:00 PM			0	2	128	2	0	0	0	0	0	0	0	25
5:15 PM			0	5	118	6	0	0	0	0	0	0	0	15
5:30 PM			0	9	119	7	0	0	0	0	0	0	0	22
5:45 PM			0	0	127	6	0	0	0	0	0	0	0	16
Total			0	43	983	30	0	0	0	0	0	0	0	146
Peak Hour			0	16	492	21	0	0	0	0	0	0	0	78

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.00	0.00	0.57		79	0.79
0	0	16		0	0.00
0.00	0			0	0.00
0.00	0			0	25
0.00	0			0.00	0.69
					0.93

Diagram for: 04:45 PM-05:45 PM
Peak Hour: 05:00 PM-06:00 PM



North/South Street		/ Conrads/Kohlenberg Crossover										
East/West Street		Kohlenberg Rd										
Top:	AM	Date:	22-Jan-20		Synchro Node		8	Raw Data:	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
			Northbound			Southbound			Eastbound		Westbound	
						Conrads/Kohlenberg Crossover			Kohlenberg Rd		Kohlenberg Rd	
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	0	0	0	18	0	31	41	14	0	0	4	26
7:15 AM	0	0	0	21	0	27	36	13	0	0	7	21
7:30 AM	0	0	0	26	0	30	59	7	0	0	17	29
7:45 AM	0	0	0	20	0	36	72	13	0	0	12	39
8:00 AM	0	0	0	24	0	20	76	10	0	0	5	17
8:15 AM	0	0	0	16	0	23	54	1	0	0	8	23
8:30 AM	0	0	0	16	0	14	60	9	0	0	8	23
8:45 AM	0	0	0	8	0	18	52	7	0	0	3	21
Total:	0	0	0	149	0	199	450	74	0	0	64	199
Peak Hour:	0	0	0	91	0	113	243	43	0	0	41	106

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.78	0.00	0.83		106	0.68
113	0	91	↑	41	0.60
↓		↓	↺	0	0.00
0.80	243		↻		
0.81	43		↓	0	0
0.00	0		↓	0.00	0.00


Diagram for: Peak Hour
Peak Hour: 07:15 AM-08:15 AM

North/South Street		/ Conrads/Kohlenberg Crossover											
East/West Street		Kohlenberg Rd											
RODI	PM	Date	22-Jan-20			Synchro Node	8 Raw Data P:\300\02\01\Data\RAW\Pape-Dawson - 01						
		Northbound			Southbound			Eastbound			Westbound		
					Conrads/Kohlenberg Crossover			Kohlenberg Rd			Kohlenberg Rd		
Time		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM		0	0	0	9	0	10	122	16	0	0	3	23
4:15 PM		0	0	0	11	0	17	117	11	0	0	3	31
4:30 PM		0	0	0	9	0	14	116	11	0	0	5	50
4:45 PM		0	0	0	11	0	14	99	13	0	0	3	35
5:00 PM		0	0	0	11	0	16	105	21	0	0	8	30
5:15 PM		0	0	0	25	0	12	106	19	0	0	4	32
5:30 PM		0	0	0	16	0	13	107	19	0	0	8	28
5:45 PM		0	0	0	11	0	9	120	15	0	0	7	29
Total		0	0	0	103	0	105	892	125	0	0	41	258
Peak Hour		0	0	0	63	0	50	438	74	0	0	27	119

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.86	0.00	0.63	125	0.89
55	0	63	23	0.72
0.97	417		0	0.00
0.86	72		0	0
0.00	0		0.00	0.00

Diagram for: 04:45 PM-05:45 PM
Peak Hour: 05:00 PM-06:00 PM



North/South Street		FM 1101										
East/West Street		Kohlenberg Rd /										
TOID	AM	Date	22-Jan-20		Synchro Node		9 Raw Data P:\300\02\01\Data\RAW\Pape-Dawson - 01					
Time	Northbound			Southbound			Eastbound			Westbound		
	FM 1101			FM 1101			Kohlenberg Rd					
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	10	6	0	0	22	20	9	0	12	0	0	0
7:15 AM	15	18	0	0	15	11	14	0	21	0	0	0
7:30 AM	23	12	0	0	14	17	14	0	11	0	0	0
7:45 AM	18	13	0	0	13	30	11	0	26	0	0	0
8:00 AM	16	11	0	0	22	20	11	0	17	0	0	0
8:15 AM	19	3	0	0	13	10	10	0	19	0	0	0
8:30 AM	13	13	0	0	10	14	10	0	12	0	0	0
8:45 AM	16	11	0	0	17	15	8	0	12	0	0	0
Total	130	87	0	0	126	137	87	0	130	0	0	0
Peak Hour	72	54	0	0	64	78	50	0	75	0	0	0

North/South Street		FM 1101											
East/West Street		Kohlenberg Rd /											
Job#	PM	Date		22-Jan-20			Synchro Node#		9	Raw Data#	P:\300\02\01\Data\RAW\Pape-Dawson - 01		
		Northbound			Southbound			Eastbound			Westbound		
		FM 1101			FM 1101			Kohlenberg Rd					
Time		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM		7	12	0	0	17	12	10	0	16	0	0	0
4:15 PM		16	13	0	0	16	12	13	0	11	0	0	0
4:30 PM		43	16	0	0	19	16	9	0	12	0	0	0
4:45 PM		21	18	0	0	17	9	8	0	18	0	0	0
5:00 PM		24	22	0	0	16	16	11	0	13	0	0	0
5:15 PM		16	20	0	0	16	20	16	0	27	0	0	0
5:30 PM		28	15	0	0	22	14	16	0	21	0	0	0
5:45 PM		30	22	0	0	16	9	13	0	25	0	0	0
Total		185	138	0	0	139	108	96	0	143	0	0	0
Peak Hour		98	79	0	0	70	59	56	0	86	0	0	0

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.74	0.81	0.00		0	0.00
59	71	0		0	0.00
0.60	51			0	0.00
0.00	0			89	75
0.73	79			0.75	0.85


Diagram for: 04:45 PM-05:45 PM
Peak Hour: 05:00 PM-06:00 PM

North/South Street		FM 1101										
East/West Street		/ Kohlenberg Rd										
TOP	AM	Date	22-Jan-20			Synchro 4.10			10	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01	
			Northbound			Southbound			Eastbound			Westbound
			FM 1101			FM 1101						Kohlenberg Rd
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	0	20	7	0	23	0	0	0	0	2	0	2
7:15 AM	0	22	5	2	20	0	0	0	0	2	0	0
7:30 AM	0	25	4	0	32	0	0	0	0	3	0	0
7:45 AM	0	16	3	0	29	0	0	0	0	6	0	0
8:00 AM	0	14	4	2	18	0	0	0	0	8	0	2
8:15 AM	0	13	1	1	17	0	0	0	0	4	0	0
8:30 AM	0	17	3	2	23	0	0	0	0	5	0	1
8:45 AM	0	17	3	1	18	0	0	0	0	2	0	1
Total	0	144	30	8	180	0	0	0	0	32	0	6
Peak Hour	0	83	19	2	104	0	0	0	0	13	0	2

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.00	0.77	0.50	2	0.25
0	99	4	0	0.00
0.00	0	0	19	0.59
0.00	0	0	0	0.00
0.00	0	0	77	16
0.00	0	0	0.00	0.77
				0.80

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:00 AM-08:00 AM



North/South Street		FM 1101											
East/West Street		Watson Ln /											
DDP	AM	Date		22-Jan-20		Synchro Nodes		12	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
		Northbound			Southbound			Eastbound			Westbound		
		FM 1101			FM 1101			Watson Ln					
Time		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM		6	14	0	0	22	12	2	0	6	0	0	0
7:15 AM		2	24	0	0	16	6	3	0	7	0	0	0
7:30 AM		5	19	0	0	27	6	3	0	0	0	0	0
7:45 AM		4	12	0	0	35	15	6	0	0	0	0	0
8:00 AM		4	16	0	0	16	8	3	0	3	0	0	0
8:15 AM		2	10	0	0	15	5	6	0	2	0	0	0
8:30 AM		3	20	0	0	22	3	6	0	3	0	0	0
8:45 AM		4	14	0	0	17	4	2	0	5	0	0	0
Total		30	129	0	0	170	59	31	0	26	0	0	0
Peak Hour		17	69	0	0	100	39	14	0	13	0	0	0

North/South Street:		FM 1101											
East/West Street:		Watson Ln /											
OD:	PM	Date:	22-Jan-20		Synchro Node:		12	Raw Data:	P:\300\02\01\Data\RAW\Pape-Dawson - 01				
		Northbound			Southbound			Eastbound			Westbound		
		FM 1101			FM 1101			Watson Ln					
Time		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM		2	16	0	0	13	4	5	0	5	0	0	0
4:15 PM		3	20	0	0	23	3	7	0	1	0	0	0
4:30 PM		1	19	0	0	22	3	3	0	5	0	0	0
4:45 PM		2	24	0	0	30	2	5	0	4	0	0	0
5:00 PM		2	39	0	0	31	5	12	0	1	0	0	0
5:15 PM		2	23	0	0	31	6	6	0	2	0	0	0
5:30 PM		6	28	0	0	20	4	10	0	7	0	0	0
5:45 PM		3	22	0	0	22	2	5	0	2	0	0	0
Total		21	191	0	0	192	29	53	0	27	0	0	0
Peak Hour		12	114	0	0	112	17	33	0	14	0	0	0

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.71	0.30	0.00	0	0.00
17	112	0	0	0.00
0.69	33	0	12	114
0.00	0	0	0	0
0.50	14	0	0.50	0.73

Diagram for: Peak Hour
Peak Hour: 04:45 PM-05:45 PM

North/South Street		/ Soechting Ln	
East/West Street		Watson Ln	
TOP	AM	Date	22-Jan-20
Synchron Node		13 Raw Data	
P:\300\02\01\Data\RAW\Pape-Dawson - 01			
Northbound		Southbound	
Soechting Ln		Watson Ln	
Watson Ln		Watson Ln	
Time	Left	Through	Right
7:00 AM	0	0	0
7:15 AM	0	0	0
7:30 AM	0	0	0
7:45 AM	0	0	0
8:00 AM	0	0	0
8:15 AM	0	0	0
8:30 AM	0	0	0
8:45 AM	0	0	0
Total	0	0	0
Peak Hour	0	0	0

Pedestrians			
	NB	SB	EB
7:00 AM			
7:15 AM			
7:30 AM			
7:45 AM			
8:00 AM			
8:15 AM			
8:30 AM			
8:45 AM			

0.42		0.00		0.55	
5	0	9	2	48	0.25
0.75	1	0	0	0	0.71
0.75	36	0	0	0	0.00
0.00	0	0.00	0.00	0.00	0.00

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:00 AM-08:00 AM

North/South Street		/ Soechting Ln												
East/West Street		Watson Ln												
Node	PM	Date	22-Jan-20		Synchro Node		13	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01					
			Northbound			Southbound			Eastbound			Westbound		
						Soechting Ln			Watson Ln			Watson Ln		
Time			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM			0	0	0	3	0	1	3	8	0	0	9	1
4:15 PM			0	0	0	3	0	1	5	6	0	0	6	2
4:30 PM			0	0	0	1	0	0	0	12	0	0	5	1
4:45 PM			0	0	0	1	0	0	7	5	0	0	11	2
5:00 PM			0	0	0	2	0	1	2	11	0	0	9	2
5:15 PM			0	0	0	1	0	0	3	10	0	0	9	1
5:30 PM			0	0	0	0	0	2	4	6	0	0	5	5
5:45 PM			0	0	0	1	0	2	2	12	0	0	5	0
Total			0	0	0	12	0	7	26	70	0	0	59	14
Peak Hour			0	0	0	4	0	3	16	32	0	0	34	10

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.38	0.00	0.50		10	0.50
3	0	4		34	0.77
0.57	16			0	0.00
0.73	32			0	0
0.00	0			0.00	0.00


Diagram for: Peak Hour
Peak Hour: 04:45 PM-05:45 PM

North/South Street		FM 1102										
East/West Street		/ Watson Ln										
TOID:	AM	Date:	22-Jan-20		Synchro Node:		14	Raw Data:	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
Time	Northbound			Southbound			Eastbound			Westbound		
	FM 1102			FM 1102						Watson Ln		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	0	29	41	12	10	0	0	0	0	8	0	17
7:15 AM	0	34	37	12	18	0	0	0	0	12	0	4
7:30 AM	0	50	49	9	10	0	0	0	0	2	0	9
7:45 AM	0	49	48	4	15	0	0	0	0	10	0	8
8:00 AM	0	34	37	6	15	0	0	0	0	9	0	6
8:15 AM	0	36	39	23	21	0	0	0	0	11	0	6
8:30 AM	0	36	20	2	14	0	0	0	0	10	0	6
8:45 AM	0	17	20	5	17	0	0	0	0	6	0	4
Total	0	285	291	73	120	0	0	0	0	68	0	60
Peak Hour	0	169	173	42	61	0	0	0	0	32	0	29

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.00	0.81	0.65		27	0.75
0	58	31		0	0.00
0.00	0			33	0.69
0.00	0			0	167
0.00	0			0	171
				0.00	0.84
					0.87

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:30 AM-08:30 AM



North/South Street		FM 1102										
East/West Street		/ Watson Ln										
TO:	PM	Date	22-Jan-20			Synchro Node	14		Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01		
Time	Northbound			Southbound			Eastbound			Westbound		
	FM 1102			FM 1102						Watson Ln		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	0	22	17	8	34	0	0	0	0	28	0	1
4:15 PM	0	23	30	12	48	0	0	0	0	37	0	0
4:30 PM	0	29	17	5	50	0	0	0	0	45	0	4
4:45 PM	0	28	18	18	51	0	0	0	0	41	0	3
5:00 PM	0	46	16	23	39	0	0	0	0	40	0	1
5:15 PM	0	42	15	15	63	0	0	0	0	42	0	3
5:30 PM	0	28	16	7	81	0	0	0	0	65	0	1
5:45 PM	0	31	10	10	49	0	0	0	0	48	0	3
Total	0	249	139	98	415	0	0	0	0	346	0	16
Peak Hour	0	144	65	63	234	0	0	0	0	188	0	8

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.00	0.72	0.68	8	0.67
0	234	63	0	0.00
0.00	0	0	188	0.72
0.00	0	0	0	0.78
0.00	0	0	144	0.90
0.00	0	0	65	

Diagram for: Peak Hour
Peak Hour: 04:45 PM-05:45 PM

North/South Street:		FM 1102										
East/West Street:		Hoffman Ln /										
FOI#:	AM	Date:	22-Jan-20		Synchro Node:		15	Raw Data:	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
	Northbound			Southbound			Eastbound			Westbound		
	FM 1102			FM 1102			Hoffman Ln					
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM	11	28	0	0	36	18	36	0	38	0	0	0
7:15 AM	10	23	0	0	48	19	51	0	44	0	0	0
7:30 AM	10	38	0	0	42	11	58	0	65	0	0	0
7:45 AM	15	24	0	0	49	3	37	0	42	0	0	0
8:00 AM	12	30	0	0	60	9	15	0	41	0	0	0
8:15 AM	16	29	0	0	39	10	23	0	46	0	0	0
8:30 AM	17	35	0	0	46	3	22	0	25	0	0	0
8:45 AM	11	38	0	0	37	3	18	0	22	0	0	0
Total	102	245	0	0	357	76	260	0	323	0	0	0
Peak Hour	46	113	0	0	175	51	182	0	189	0	0	0

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North/South Street:		FM 1102										
East/West Street:		Hoffman Ln /										
Job:	PM	Date:	22-Jan-20			Synchro Node:	15		Raw Data:	P:\300\02\01\Data\RAW\Pape-Dawson - 01		
Time	Northbound			Southbound			Eastbound			Westbound		
	FM 1102			FM 1102			Hoffman Ln					
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	26	60	0	0	38	23	17	0	22	0	0	0
4:15 PM	35	64	0	0	54	28	14	0	17	0	0	0
4:30 PM	38	53	0	0	51	38	15	0	17	0	0	0
4:45 PM	42	63	0	0	52	38	17	0	24	0	0	0
5:00 PM	44	66	0	0	63	30	11	0	22	0	0	0
5:15 PM	40	69	0	0	67	43	12	0	26	0	0	0
5:30 PM	53	63	0	0	71	59	10	0	33	0	0	0
5:45 PM	38	55	0	0	52	29	15	0	25	0	0	0
Total	316	493	0	0	448	288	111	0	186	0	0	0
Peak Hour	179	261	0	0	253	170	50	0	105	0	0	0

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.72	0.89	0.00	0	0.00
170	253	0	0	0.00
0.74	50	0	179	261
0.00	0	0	0.84	0.95
0.80	105	0	0.00	0.00

Diagram for: Peak Hour
Peak Hour: 04:45 PM-05:45 PM

North/South Street		FM 1102	
East/West Street		/ Conrads Ln	
16	AM	Date	22-Jan-20
Synchro Node		16	
Raw Data		P:\300\02\01\Data\RAW\Pape-Dawson - 01	
Northbound		Southbound	
FM 1102		FM 1102	
Eastbound		Westbound	
Conrads Ln			
Time	Left	Through	Right
7:00 AM	0	24	5
7:15 AM	0	22	2
7:30 AM	0	31	3
7:45 AM	0	31	7
8:00 AM	0	33	5
8:15 AM	0	37	7
8:30 AM	0	45	3
8:45 AM	0	43	8
Total	0	266	40
Peak Hour	0	132	22

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.00

0.94

0.92

0

307

85

0.00

0

0

0

0.00

0.89

0.61

46

0

28

117

17

Diagram for: 07:15 AM-08:15 AM

Peak Hour: 07:30 AM-08:30 AM

North/South Street		FM 1102											
East/West Street		/ Conrads Ln											
Node	PM	Date	22-Jan-20		Synchronode		16	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01				
		Northbound			Southbound			Eastbound			Westbound		
		FM 1102			FM 1102						Conrads Ln		
Time		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM		0	78	14	17	44	0	0	0	0	8	0	13
4:15 PM		0	76	9	14	60	0	0	0	0	5	0	18
4:30 PM		0	70	13	13	57	0	0	0	0	7	0	21
4:45 PM		0	96	14	17	59	0	0	0	0	6	0	16
5:00 PM		0	80	7	22	64	0	0	0	0	7	0	19
5:15 PM		0	92	12	23	69	0	0	0	0	3	0	16
5:30 PM		0	87	13	23	79	0	0	0	0	6	0	25
5:45 PM		0	74	5	12	65	0	0	0	0	7	0	15
Total		0	653	87	141	497	0	0	0	0	49	0	143
Peak Hour		0	355	46	85	271	0	0	0	0	22	0	76

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.00	0.86	0.92		76	0.76
0	271	85		0	0.00
				22	0.79
0.00	0			0	355
0.00	0			0.00	0.92
0.00	0				0.82


Diagram for: Peak Hour
Peak Hour: 04:45 PM-05:45 PM

North/South Street		Goodwin Ln / Conrads Ln												
Time	AM	Date	22-Jan-20		Synchro Node		17	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01					
			Northbound			Southbound			Eastbound			Westbound		
			Goodwin Ln			Goodwin Ln						Conrads Ln		
Time			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM			0	6	44	44	30	0	0	0	0	22	0	9
7:15 AM			0	19	42	47	34	0	0	0	0	18	0	6
7:30 AM			0	31	60	57	21	0	0	0	0	14	0	17
7:45 AM			0	0	23	54	5	0	0	0	0	8	0	18
8:00 AM			0	4	26	48	3	0	0	0	0	15	0	18
8:15 AM			0	4	12	49	2	0	0	0	0	16	0	20
8:30 AM			0	1	9	27	3	0	0	0	0	13	0	9
8:45 AM			0	2	14	21	2	0	0	0	0	8	0	11
Total			0	67	230	347	100	0	0	0	0	114	0	108
Peak Hour			0	56	169	202	90	0	0	0	0	62	0	50

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.00	0.46	0.90	59	0.82
0	63	206	0	0.00
0.00	0		55	0.76
0.00	0		0	54
0.00	0		0.00	0.44
				0.63

Diagram for: 07:15 AM-08:15 AM
Peak Hour: 07:00 AM-08:00 AM



North/South Street		Goodwin Ln										
East/West Street		/ Conrads Ln										
100	PM	Date	22-Jan-20		Synchro Node		17	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
	Northbound			Southbound			Eastbound			Westbound		
	Goodwin Ln			Goodwin Ln						Conrads Ln		
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	0	9	13	30	5	0	0	0	0	30	0	20
4:15 PM	0	7	17	17	7	0	0	0	0	40	0	22
4:30 PM	0	9	13	32	5	0	0	0	0	52	0	29
4:45 PM	0	13	16	28	7	0	0	0	0	41	0	26
5:00 PM	0	9	24	26	7	0	0	0	0	38	0	17
5:15 PM	0	6	17	23	10	0	0	0	0	36	0	23
5:30 PM	0	12	19	37	5	0	0	0	0	43	0	24
5:45 PM	0	12	15	20	5	0	0	0	0	45	0	25
Total	0	77	134	213	51	0	0	0	0	325	0	186
Peak Hour	0	37	70	109	29	0	0	0	0	167	0	95

Pedestrians

	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.00	0.73	0.77	90	0.87
0	29	114	0	0.00
0.00	0	0	158	0.92
0.00	0	0	0	0.77
0.00	0	0	40	0.79
0.00	0	0	0	0.79

Diagram for: 04:45 PM-05:45 PM
Peak Hour: 04:30 PM-05:30 PM

APPENDIX D

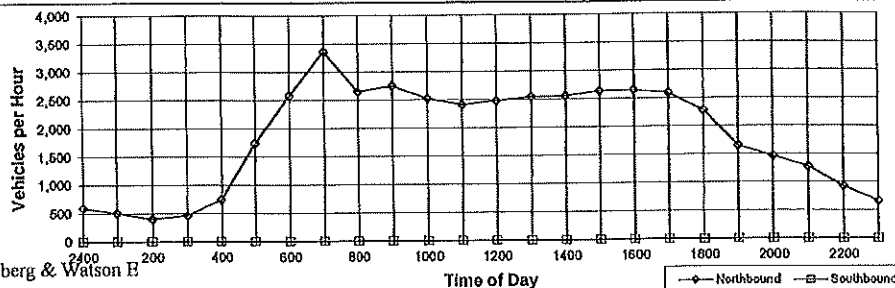
FDOT Roadway Sizing

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: ML IH 35 NB, btwn Kohlenberg & Watson E



Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		146	0	12:00		654	0
0:15		142	0	12:15		587	0
0:30		153	0	12:30		599	0
0:45		154	0	12:45		640	0
1:00		130	0	13:00		603	0
1:15		133	0	13:15	*	653	0
1:30		132	0	13:30	*	649	0
1:45		112	0	13:45	*	640	0
2:00		97	0	14:00	*	620	0
2:15		112	0	14:15		649	0
2:30		98	0	14:30		646	0
2:45		95	0	14:45		640	0
3:00		104	0	15:00		622	0
3:15		108	0	15:15		663	0
3:30		123	0	15:30		669	0
3:45		128	0	15:45		680	0
4:00		137	0	16:00		614	0
4:15		155	0	16:15	*	699	0
4:30		204	0	16:30	*	661	0
4:45		246	0	16:45	*	668	0
5:00		333	0	17:00	*	642	0
5:15		382	0	17:15		697	0
5:30		483	0	17:30		643	0
5:45		546	0	17:45		608	0
6:00		531	0	18:00		632	0
6:15		623	0	18:15		586	0
6:30		705	0	18:30		570	0
6:45		720	0	18:45		491	0
7:00	*	751	0	19:00		406	0
7:15	*	796	0	19:15		422	0
7:30	*	958	0	19:30		405	0
7:45	*	858	0	19:45		418	0
8:00		663	0	20:00		373	0
8:15		713	0	20:15		379	0
8:30		635	0	20:30		371	0
8:45		639	0	20:45		342	0
9:00		701	0	21:00		337	0
9:15		703	0	21:15		314	0
9:30		666	0	21:30		332	0
9:45		681	0	21:45		292	0
10:00		663	0	22:00		263	0
10:15		665	0	22:15		231	0
10:30		588	0	22:30		229	0
10:45		605	0	22:45		205	0
11:00		601	0	23:00		209	0
11:15		616	0	23:15		178	0
11:30		604	0	23:30		150	0
11:45		594	0	23:45		126	0
AM Peak Hour		7:00-8:00	Directional Volumes				44,439
% of ADT		7.6%	24-Hour Volume				44,439
PM Peak Hour		16:15-17:15					
% of ADT		6.0%					

North/South Street		FM 1101										
East/West Street		/ Kohlenberg Rd										
Time	PM	Date		22-Jan-20		Synchro Node		10 Raw Data		P:\300\02\01\Data\RAW\Pape-Dawson - 01		
	Northbound			Southbound			Eastbound			Westbound		
	FM 1101			FM 1101						Kohlenberg Rd		
Time	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM	0	21	4	1	18	0	0	0	0	11	0	1
4:15 PM	0	21	1	0	28	0	0	0	0	4	0	0
4:30 PM	0	19	1	5	25	0	0	0	0	4	0	0
4:45 PM	0	30	1	0	31	0	0	0	0	2	0	0
5:00 PM	0	39	3	0	31	0	0	0	0	3	0	1
5:15 PM	0	21	3	0	29	0	0	0	0	3	0	1
5:30 PM	0	35	0	1	25	0	0	0	0	3	0	1
5:45 PM	0	19	3	2	24	0	0	0	0	4	0	1
Total	0	205	16	9	211	0	0	0	0	34	0	5
Peak Hour	0	125	7	1	116	0	0	0	0	11	0	3

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.00	0.91	0.25	3	0.75
0	116	1	0	0.00
0.00	0	0	11	0.92
0.00	0	0	0	0.00
0.00	0	0	125	0.80
0.00	0	0	7	0.58


Diagram for: Peak Hour
Peak Hour: 04:45 PM-05:45 PM

North/South Street		FM 1101												
East/West Street		/ Kroesche Ln												
TOB	AM	Date	22-Jan-20				Synchro Node		11	Raw Data	P:\300\02\01\Data\RAW\Pape-Dawson - 01			
			Northbound			Southbound			Eastbound			Westbound		
			FM 1101			FM 1101						Kroesche Ln		
Time			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM			0	14	0	0	22	0	0	0	0	1	0	1
7:15 AM			0	29	1	3	32	0	0	0	0	1	0	3
7:30 AM			0	34	1	2	27	0	0	0	0	1	0	1
7:45 AM			0	28	1	2	33	0	0	0	0	4	0	2
8:00 AM			0	28	1	2	41	0	0	0	0	2	0	2
8:15 AM			0	19	0	0	31	0	0	0	0	3	0	1
8:30 AM			0	26	1	1	21	0	0	0	0	0	0	1
8:45 AM			0	26	1	2	26	0	0	0	0	1	0	1
Total			0	204	6	12	233	0	0	0	0	13	0	12
Peak Hour			0	119	4	9	133	0	0	0	0	8	0	8

Pedestrians				
	NB	SB	EB	WB
7:00 AM				
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM				
8:15 AM				
8:30 AM				
8:45 AM				

0.00	0.81	0.75		8	0.67
0	133	9	↑	0	0.00
			↓	8	0.50
0.00	0			0	1.00
0.00	0			0	1.00
0.00	0			0	1.00

Diagram for: Peak Hour
Peak Hour: 07:15 AM-08:15 AM




North/South Street		FM 1101											
East/West Street		/ Kroesche Ln											
MOD	PM	Date	22-Jan-20		Synchro Node		11	Raw Data: P:\300\02\01\Data\RAW\Pape-Dawson - 01					
		Northbound			Southbound			Eastbound			Westbound		
		FM 1101			FM 1101						Kroesche Ln		
Time		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
4:00 PM		0	18	0	1	31	0	0	0	0	3	0	2
4:15 PM		0	25	1	2	29	0	0	0	0	1	0	2
4:30 PM		0	56	2	7	21	0	0	0	0	4	0	2
4:45 PM		0	41	3	6	29	0	0	0	0	0	0	1
5:00 PM		0	43	2	4	27	0	0	0	0	3	0	1
5:15 PM		0	35	1	4	32	0	0	0	0	0	0	3
5:30 PM		0	39	3	4	43	0	0	0	0	1	0	1
5:45 PM		0	50	1	5	34	0	0	0	0	2	0	2
Total		0	307	13	33	246	0	0	0	0	14	0	14
Peak Hour		0	167	7	17	136	0	0	0	0	6	0	7

Pedestrians				
	NB	SB	EB	WB
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				
5:15 PM				
5:30 PM				
5:45 PM				

0.00	0.76	0.75		6	0.50
0	131	18		0	0.00
0.00	0			4	0.31
0.00	0			0	158
0.00	0			0.00	0.92
					0.75

Diagram for: 04:45 PM-05:45 PM
Peak Hour: 05:00 PM-06:00 PM

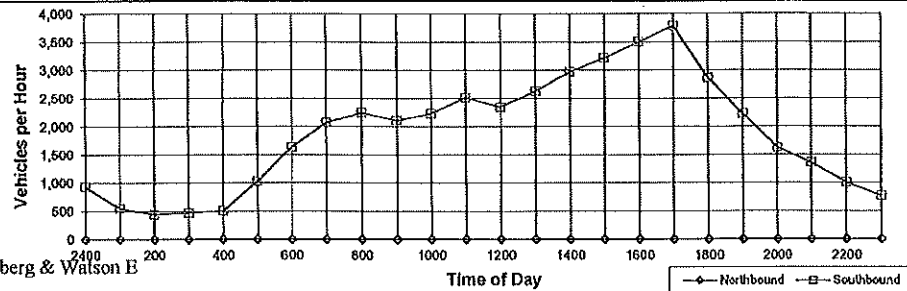


Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: ML IH 35 SB, btwn Kohlenberg & Watson B



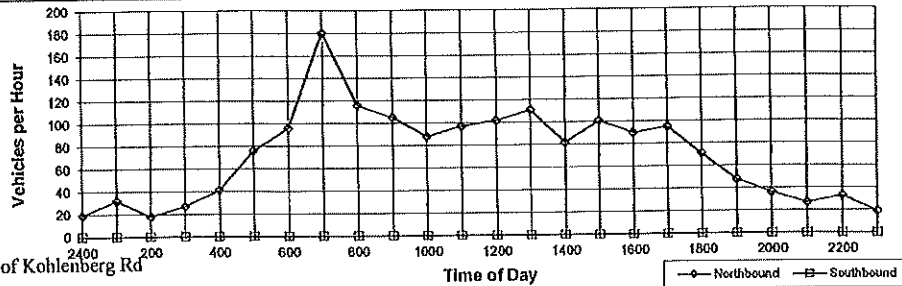
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		0	246	12:00		0	571
0:15		0	262	12:15		0	549
0:30		0	265	12:30		0	580
0:45		0	161	12:45		0	643
1:00		0	934			0	2,343
1:15		0	196	13:00		0	632
1:30		0	126	13:15		0	639
1:45		0	114	13:30		0	684
2:00		0	110	13:45		0	675
2:15		0	546			0	2,630
2:30		0	114	14:00	*	0	681
2:45		0	108	14:15	*	0	762
3:00		0	117	14:30	*	0	773
3:15		0	101	14:45	*	0	756
3:30		0	440			0	2,972
3:45		0	111	15:00		0	680
4:00		0	109	15:15		0	744
4:15		0	114	15:30		0	861
4:30		0	133	15:45		0	929
4:45		0	467			0	3,214
5:00		0	120	16:00		0	898
5:15		0	105	16:15		0	810
5:30		0	123	16:30		0	896
5:45		0	157	16:45		0	895
6:00		0	505			0	3,499
6:15		0	186	17:00	*	0	887
6:30		0	237	17:15	*	0	1,024
6:45		0	289	17:30	*	0	961
7:00		0	316	17:45	*	0	909
7:15		0	1,028			0	3,781
7:30		0	388	18:00		0	757
7:45	*	0	371	18:15		0	760
8:00	*	0	421	18:30		0	698
8:15	*	0	453	18:45		0	647
8:30	*	0	1,633			0	2,862
8:45		0	427	19:00		0	578
9:00		0	502	19:15		0	567
9:15		0	537	19:30		0	547
9:30		0	602	19:45		0	530
9:45		0	2,068			0	2,222
10:00		0	585	20:00		0	456
10:15		0	531	20:15		0	433
10:30		0	604	20:30		0	409
10:45		0	526	20:45		0	331
11:00		0	2,246			0	1,629
11:15		0	531	21:00		0	359
11:30		0	484	21:15		0	378
11:45		0	527	21:30		0	333
		0	2,107	21:45		0	290
		0	541			0	1,360
		0	567	22:00		0	280
		0	556	22:15		0	254
		0	566	22:30		0	233
		0	2,230	22:45		0	242
		0	599			0	1,009
		0	702	23:00		0	236
		0	616	23:15		0	203
		0	597	23:30		0	184
		0	2,514	23:45		0	144
		0				0	767
AM Peak Hour	7:45-8:45	Directional Volumes		24-Hour Volume		45,006	
% of ADT	5.2%					45,006	
PM Peak Hour	17:00-18:00						
% of ADT	8.4%						

Average Daily Traffic

Project No. : 30002-01
Station No. : January 22, 2020
Counter No. : 1

Location:
City/State: San Antonio, TX
Date: February 4, 2014
Day of Week: Tuesday

Site: IH 35 NB entrance ramp, N of Kohlenberg Rd



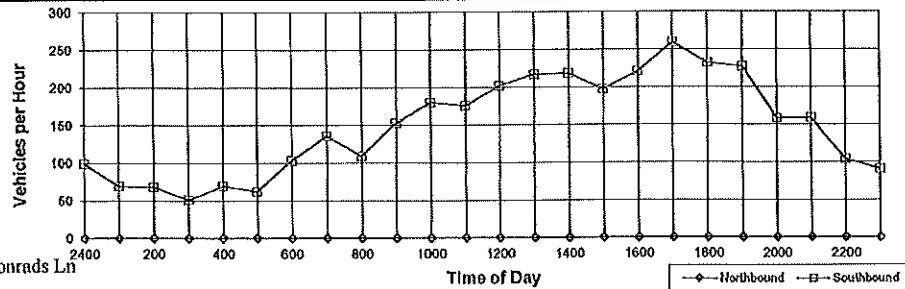
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		5	0	12:00		27	0
0:15		3	0	12:15		29	0
0:30		5	0	12:30		23	0
0:45		6 19	0 0	12:45		23 102	0 0
1:00		4	0	13:00	*	27	0
1:15		8	0	13:15	*	23	0
1:30		10	0	13:30	*	32	0
1:45		10 32	0 0	13:45	*	29 111	0 0
2:00		2	0	14:00		18	0
2:15		9	0	14:15		20	0
2:30		2	0	14:30		29	0
2:45		5 18	0 0	14:45		15 82	0 0
3:00		8	0	15:00		26	0
3:15		14	0	15:15		23	0
3:30		0	0	15:30		16	0
3:45		5 27	0 0	15:45	*	36 101	0 0
4:00		3	0	16:00	*	21	0
4:15		4	0	16:15	*	25	0
4:30		19	0	16:30	*	23	0
4:45		15 41	0 0	16:45		21 90	0 0
5:00		15	0	17:00		30	0
5:15		21	0	17:15		16	0
5:30		15	0	17:30		31	0
5:45		25 76	0 0	17:45		18 95	0 0
6:00		19	0	18:00		23	0
6:15		24	0	18:15		9	0
6:30		23	0	18:30		20	0
6:45		30 96	0 0	18:45		19 71	0 0
7:00		33	0	19:00		13	0
7:15	*	45	0	19:15		16	0
7:30	*	49	0	19:30		15	0
7:45	*	53 180	0 0	19:45		4 48	0 0
8:00	*	34	0	20:00		14	0
8:15		35	0	20:15		8	0
8:30		27	0	20:30		11	0
8:45		20 116	0 0	20:45		3 36	0 0
9:00		27	0	21:00		7	0
9:15		31	0	21:15		6	0
9:30		31	0	21:30		5	0
9:45		16 105	0 0	21:45		9 27	0 0
10:00		23	0	22:00		8	0
10:15		21	0	22:15		6	0
10:30		17	0	22:30		10	0
10:45		27 88	0 0	22:45		9 33	0 0
11:00		24	0	23:00		2	0
11:15		21	0	23:15		6	0
11:30		20	0	23:30		9	0
11:45		32 97	0 0	23:45		2 19	0 0
AM Peak Hour		7:15-8:15	Directional Volumes		1,710		0
% of ADT		10.6%			24-Hour Volume		1,710
PM Peak Hour		15:45-16:45					
% of ADT		5.8%					

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: IH 35 SB exit ramp, N of Conrads Ln



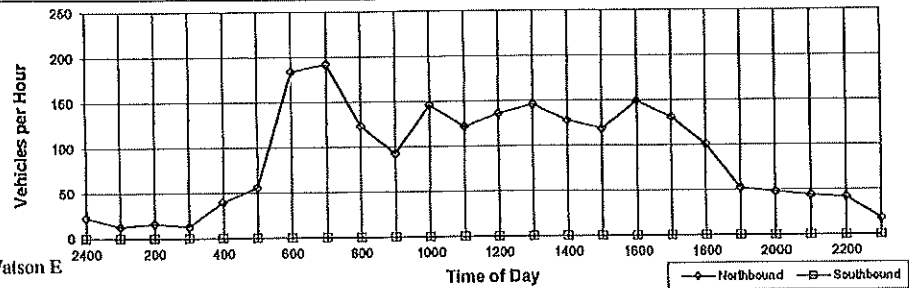
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		0	25	12:00		0	48
0:15		0	26	12:15		0	46
0:30		0	33	12:30		0	57
0:45		0	15	12:45		0	51
1:00		0	99	13:00		0	202
1:15		0	20	13:15		0	48
1:30		0	10	13:30		0	53
1:45		0	17	13:45		0	66
2:00		0	22	13:59		0	50
2:15		0	69	14:00	*	0	217
2:30		0	12	14:15	*	0	39
2:45		0	25	14:30	*	0	63
3:00		0	16	14:45	*	0	57
3:15		0	68	14:59	*	0	59
3:30		0	15	15:00		0	218
3:45		0	6	15:15		0	50
4:00		0	11	15:30		0	59
4:15		0	21	15:45		0	32
4:30		0	13	15:59		0	56
4:45		0	51	16:00		0	197
5:00		0	6	16:15		0	59
5:15		0	16	16:30		0	45
5:30		0	31	16:45		0	59
5:45		0	16	16:59		0	58
6:00		0	69	17:00		0	221
6:15		0	4	17:15	*	0	56
6:30		0	19	17:30	*	0	73
6:45		0	17	17:45	*	0	68
7:00		0	22	17:59	*	0	62
7:15		0	62	18:00		0	259
7:30		0	21	18:15		0	70
7:45		0	21	18:30		0	64
8:00		0	23	18:45		0	48
8:15		0	38	18:59		0	50
8:30		0	103	19:00		0	232
8:45		0	23	19:15		0	42
9:00		0	41	19:30		0	76
9:15		0	29	19:45		0	53
9:30		0	43	19:59		0	56
9:45		0	136	20:00		0	227
10:00		0	26	20:15		0	44
10:15		0	34	20:30		0	41
10:30		0	26	20:45		0	45
10:45		0	109	20:59		0	28
11:00		0	31	21:00		0	158
11:15		0	44	21:15		0	51
11:30		0	34	21:30		0	36
11:45		0	44	21:45		0	42
		0	153	21:59		0	30
		0	40	22:00		0	159
	*	0	48	22:15		0	26
	*	0	38	22:30		0	21
	*	0	54	22:45		0	14
	*	0	180	22:59		0	43
		0	55	23:00		0	104
		0	44	23:15		0	21
		0	51	23:30		0	23
		0	26	23:45		0	22
		0	176			0	25
		0	91			0	91
AM Peak Hour	10:00-11:00	Directional Volumes		0	24-Hour Volume		3,560
% of ADT	5.1%						
PM Peak Hour	17:15-18:15						
% of ADT	7.7%						

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: IH 35 NB exit ramp, S of Watson E



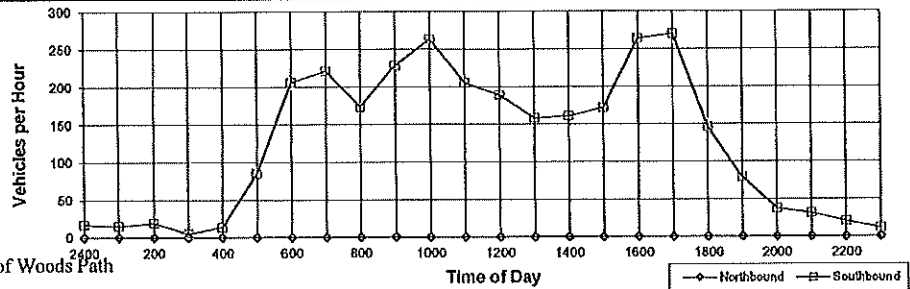
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		10	0	12:00		41	0
0:15		2	0	12:15		31	0
0:30		9	0	12:30		38	0
0:45		2	0	12:45		26	0
1:00		3	0	13:00		31	0
1:15		0	0	13:15		36	0
1:30		7	0	13:30	*	45	0
1:45		3	0	13:45	*	34	0
2:00		7	0	14:00	*	43	0
2:15		2	0	14:15	*	40	0
2:30		4	0	14:30		21	0
2:45		3	0	14:45		24	0
3:00		3	0	15:00		25	0
3:15		4	0	15:15		40	0
3:30		3	0	15:30		26	0
3:45		3	0	15:45		28	0
4:00		10	0	16:00		25	0
4:15		6	0	16:15	*	40	0
4:30		11	0	16:30	*	44	0
4:45		13	0	16:45	*	40	0
5:00		7	0	17:00	*	38	0
5:15		22	0	17:15		32	0
5:30		9	0	17:30		21	0
5:45		18	0	17:45		40	0
6:00		35	0	18:00		23	0
6:15		43	0	18:15		33	0
6:30	*	57	0	18:30		21	0
6:45	*	49	0	18:45		24	0
7:00	*	51	0	19:00		15	0
7:15	*	52	0	19:15		12	0
7:30		48	0	19:30		13	0
7:45		41	0	19:45		12	0
8:00		32	0	20:00		13	0
8:15		30	0	20:15		11	0
8:30		32	0	20:30		9	0
8:45		29	0	20:45		15	0
9:00		29	0	21:00		8	0
9:15		16	0	21:15		12	0
9:30		25	0	21:30		8	0
9:45		23	0	21:45		16	0
10:00		27	0	22:00		9	0
10:15		35	0	22:15		11	0
10:30		38	0	22:30		5	0
10:45		46	0	22:45		17	0
11:00		25	0	23:00		8	0
11:15		20	0	23:15		5	0
11:30		42	0	23:30		1	0
11:45		35	0	23:45		4	0
AM Peak Hour		6:30-7:30	Directional Volumes		2,135		0
% of ADT		9.8%			24-Hour Volume		2,135
PM Peak Hour		16:15-17:15					
% of ADT		7.6%					

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: IH 35 SB entrance ramp, S of Woods Path



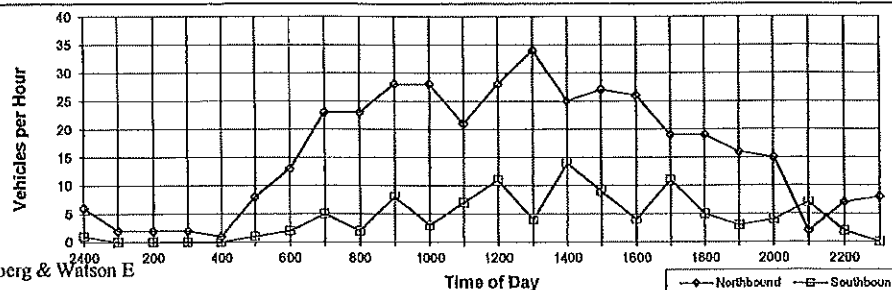
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		0	3	12:00	*	0	53
0:15		0	1	12:15	*	0	54
0:30		0	0	12:30	*	0	44
0:45		0	13	12:45		0	38
1:00		0	5	13:00		0	45
1:15		0	1	13:15		0	40
1:30		0	1	13:30		0	43
1:45		0	8	13:45		0	30
2:00		0	4	14:00		0	41
2:15		0	5	14:15		0	39
2:30		0	5	14:30		0	34
2:45		0	5	14:45		0	47
3:00		0	0	15:00		0	47
3:15		0	3	15:15		0	33
3:30		0	1	15:30		0	34
3:45		0	1	15:45		0	58
4:00		0	4	16:00		0	96
4:15		0	1	16:15		0	52
4:30		0	5	16:30		0	55
4:45		0	4	16:45	*	0	61
5:00		0	13	17:00	*	0	81
5:15		0	23	17:15	*	0	73
5:30		0	14	17:30	*	0	60
5:45		0	35	17:45		0	56
6:00		0	40	18:00		0	41
6:15		0	50	18:15		0	36
6:30		0	43	18:30		0	40
6:45		0	73	18:45		0	29
7:00		0	70	19:00		0	20
7:15		0	57	19:15		0	22
7:30		0	32	19:30		0	15
7:45		0	62	19:45		0	22
8:00		0	51	20:00		0	18
8:15		0	54	20:15		0	7
8:30		0	32	20:30		0	7
8:45		0	36	20:45		0	5
9:00		0	41	21:00		0	11
9:15		0	39	21:15		0	9
9:30		0	70	21:30		0	7
9:45	*	0	78	21:45		0	4
10:00	*	0	76	22:00		0	2
10:15	*	0	70	22:15		0	5
10:30	*	0	73	22:30		0	10
10:45		0	44	22:45		0	3
11:00		0	65	23:00		0	1
11:15		0	42	23:15		0	2
11:30		0	44	23:30		0	1
11:45	*	0	54	23:45		0	7
AM Peak Hour	9:45-10:45	Directional Volumes		24-Hour Volume		2,989	
% of ADT	9.9%						
PM Peak Hour	16:45-17:45						
% of ADT	9.2%						

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: IH 35 NBFR, btwn Kohlenberg & Watson E



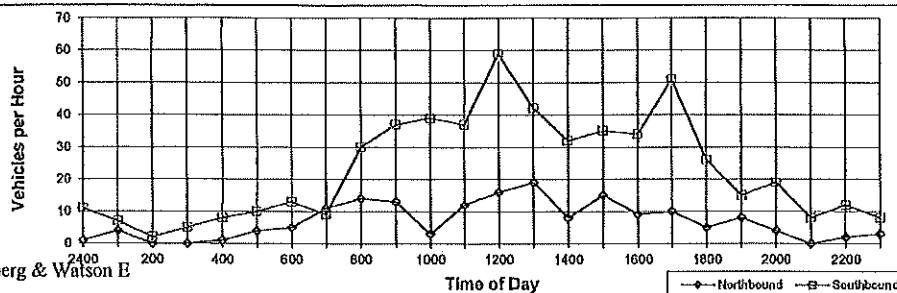
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		0	0	12:00		6	2
0:15		1	0	12:15		4	2
0:30		0	0	12:30	*	8	3
0:45		5	1	12:45	*	10	4
1:00		2	0	13:00	*	12	2
1:15		0	0	13:15	*	9	2
1:30		0	0	13:30		7	0
1:45		0	0	13:45		6	0
2:00		2	0	14:00		3	2
2:15		0	0	14:15		11	4
2:30		0	0	14:30		3	5
2:45		0	0	14:45		8	3
3:00		0	0	15:00	*	7	5
3:15		0	0	15:15	*	9	0
3:30		0	0	15:30	*	9	2
3:45		2	0	15:45	*	2	2
4:00		0	0	16:00		7	1
4:15		0	0	16:15		3	2
4:30		0	0	16:30		8	0
4:45		1	0	16:45		8	1
5:00		0	0	17:00		1	2
5:15		1	0	17:15		6	2
5:30		6	1	17:30		9	0
5:45		1	0	17:45		3	7
6:00		2	0	18:00		4	2
6:15		2	0	18:15		3	3
6:30		4	1	18:30		6	0
6:45		5	2	18:45		6	0
7:00		8	1	19:00		4	0
7:15		4	1	19:15		3	3
7:30		2	2	19:30		4	0
7:45		9	1	19:45		5	0
8:00		4	0	20:00		4	2
8:15		7	0	20:15		3	1
8:30		4	1	20:30		3	0
8:45	*	8	1	20:45		5	1
9:00	*	6	2	21:00		0	0
9:15	*	8	3	21:15		1	0
9:30	*	10	1	21:30		0	7
9:45		4	2	21:45		1	0
10:00		6	0	22:00		0	1
10:15		6	0	22:15		2	0
10:30		7	1	22:30		4	0
10:45		9	2	22:45		1	1
11:00		6	3	23:00		2	0
11:15		2	2	23:15		1	0
11:30		4	2	23:30		5	0
11:45		9	0	23:45		0	0
AM Peak Hour	8:45-9:45	Directional Volumes		983	24-Hour Volume		486
% of ADT	8.0%						
PM Peak Hour	15:00-16:00						
% of ADT	6.8%						

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: IH 35 SBFR, btwn Kohlenberg & Watson E



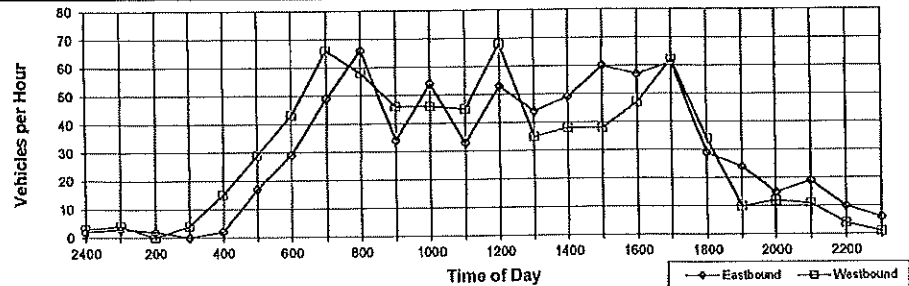
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		0	3	12:00	*	3	24
0:15		0	2	12:15	*	6	10
0:30		1	4	12:30	*	4	10
0:45		0 1	2 11	12:45	*	3 16	15 59
1:00		0	6	13:00		7	11
1:15		4	1	13:15		3	11
1:30		0	0	13:30		8	9
1:45		0 4	0 7	13:45		1 19	11 42
2:00		0	0	14:00		4	12
2:15		0	0	14:15		3	9
2:30		0	2	14:30		0	2
2:45		0 0	0 2	14:45		1 8	9 32
3:00		0	0	15:00		0	8
3:15		0	2	15:15		3	9
3:30		0	0	15:30		6	4
3:45		0 0	3 5	15:45		6 15	14 35
4:00		0	6	16:00		2	9
4:15		1	0	16:15		1	12
4:30		0	1	16:30		2	9
4:45		0 1	1 8	16:45		4 9	4 34
5:00		0	0	17:00	*	3	12
5:15		1	2	17:15	*	2	16
5:30		1	2	17:30	*	3	14
5:45		2 4	6 10	17:45	*	2 10	9 51
6:00		1	3	18:00		1	8
6:15		0	0	18:15		2	6
6:30		1	7	18:30		0	6
6:45		3 5	3 13	18:45		2 5	6 26
7:00		2	1	19:00		4	4
7:15		2	2	19:15		2	4
7:30		4	5	19:30		1	3
7:45		3 11	1 9	19:45		1 8	4 15
8:00		10	5	20:00		1	10
8:15		3	5	20:15		0	2
8:30		1	10	20:30		2	4
8:45		0 14	10 30	20:45		1 4	3 19
9:00		3	3	21:00		0	1
9:15	*	1	10	21:15		0	3
9:30	*	1	14	21:30		0	0
9:45	*	8 13	10 37	21:45		0 0	4 8
10:00	*	1	7	22:00		1	1
10:15		1	9	22:15		0	2
10:30		1	9	22:30		1	7
10:45		0 3	14 39	22:45		0 2	2 12
11:00		2	15	23:00		1	1
11:15		5	5	23:15		0	3
11:30		2	15	23:30		0	1
11:45		3 12	2 37	23:45		2 3	3 8
AM Peak Hour		9:15-10:15	Directional Volumes		167		549
% of ADT		7.3%			24-Hour Volume		716
PM Peak Hour		17:00-18:00					
% of ADT		8.5%					

Average Daily Traffic

Project No. : 30002-01
Station No. : January 22, 2020
Counter No. : 1

Location:
City/State: San Antonio, TX
Date: February 4, 2014
Day of Week: Tuesday

Site: Watson Ln E, E of IH 35



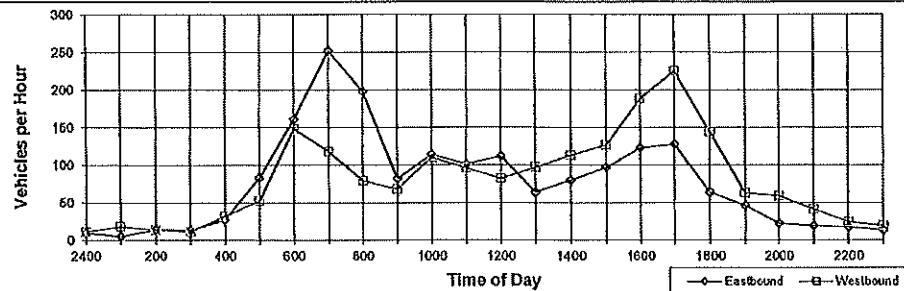
Time	Peak	Eastbound	Westbound	Time	Peak	Eastbound	Westbound
		TMC	TMC			TMC	TMC
24:00		0	1	12:00	*	17	19
0:15		0	0	12:15	*	15	16
0:30		2	0	12:30	*	11	18
0:45		0 2	2 3	12:45	*	10 53	15 68
1:00		1	0	13:00		6	4
1:15		1	1	13:15		9	10
1:30		1	2	13:30		18	10
1:45		0 3	1 4	13:45		11 44	11 35
2:00		1	0	14:00		17	11
2:15		1	0	14:15		13	5
2:30		0	0	14:30		11	4
2:45		0 2	0 0	14:45		8 49	18 38
3:00		0	0	15:00		12	11
3:15		0	2	15:15		6	5
3:30		0	2	15:30		20	9
3:45		0 0	0 4	15:45		22 60	13 38
4:00		1	0	16:00		9	15
4:15		0	0	16:15		14	17
4:30		1	6	16:30		17	9
4:45		0 2	9 15	16:45	*	17 57	6 47
5:00		3	2	17:00	**	18	31
5:15		2	6	17:15	*	12	15
5:30		8	10	17:30	*	19	12
5:45		4 17	11 29	17:45		12 61	4 62
6:00		7	12	18:00		8	15
6:15		2	13	18:15		7	7
6:30		8	9	18:30		8	4
6:45		12 29	9 43	18:45		6 29	8 34
7:00		17	20	19:00		5	2
7:15		10	5	19:15		3	3
7:30		9	13	19:30		9	2
7:45	*	13 49	28 66	19:45		7 24	3 10
8:00	*	19	14	20:00		2	6
8:15	*	15	22	20:15		9	2
8:30	*	18	11	20:30		1	2
8:45		14 66	11 58	20:45		3 15	2 12
9:00		10	10	21:00		5	1
9:15		4	3	21:15		5	5
9:30		11	17	21:30		3	1
9:45		9 34	16 46	21:45		6 19	4 11
10:00		15	14	22:00		1	2
10:15		14	12	22:15		3	1
10:30		12	13	22:30		3	0
10:45		13 54	7 46	22:45		3 10	1 4
11:00		10	11	23:00		4	0
11:15		8	17	23:15		1	1
11:30		6	11	23:30		0	0
11:45		9 33	6 45	23:45		1 6	0 1
AM Peak Hour		7:45-8:45	Directional Volumes		718		719
% of ADT		9.7%			24-Hour Volume		1,437
PM Peak Hour		16:45-17:45					
% of ADT		9.0%					

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: Watson Ln W, W of IH 35



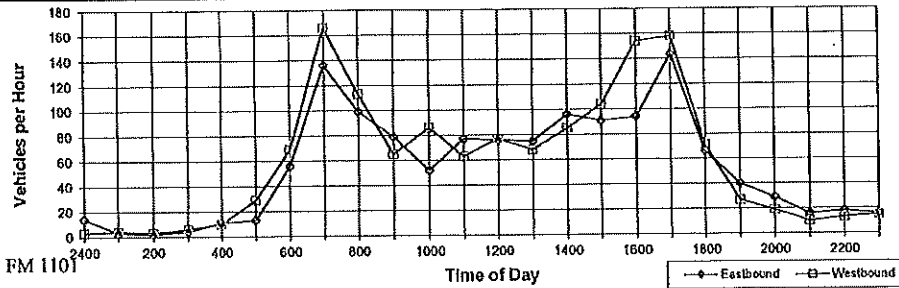
Time	Peak	Eastbound	Westbound	Time	Peak	Eastbound	Westbound	
		TMC	TMC			TMC	TMC	
24:00		4	6	12:00	*	38	29	
0:15		2	3	12:15	*	25	23	
0:30		1	0	12:30		14	16	
0:45		3 10	2 11	12:45		35 112	14 82	
1:00		0	1	13:00		20	20	
1:15		2	9	13:15		14	26	
1:30		3	5	13:30		14	30	
1:45		0 5	3 18	13:45		16 64	21 97	
2:00		3	4	14:00		23	29	
2:15		6	3	14:15		24	27	
2:30		3	3	14:30		9	22	
2:45		2 14	4 14	14:45		24 80	35 113	
3:00		5	3	15:00		19	30	
3:15		2	3	15:15		22	33	
3:30		5	3	15:30		30	31	
3:45		1 13	2 11	15:45		26 97	33 127	
4:00		5	6	16:00		33	38	
4:15		5	2	16:15		40	46	
4:30		8	11	16:30		23	50	
4:45		9 27	13 32	16:45		27 123	54 188	
5:00		19	6	17:00	*	44	59	
5:15		13	14	17:15	*	28	64	
5:30		21	14	17:30	*	27	49	
5:45		30 83	18 52	17:45	*	29 128	53 225	
6:00		40	28	18:00		8	33	
6:15		39	34	18:15		17	52	
6:30		38	54	18:30		18	38	
6:45		44 161	32 148	18:45		21 64	21 144	
7:00		62	30	19:00		14	21	
7:15		61	27	19:15		10	13	
7:30	*	68	33	19:30		13	20	
7:45	*	61 252	28 118	19:45		9 46	9 63	
8:00	*	51	21	20:00		4	16	
8:15	*	90	18	20:15		5	18	
8:30		28	21	20:30		5	12	
8:45		29 198	19 79	20:45		8 22	13 59	
9:00		24	16	21:00		7	14	
9:15		13	17	21:15		4	11	
9:30		23	11	21:30		5	7	
9:45		22 82	24 68	21:45		3 19	9 41	
10:00		34	24	22:00		4	9	
10:15		17	26	22:15		3	0	
10:30		35	27	22:30		7	6	
10:45		28 114	33 110	22:45		3 17	9 24	
11:00		25	22	23:00		2	5	
11:15		28	20	23:15		4	4	
11:30	*	26	27	23:30		3	5	
11:45	*	22 101	27 96	23:45		4 13	5 19	
AM Peak Hour	7:30-8:30	*	Directional Volumes				1,845	1,939
% of ADT	9.8%		24-Hour Volume				3,784	
PM Peak Hour	17:00-18:00							
% of ADT	9.3%		* More than 1 peak hour period 10					

Average Daily Traffic

Project No. : 30002-01
Station No. : January 22, 2020
Counter No. : 1

Location:
City/State: San Antonio, TX
Date: February 4, 2014
Day of Week: Tuesday

Site: Kohlenberg, btwn IH-35 and FM 1101



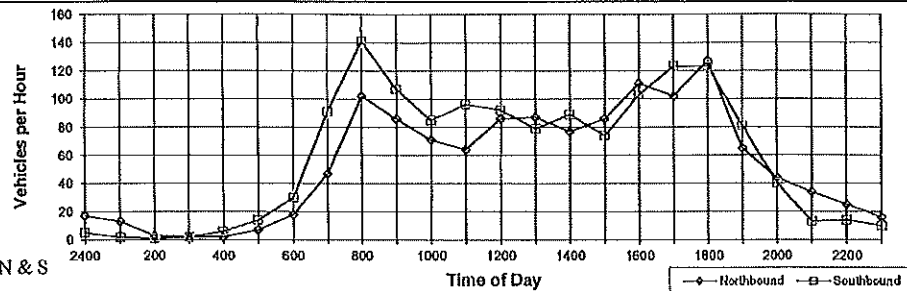
Time	Peak	Eastbound		Westbound		Time	Peak	Eastbound		Westbound	
		TMC		TMC				TMC		TMC	
24:00		2		3		12:00		22		15	
0:15		3		0		12:15		19		21	
0:30		6		0		12:30		15		17	
0:45		3	14	0	3	12:45		20	76	24	77
1:00		2		1		13:00		22		19	
1:15		0		2		13:15		21		17	
1:30		0		0		13:30		19		16	
1:45		1	3	1	4	13:45		13	75	16	68
2:00		0		2		14:00	*	23		16	
2:15		0		0		14:15	*	25		21	
2:30		1		1		14:30	*	30		23	
2:45		1	2	0	3	14:45	*	18	96	25	85
3:00		1		0		15:00		21		33	
3:15		2		0		15:15		14		19	
3:30		1		5		15:30		21		29	
3:45		0	4	1	6	15:45		35	91	23	104
4:00		1		1		16:00		30		25	
4:15		5		3		16:15		20		42	
4:30		1		3		16:30		21		50	
4:45		4	11	3	10	16:45		23	94	37	154
5:00		2		4		17:00	*	38		42	
5:15		1		5		17:15	*	40		37	
5:30		0		7		17:30	*	41		39	
5:45		10	13	13	29	17:45	*	25	144	40	158
6:00		6		7		18:00		24		22	
6:15		12		15		18:15		15		22	
6:30		21		21		18:30		16		19	
6:45		17	56	26	69	18:45		11	66	8	71
7:00	*	31		41		19:00		14		9	
7:15	*	35		29		19:15		16		6	
7:30	*	37		46		19:30		8		10	
7:45	*	33	136	50	166	19:45		2	40	2	27
8:00		33		25		20:00		9		9	
8:15		18		26		20:15		6		5	
8:30		26		44		20:30		5		3	
8:45		22	99	18	113	20:45		9	29	2	19
9:00		17		17		21:00		3		1	
9:15		23		18		21:15		6		3	
9:30		27		14		21:30		5		2	
9:45		12	79	16	65	21:45		2	16	4	10
10:00		10		20		22:00		4		1	
10:15		12		21		22:15		5		6	
10:30		10		28		22:30		3		2	
10:45		20	52	17	86	22:45		6	18	4	13
11:00		10		16		23:00		8		3	
11:15		28		13		23:15		1		5	
11:30		17		15		23:30		3		4	
11:45		22	77	19	63	23:45		4	16	3	15
AM Peak Hour		7:00-8:00		Directional Volumes				1,307		1,418	
% of ADT		11.1%						24-Hour Volume		2,725	
PM Peak Hour		17:00-18:00									
% of ADT		11.1%									

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: FM 1101, btwn Kohlenberg N & S



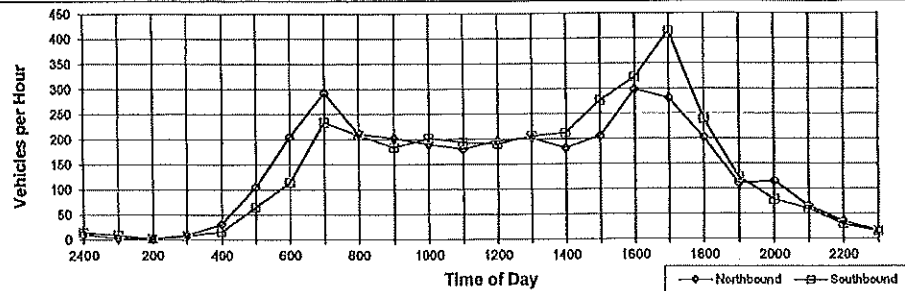
Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		8	2	12:00		18	25
0:15		4	1	12:15		26	18
0:30		1	2	12:30	*	22	25
0:45		4	0	12:45	*	20	24
1:00		4	1	13:00	*	24	21
1:15		4	0	13:15	*	21	26
1:30		2	1	13:30		21	14
1:45		3	0	13:45		21	18
2:00		1	0	14:00		28	13
2:15		0	0	14:15		23	27
2:30		1	0	14:30		15	24
2:45		1	1	14:45		11	25
3:00		0	1	15:00		21	13
3:15		0	0	15:15		23	20
3:30		1	1	15:30		27	23
3:45		1	0	15:45		15	18
4:00		0	0	16:00		34	32
4:15		1	1	16:15		19	21
4:30		1	5	16:30		31	26
4:45		0	0	16:45		27	24
5:00		0	1	17:00		28	29
5:15		3	3	17:15		22	27
5:30		1	5	17:30		23	33
5:45		3	5	17:45	*	29	34
6:00		2	5	18:00	*	44	34
6:15		2	9	18:15	*	24	35
6:30		1	7	18:30	*	36	28
6:45		13	9	18:45		23	26
7:00		6	15	19:00		27	27
7:15		12	16	19:15		12	21
7:30		17	26	19:30		18	19
7:45		12	34	19:45		8	14
8:00		21	29	20:00		9	8
8:15	*	34	31	20:15		17	8
8:30	*	27	35	20:30		11	16
8:45	*	20	46	20:45		7	8
9:00	*	22	29	21:00		8	2
9:15		15	21	21:15		7	4
9:30		20	33	21:30		10	3
9:45		29	24	21:45		9	4
10:00		13	24	22:00		6	5
10:15		21	24	22:15		9	5
10:30		18	17	22:30		5	1
10:45		19	20	22:45		5	3
11:00		15	29	23:00		3	6
11:15		13	27	23:15		7	2
11:30		15	23	23:30		3	1
11:45		21	17	23:45		3	1
AM Peak Hour	8:15-9:15	Directional Volumes		1,292	24-Hour Volume		1,421
% of ADT	9.0%						2,713
PM Peak Hour	17:45-18:45						
% of ADT	9.7%						

Average Daily Traffic

Project No. : 30002-01
 Station No. : January 22, 2020
 Counter No. : 1

Location:
 City/State: San Antonio, TX
 Date: February 4, 2014
 Day of Week: Tuesday

Site: FM 1102, N of Hoffman



Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
		TMC	TMC			TMC	TMC
24:00		4	4	12:00		37	55
0:15		3	5	12:15		41	45
0:30		2	2	12:30	*	59	36
0:45		2 11	3 14	12:45	*	60 197	54 190
1:00		2	1	13:00	*	52	44
1:15		1	2	13:15	*	52	53
1:30		0	1	13:30		43	50
1:45		0 3	5 9	13:45		56 203	59 206
2:00		0	0	14:00		53	39
2:15		0	1	14:15		30	48
2:30		2	0	14:30		53	58
2:45		0 2	1 2	14:45		46 182	67 212
3:00		5	1	15:00		47	57
3:15		3	4	15:15		54	67
3:30		1	2	15:30		65	65
3:45		0 9	0 7	15:45		40 206	88 277
4:00		3	4	16:00		77	61
4:15		6	2	16:15		74	82
4:30		7	3	16:30		65	89
4:45		15 31	7 16	16:45	*	82 298	91 323
5:00		21	8	17:00	*	75	95
5:15		21	16	17:15	*	72	110
5:30		30	18	17:30	*	67	128
5:45		33 105	23 65	17:45		67 281	82 415
6:00		40	25	18:00		59	74
6:15		48	22	18:15		43	67
6:30		60	37	18:30		58	52
6:45		57 205	30 114	18:45		42 202	46 239
7:00	*	64	53	19:00		33	40
7:15	*	71	73	19:15		23	37
7:30	*	97	51	19:30		27	25
7:45	*	60 292	57 234	19:45		28 111	21 123
8:00		45	68	20:00		36	17
8:15		55	49	20:15		26	23
8:30		58	49	20:30		22	21
8:45		53 211	42 208	20:45		31 115	17 78
9:00		48	49	21:00		25	13
9:15		42	41	21:15		24	19
9:30		53	45	21:30		9	16
9:45		59 202	49 184	21:45		7 65	12 60
10:00		49	43	22:00		9	8
10:15		48	53	22:15		13	8
10:30		49	64	22:30		5	5
10:45		44 190	42 202	22:45		8 35	8 29
11:00		35	47	23:00		5	3
11:15		48	54	23:15		5	3
11:30		46	58	23:30		4	5
11:45		51 180	35 194	23:45		2 16	3 14
AM Peak Hour		7:00-8:00	Directional Volumes		3,352		3,415
% of ADT		7.8%	24-Hour Volume		6,767		
PM Peak Hour		16:45-17:45					
% of ADT		10.6%					

TABLE 2

Generalized Annual Average Daily Volumes for Florida's
Transitioning Areas and
Areas Over 5,000 Not In Urbanized Areas¹

12/18/12

Minor C 13800
Major C 21680
Minor A 29050
Principal A 58250
Parkway

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	14,400	16,200	**
4	Divided	*	34,000	35,500	**
6	Divided	*	52,100	53,500	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	6,500	13,300	14,200
4	Divided	*	9,900	28,800	31,600
6	Divided	*	16,000	44,900	47,600

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
-	-	-	Yes	+5% x 2
				+5% x 2
				+5% x 2

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6

BICYCLE MODE²

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage

	B	C	D	E
0-49%	*	2,600	6,100	19,500
50-84%	1,900	5,500	18,400	>19,500
85-100%	7,500	19,500	>19,500	**

PEDESTRIAN MODE²

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage

	B	C	D	E
0-49%	*	*	2,800	9,400
50-84%	*	1,600	8,600	15,600
85-100%	3,800	10,500	17,100	>19,500

BUS MODE (Scheduled Fixed Route)³

(Buses in peak hour in peak direction)

Sidewalk Coverage

	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Lanes	B	C	D	E
4	44,100	57,600	68,900	71,700
6	65,100	85,600	102,200	111,000
8	85,100	113,700	135,200	150,000
10	106,200	141,700	168,800	189,000

Freeway Adjustments

Auxiliary Lanes Present in Both Directions + 20,000

Ramp Metering + 5%

28,800 x 1.1 = 31,680

39,500 x 1.1 = 43,450

53,500 x 1.1 = 58,850

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	9,200	17,300	24,400	33,300
4	Divided	35,300	49,600	62,900	69,600
6	Divided	52,800	74,500	94,300	104,500

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

¹ Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

² Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

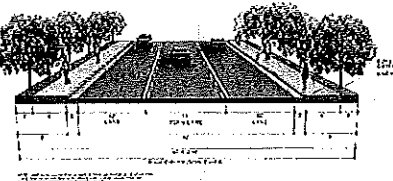
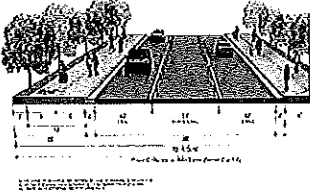
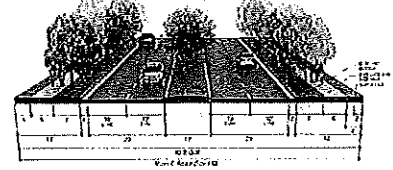
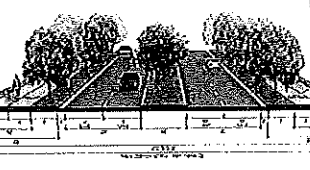
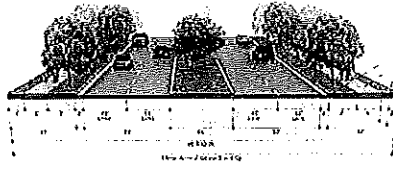
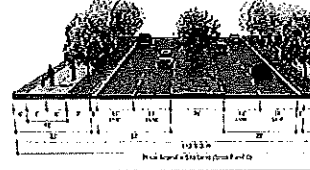

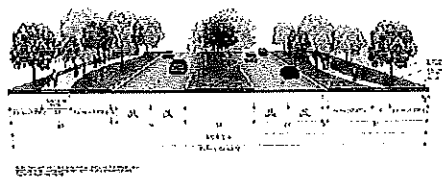
³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

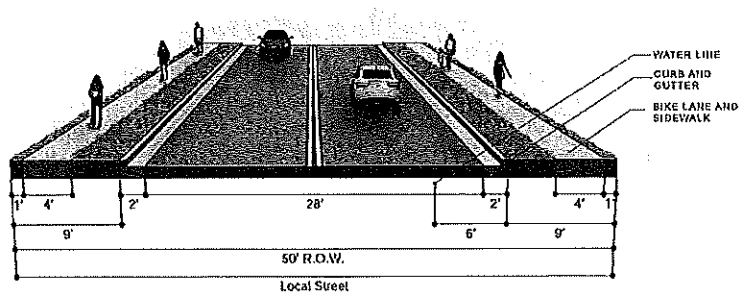
⁴ Cannot be achieved using table input value defaults.

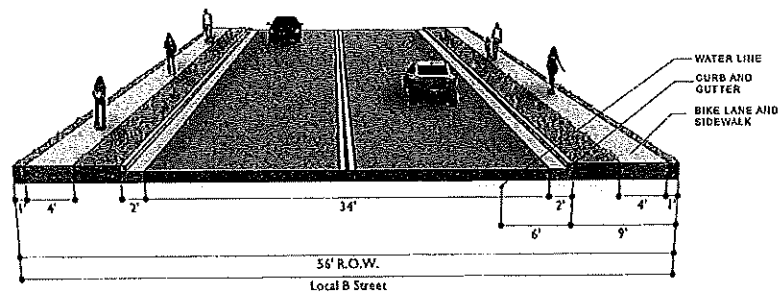
⁵ Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

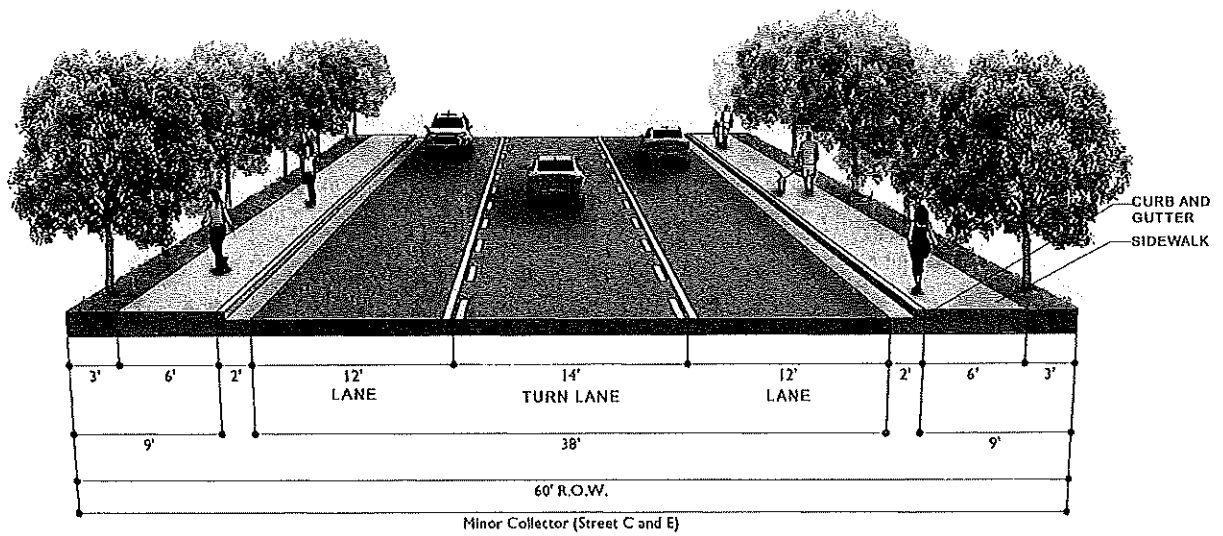
Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sim/los/default.shtml

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/smp/bs/default.html

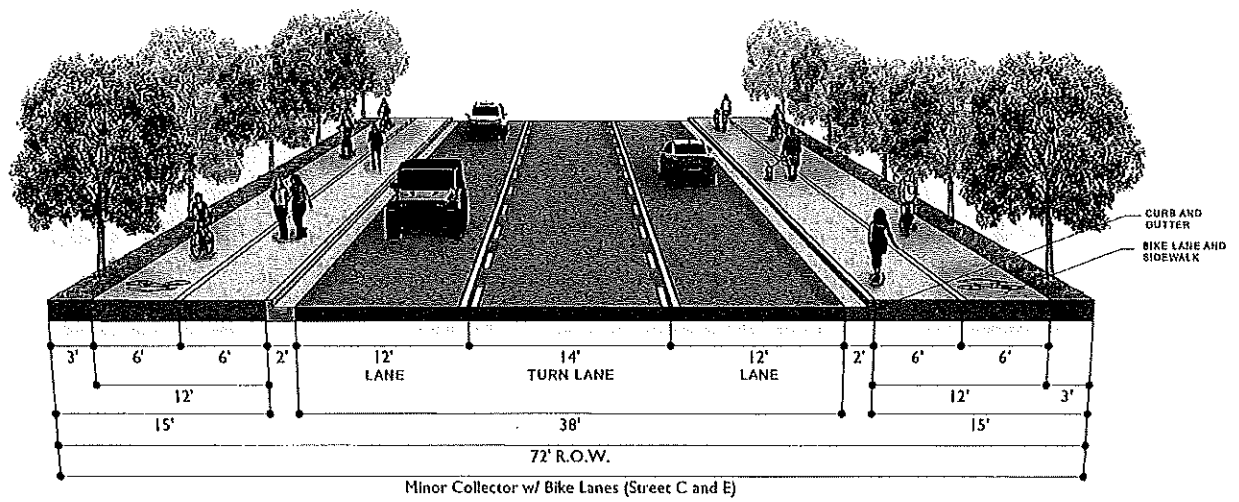
Roadway Sizes	Min Volume	Max Volume	Assumptions	Cross Section	
Minor Collector		13,300	<35 mph, 2 lanes with TWR, LOS D, Translating Area, Assumed Adjustment +0% bc L&R		
Major Collector	13,300	31,650	<35 mph, 4 lanes with TL, LOS D, Translating Area, Assumed Adjustment +10% bc L&R		
Minor Arterial	31,650	33,650	>40 mph, 4 lanes with TL, LOS D, Translating Area, Assumed Adjustment +10% bc L&R		
Principal Arterial	33,650	58,850	>40 mph, 6 lanes with TL, LOS D, Translating Area, Assumed Adjustment +10% bc L&R		
Parkway	58,850		Parkway (tentative)		



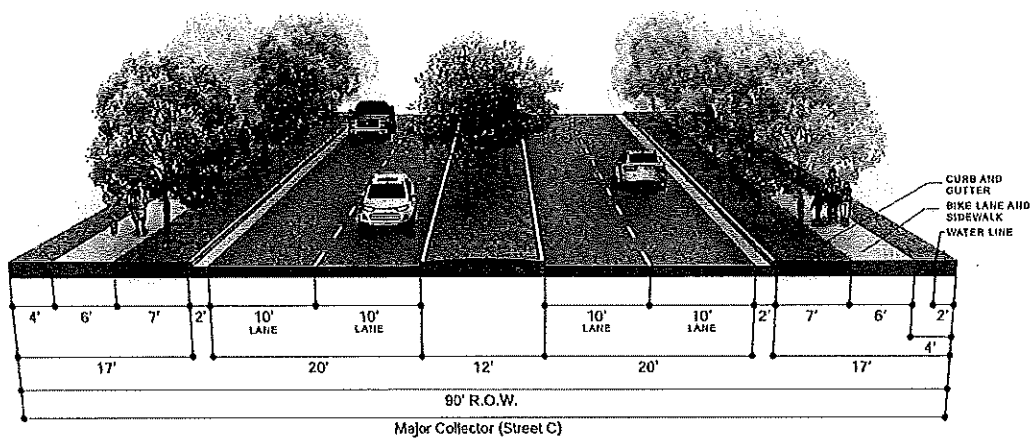


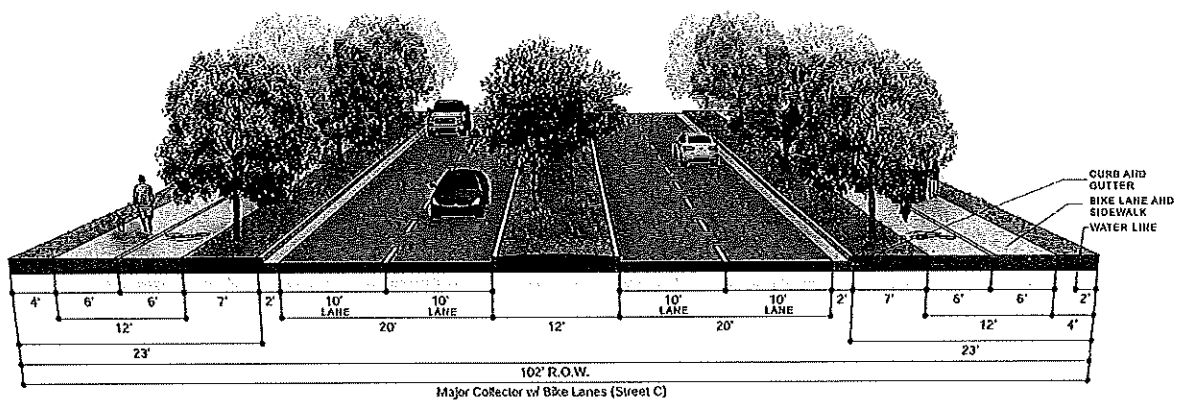


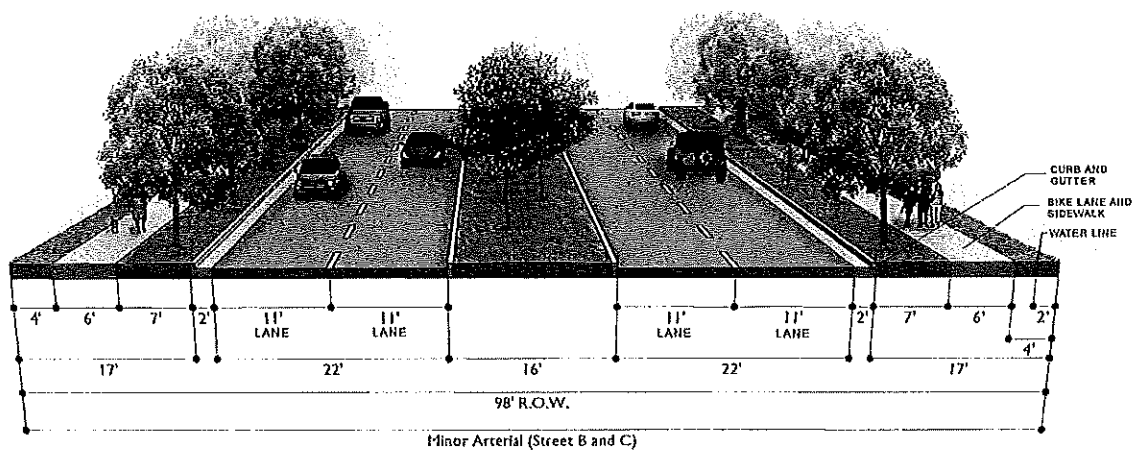
NOTE: LAKE CONFIGURATION SHOWN WITHIN 38' PAVEMENT SHOWN FOR ILLUSTRATIVE PURPOSES. ALTERNATE LAKE CONFIGURATIONS ARE ALLOWED WITH APPROVAL OF CITY ENGINEER

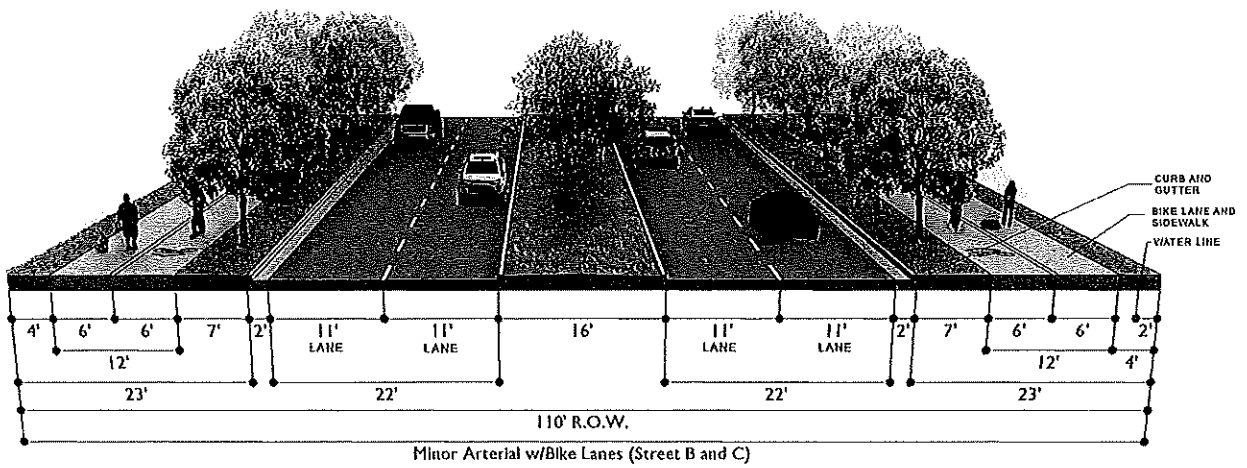


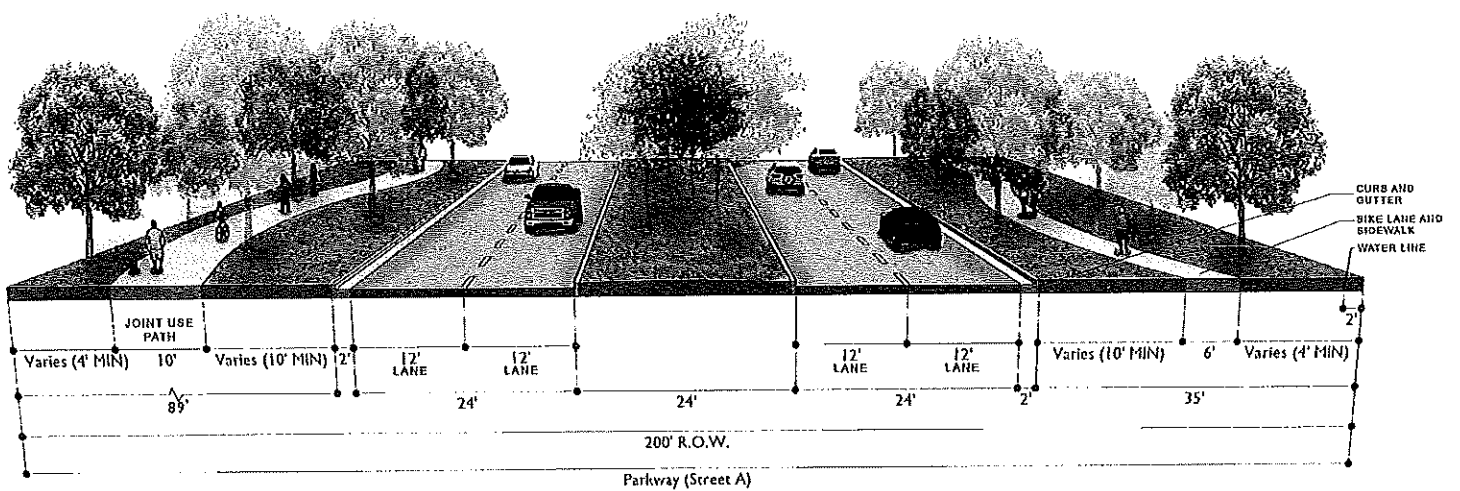
NOTE: LANE CONFIGURATION SHOWN WITHIN 38' PAYMENT SHOWN FOR ILLUSTRATIVE PURPOSES. ALTERNATE LANE CONFIGURATIONS ARE ALLOWED WITH APPROVAL OF CITY ENGINEER.











NOTE: PARKWAY SECTION SHOWN FOR ILLUSTRATIVE PURPOSES. FINAL SECTION TO BE COORDINATED WITH CITY OF NEW BRAUNFELS AND TxDOT AT PLATTING PHASE.

https://library.municode.com/tx/new_braunfels/codes/code_of_ordinances?nodeId=PTIIICOR_CH118PL_ARTIVDEST_S118-46ST

- (s) *Pavement and rights-of-way widths, street grades and horizontal curves for public streets.* Pavement widths shall be measured from the face of one curb to the face of the other curb. Pavement and rights-of-way widths, street grades, horizontal curves and sidewalks shall be in accordance with the adopted regional transportation plan and as follows, unless an exception is granted by the city council after review and recommendation by planning commission and the city engineer:

(1) *Interstate.*

- a. Right-of-way (min.): 300—450 feet.

(2) *Expressway.*

- a. Right-of-way (min.): 200—300 feet.

(3) *Parkway.*

- a. Right-of-way (min.): 200 feet.

(4) *Principal arterial.*

- a. Right-of-way (min.): 150 feet.
b. Pavement width (min.): 72 feet.
c. Centerline radius (min.): 1,200 feet.
d. Tangent between reverse curves (min.): 375 feet.
e. Minimum grade: One-half percent.
f. Maximum grade: Five percent.
g. Design speed: 50 miles per hour.
h. Sidewalks: Yes.
i. Parking allowed: No.

(5) *Minor arterial.*

- a. Right-of-way (min.): 120 feet.
- b. Pavement width (min.): 48 feet.
- c. Centerline radius (min.): 1,200 feet.
- d. Tangent between reverse curves (min.): 375 feet.
- e. Minimum grade: One-half percent.
- f. Maximum grade: Five percent.
- g. Design speed: 45 miles per hour.
- h. Sidewalks: Yes.
- i. Parking allowed: No.

(6) *Major collector.*

- a. Right-of-way (min.): 90 feet.
- b. Pavement width (min.): 48 feet.
- c. Centerline radius (min.): 770 feet.
- d. Tangent between reverse curves (min.): 250 feet.
- e. Minimum grade: One-half percent.
- f. Maximum grade: Six percent.
- g. Design speed: 40 miles per hour.
- h. Sidewalks: Yes.
- i. Parking allowed: Varies depending on lane configuration.

(7) *Minor collector.*

- a. Right-of-way (min.): 60 feet.
- b. Pavement width (min.): 40 feet.
- c. Centerline radius (min.): 510 feet.
- d. Tangent between reverse curves (min.): 100 feet.
- e. Minimum grade: One-half percent.
- f. Maximum grade: Eight percent.
- g. Design speed: 35 miles per hour.
- h. Sidewalks: Yes.
- i. Parking allowed: Varies depending on lane configuration.

(8) *Residential collector.*

- a. Right-of-way (min.): 60 feet.
- b. Pavement width (min.): 36 feet.
- c. Centerline radius (min.): 340 feet.
- d. Tangent between reverse curves (min.): 100 feet.
- e. Minimum grade: One-half percent.
- f. Maximum grade: Ten percent.
- g. Design speed: 30 miles per hour.
- h. Sidewalks: Yes.
- i. Parking allowed: Yes.
- j. Average daily traffic: Less than 5,000.

(9) *Local street, multifamily, industrial and commercial.*

- a. Right-of-way (min.): 60 feet.
- b. Pavement width (min.): 40 feet.
- c. Centerline radius (min.): 340 feet.
- d. Tangent between reverse curves (min.): 50 feet.
- e. Minimum grade: One-half percent.
- f. Maximum grade: Ten percent.
- g. Design speed: 30 miles per hour.
- h. Sidewalks: Yes.
- i. Parking allowed: Yes.
- j. Average daily traffic: Less than 1,000.

(10) *Local street, one- and two-family residential.*

- a. Right-of-way (min.): 50 feet.
- b. Pavement width (min.): 30 feet.
- c. Centerline radius (min.): 125 feet.
- d. Tangent between reverse curves (min.): 50 feet.
- e. Minimum grade: One-half percent.
- f. Maximum grade: 12 percent.
- g. Design speed: 20 miles per hour.
- h. Sidewalks: Yes.
- i. Parking allowed: Yes.
- j. Average daily traffic: Less than 1,000.

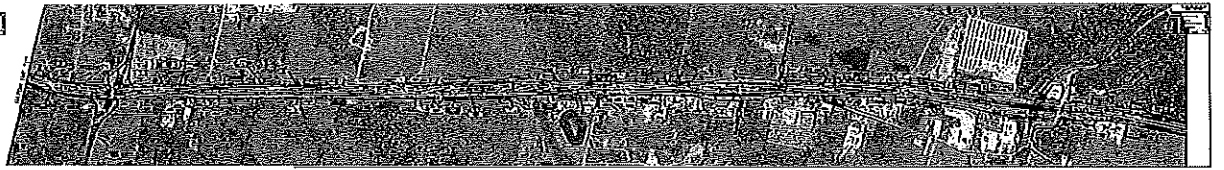
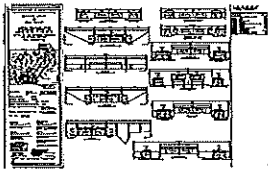
(11) *Local street, one-family large lot residential (minimum 100 feet lot frontage).*

- a. Right-of-way (min.): 60 feet.
- b. Pavement width (min.): 24 feet.
- c. Centerline radius (min.): 125 feet.
- d. Tangent between reverse curves (min.): 50 feet.
- e. Minimum grade: One-half percent.
- f. Maximum grade: 12 percent.
- g. Design speed: 20 miles per hour.
- h. Sidewalks: No.
- i. Parking allowed: No.
- j. Average daily traffic: Less than 1,000.

Design standards not specified in this section shall conform to the latest edition of the American Association of State Highway and Transportation Officials A Policy on Geometric Design of Highways and Streets. Design standards on state highways shall conform to the requirements of the Texas Department of Transportation.

APPENDIX E

TxDOT Roadway Improvements



APPENDIX F

Level of Service Descriptions

Level of Service at Signalized Intersections

Level of Service	Average Intersection Delay (sec/veh)	Description
A	≤ 10	No delays at intersection, smooth progression of traffic. Uncongested operations. All vehicles clear in a single signal cycle.
B	> 10 and ≤ 20	No delays at intersection, smooth progression of traffic. Uncongested operations. All vehicles clear in a single signal cycle.
C	> 20 and ≤ 35	Moderate delay, satisfactory to good progression of traffic. Light congestion, occasional backups on critical (high volume) approaches.
D	> 35 and ≤ 55	Little or no progression of traffic along the roadway with a high probability of stopping at signalized intersections operating at this level of service. Significant congestion on critical approaches, but intersection is functional. Vehicles required to wait through more than one cycle during short peak periods.
E	> 55 and ≤ 80	Heavy traffic flow conditions. Delays of two or more traffic signal cycles probably. No progression may occur if signal does not provide for protected turning movements.
F	> 80	Unstable traffic flow. Heavy congestion. Traffic moves in forced flow condition. Three or more cycles required to pass intersection. Total breakdown with stop and go conditions.
*	$> > 80$	Very unstable traffic flow. Very heavy congestion. Traffic moves in forced flow condition. More than three cycles required to pass intersection. Total breakdown. Stop and go only. Delays are beyond the range of the <i>Highway Capacity Manual</i> equations. Represents an extreme level of over saturation.

Level of service at signalized intersections is determined by the average vehicle delay at the intersection. Values can be reported for the intersection as a whole or for each individual movement. The general characteristics associated with each level of service for signalized intersections are presented in the table above.

Level of Service at Unsignalized Intersections

Level of Service	Average Intersection Delay (sec/veh)	Description
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short traffic delay
C	> 15 and ≤ 25	Average traffic delay
D	> 25 and ≤ 35	Long traffic delay
E	> 35 and ≤ 50	Very long traffic delay
F	> 50	Extreme delays, possibly severe congestion

Level of service at unsignalized intersections is determined by the average delay a vehicle experiences at each intersection approach. An overall intersection delay and LOS is reported for All-Way-Stop-Controlled (AWSC) intersections. However, at Two-Way-Stop-Controlled (TWSC) intersections, delay is primarily experienced by vehicles on the stop-controlled approaches only. Therefore, a different level of service is reported for each stop-controlled approach at TWSC intersections. The general characteristics associated with each level of service for unsignalized intersections are based on the *Highway Capacity Manual*.¹

¹ Transportation Research Board/National Research Council. 2000. *Highway Capacity Manual*. Third Edition, Washington, D.C.

APPENDIX G

Capacity Analysis

HCM Signalized Intersection Capacity Analysis
1: IH-35 NBFR & W Watson Ln

01 Build AM.syn
03/09/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ℒℒ		ℒ	ℒℒ		
Traffic Volume (vph)	184	0	77	340	0	0
Future Volume (vph)	184	0	77	340	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5		
Lane Util. Factor	0.97		0.91	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	3433		1610	3387		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	3433		1610	3387		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	0	84	370	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	200	0	76	378	0	0
Turn Type	Prot		Prot	NA		
Protected Phases	1 2		12 4	4		
Permitted Phases						
Actuated Green, G (s)	38.0		43.0	43.0		
Effective Green, g (s)	38.0		43.0	43.0		
Actuated g/C Ratio	0.42		0.48	0.48		
Clearance Time (s)				4.5		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)	1449		769	1618		
v/s Ratio Prot	c0.06		0.05	c0.11		
v/s Ratio Perm						
v/c Ratio	0.14		0.10	0.23		
Uniform Delay, d1	16.0		12.9	13.8		
Progression Factor	1.13		1.00	1.00		
Incremental Delay, d2	0.0		0.1	0.1		
Delay (s)	18.1		12.9	13.9		
Level of Service	B		B	B		
Approach Delay (s)	18.1			13.7	0.0	
Approach LOS	B			B	A	
Intersection Summary						
HCM 2000 Control Delay			15.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.21			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			28.9%		ICU Level of Service	A
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis 2: IH-35 SBFR & W Watson Ln











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03/09/2021

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖↗		↖	↑					↖	↖↗	↗
Traffic Volume (vph)	0	184	131	0	77	0	0	0	0	0	151	42
Future Volume (vph)	0	184	131	0	77	0	0	0	0	0	151	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5						4.5	4.5
Lane Util. Factor		0.95			1.00						0.91	1.00
Frt		0.94			1.00						1.00	0.85
Flt Protected		1.00			1.00						1.00	1.00
Sald. Flow (prot)		3319			1863						3390	1583
Flt Permitted		1.00			1.00						1.00	1.00
Sald. Flow (perm)		3319			1863						3390	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	200	142	0	84	0	0	0	0	0	164	46
RTOR Reduction (vph)	0	92	0	0	0	0	0	0	0	0	0	37
Lane Group Flow (vph)	0	250	0	0	84	0	0	0	0	0	164	9
Turn Type		NA		Prot	NA					Prot	NA	Perm
Protected Phases		6		5	5 6					8 16	8	
Permitted Phases												8
Actuated Green, G (s)		31.5			54.2						18.0	18.0
Effective Green, g (s)		31.5			54.2						18.0	18.0
Actuated g/C Ratio		0.35			0.60						0.20	0.20
Clearance Time (s)		4.5									4.5	4.5
Vehicle Extension (s)		3.0									3.0	3.0
Lane Grp Cap (vph)		1161			1121						678	316
v/s Ratio Prot		c0.08			c0.05						c0.05	
v/s Ratio Perm												0.01
v/c Ratio		0.22			0.07						0.24	0.03
Uniform Delay, d1		20.6			7.5						30.3	29.0
Progression Factor		1.00			0.03						1.00	1.00
Incremental Delay, d2		0.4			0.0						0.8	0.2
Delay (s)		21.0			0.3						31.1	29.1
Level of Service		C			A						C	C
Approach Delay (s)		21.0			0.3			0.0			30.7	
Approach LOS		C			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			21.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.18									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			24.6%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 3: IH-35 SBFR & Woods Path

01 Build AM.syn
03/09/2021

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations					 			
Traffic Volume (veh/h)	0	25	0	0	442	228		
Future Volume (Veh/h)	0	25	0	0	442	228		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	0	27	0	0	480	248		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage (veh)								
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	480	240	728					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	480	240	728					
tC, single (s)	6.8	6.9	4.1					
tC, 2 stage (s)								
tF (s)	3.5	3.3	2.2					
p0 queue free %	100	96	100					
cM capacity (veh/h)	515	761	871					
Direction, Lane #	EB 1	SB 1	SB 2	SB 3				
Volume Total	27	240	240	248				
Volume Left	0	0	0	0				
Volume Right	27	0	0	248				
cSH	761	1700	1700	1700				
Volume to Capacity	0.04	0.14	0.14	0.15				
Queue Length 95th (ft)	3	0	0	0				
Control Delay (s)	9.9	0.0	0.0	0.0				
Lane LOS	A							
Approach Delay (s)	9.9	0.0						
Approach LOS	A							
Intersection Summary								
Average Delay			0.4					
Intersection Capacity Utilization			22.2%	ICU Level of Service	A			
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis 5: IH-35 SBFR & Street A (Parkway)

01 Build AM.syn
03/09/2021

	←	→	↙	↘	←	↙	↘	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑↑	↑
Traffic Volume (vph)	0	370	675	997	571	0	0	0	0	628	65	310
Future Volume (vph)	0	370	675	997	571	0	0	0	0	628	65	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.91	0.91					0.91	0.91	1.00
Fr't		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	0.98					0.95	0.96	1.00
Satd. Flow (prot)		5085	1583	1610	3315					1610	3255	1583
Flt Permitted		1.00	1.00	0.95	0.63					0.95	0.96	1.00
Satd. Flow (perm)		5085	1583	1610	2127					1610	3255	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	402	734	1084	621	0	0	0	0	683	71	337
RTOR Reduction (vph)	0	0	335	0	0	0	0	0	0	0	0	223
Lane Group Flow (vph)	0	402	399	564	1141	0	0	0	0	341	413	114
Turn Type		NA	Perm	Prot	NA					Prot	NA	custom
Protected Phases		6		5	5 6					16 8	8	
Permitted Phases			6									16 8
Actuated Green, G (s)		27.1	27.1	38.9	66.0					40.5	40.5	40.5
Effective Green, g (s)		27.1	27.1	38.9	66.0					40.5	40.5	40.5
Actuated g/C Ratio		0.23	0.23	0.32	0.55					0.34	0.34	0.34
Clearance Time (s)		4.5	4.5	4.5							4.5	
Vehicle Extension (s)		3.0	3.0	3.0							3.0	
Lane Grp Cap. (vph)		1148	357	521	1554					543	1098	534
v/s Ratio Prot		0.08		c0.35	0.24					c0.21	0.13	
v/s Ratio Perm			c0.25		0.17							0.07
v/c Ratio		0.35	1.12	1.08	0.73					0.63	0.38	0.21
Uniform Delay, d1		39.0	46.5	40.5	20.4					33.4	30.2	28.4
Progression Factor		1.00	1.00	0.65	0.60					1.00	1.00	1.00
Incremental Delay, d2		0.8	83.2	53.7	1.0					2.3	0.2	0.2
Delay (s)		39.9	129.6	80.2	13.1					35.7	30.4	28.6
Level of Service		D	F	F	B					D	C	C
Approach Delay (s)		97.9			35.3			0.0			31.5	
Approach LOS		F			D			A			C	
Intersection Summary												
HCM 2000 Control Delay			52.3			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			130.1%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: IH-35 NBFR & Street A (Parkway)

01 Build AM.syn
03/09/2021

	↗	→	↘	↙	←	↖	↗	↑	↘	↙	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↖			↖	↗	↗	↖	↗			
Traffic Volume (vph)	401	597	0	0	814	700	754	63	739	0	0	0
Future Volume (vph)	401	597	0	0	814	700	754	63	739	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	0.91	0.91			0.86	0.86	0.91	0.86	0.91			
Frt	1.00	1.00			0.95	0.85	1.00	0.93	0.85			
Flt Protected	0.95	0.99			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	1610	3371			4589	1362	1610	2911	1441			
Flt Permitted	0.95	0.57			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	1610	1943			4589	1362	1610	2911	1441			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	436	649	0	0	885	761	820	68	803	0	0	0
RTOR Reduction (vph)	0	0	0	0	65	271	0	142	326	0	0	0
Lane Group Flow (vph)	353	732	0	0	1201	109	443	705	75	0	0	0
Turn Type	Prot	NA			NA	Perm	Prot	NA	Perm			
Protected Phases	1	1 2			2		12 4	4				
Permitted Phases						2			4			
Actuated Green, G (s)	31.0	65.4			34.4	34.4	41.1	41.1	22.5			
Effective Green, g (s)	31.0	65.4			34.4	34.4	41.1	41.1	22.5			
Actuated g/C Ratio	0.26	0.55			0.29	0.29	0.34	0.34	0.19			
Clearance Time (s)	4.5				4.5	4.5		4.5	4.5			
Vehicle Extension (s)	3.0				3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	415	1427			1315	390	551	997	270			
v/s Ratio Prot	c0.22	0.13			c0.26		c0.28	0.24				
v/s Ratio Perm		0.15				0.08			0.05			
v/c Ratio	0.85	0.51			0.91	0.28	0.80	0.71	0.28			
Uniform Delay, d1	42.3	17.2			41.4	33.2	35.8	34.2	41.8			
Progression Factor	0.58	0.53			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	14.1	0.3			9.9	0.4	8.3	2.3	0.6			
Delay (s)	38.8	9.5			51.2	33.6	44.1	36.5	42.4			
Level of Service	D	A			D	C	D	D	D			
Approach Delay (s)		19.0			47.1			39.9			0.0	
Approach LOS		B			D			D			A	
Intersection Summary												
HCM 2000 Control Delay		37.5					HCM 2000 Level of Service		D			
HCM 2000 Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		120.0					Sum of lost time (s)		18.0			
Intersection Capacity Utilization		130.1%					ICU Level of Service		H			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 10: IH-35 SBFR & Conrad Ln/Kohlenburg

01 Build AM.syn
03/09/2021

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations	↑↑↑	↑	↑	↑	↑↑					↑	↑↑	↑
Traffic Volume (vph)	0	279	663	290	382	0	0	0	0	66	322	85
Future Volume (vph)	0	279	663	290	382	0	0	0	0	66	322	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.86	0.86	0.91	0.91					0.91	0.91	1.00
Fr _t		0.92	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	0.99					0.95	1.00	1.00
Satd. Flow (prot)		4414	1362	1610	3363					1610	3387	1583
Flt Permitted		1.00	1.00	0.95	0.76					0.95	1.00	1.00
Satd. Flow (perm)		4414	1362	1610	2575					1610	3387	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	303	721	315	415	0	0	0	0	72	350	92
RTOR Reduction (vph)	0	147	156	0	0	0	0	0	0	0	0	71
Lane Group Flow (vph)	0	517	204	236	494	0	0	0	0	65	357	21
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		6		5	5					16	8	16
Permitted Phases			6									16
Actuated Green, G (s)		50.3	50.3	29.3	79.6					26.9	26.9	26.9
Effective Green, g (s)		50.3	50.3	29.3	79.6					26.9	26.9	26.9
Actuated g/C Ratio		0.42	0.42	0.24	0.66					0.22	0.22	0.22
Clearance Time (s)		4.5	4.5	4.5								
Vehicle Extension (s)		3.0	3.0	3.0								
Lane Grp Cap (vph)		1850	570	393	1900					360	759	354
v/s Ratio Prot		0.12		c0.15	0.06					0.04	c0.11	
v/s Ratio Perm			c0.15		0.11							0.01
v/c Ratio		0.28	0.36	0.60	0.26					0.18	0.47	0.06
Uniform Delay, d1		22.9	23.8	40.2	8.2					37.6	40.4	36.6
Progression Factor		1.00	1.00	0.36	0.53					1.00	1.00	1.00
Incremental Delay, d2		0.4	1.8	2.5	0.1					0.2	0.5	0.1
Delay (s)		23.3	25.6	16.8	4.4					37.9	40.8	36.7
Level of Service		C	C	B	A					D	D	D
Approach Delay (s)		24.1			8.4			0.0			39.7	
Approach LOS		C			A			A			D	
Intersection Summary												
HCM 2000 Control Delay		22.6				HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio		0.47										
Actuated Cycle Length (s)		120.0				Sum of lost time (s)		18.0				
Intersection Capacity Utilization		72.7%				ICU Level of Service		C				
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
11: IH-35 NBFR & Kohlenburg

01 Build AM.syn
03/09/2021

	↖	→	↗	↙	←	↖	↙	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗			↖↗↘	↗	↖	↖↗	↗			
Traffic Volume (vph)	165	180	0	0	366	281	306	262	206	0	0	0
Future Volume (vph)	165	180	0	0	366	281	306	262	206	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	0.91	0.91			0.91	1.00	0.91	0.91	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	0.99			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	1610	3352			5085	1583	1610	3338	1583			
Flt Permitted	0.95	0.88			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	1610	2982			5085	1583	1610	3338	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	196	0	0	398	305	333	285	224	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	261	0	0	133	0	0	0
Lane Group Flow (vph)	122	253	0	0	398	44	203	415	91	0	0	0
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	1	1 2			2		12 4	12 4				
Permitted Phases						2			12 4			
Actuated Green, G (s)	40.3	57.8			17.5	17.5	48.7	48.7	48.7			
Effective Green, g (s)	40.3	57.8			17.5	17.5	48.7	48.7	48.7			
Actuated g/C Ratio	0.34	0.48			0.15	0.15	0.41	0.41	0.41			
Clearance Time (s)	4.5				4.5	4.5						
Vehicle Extension (s)	3.0				3.0	3.0						
Lane Grp Cap (vph)	540	1560			741	230	653	1354	642			
v/s Ratio Prot	c0.08	0.05			c0.08		c0.13	0.12				
v/s Ratio Perm		0.02				0.03			0.06			
v/c Ratio	0.23	0.16			0.54	0.19	0.31	0.31	0.14			
Uniform Delay, d1	28.6	17.5			47.5	45.0	24.2	24.2	22.5			
Progression Factor	0.62	0.82			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.2	0.0			0.8	0.4	0.3	0.1	0.1			
Delay (s)	17.9	14.4			48.2	45.5	24.5	24.3	22.6			
Level of Service	B	B			D	D	C	C	C			
Approach Delay (s)		15.6			47.0		23.9				0.0	
Approach LOS		B			D		C				A	
Intersection Summary												
HCM 2000 Control Delay		30.7			HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio		0.33										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)				18.0			
Intersection Capacity Utilization		72.7%			ICU Level of Service				C			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 13: Street G & Street A (Parkway)

01 Build AM.syn
03/09/2021

	↖	→	↗	↖	←	↗	↖	↑	↗	↘	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖	↗	↖↖	↖↖	↗↗	↖	↖↖	↗↗	↖	↖↖	↗
Traffic Volume (vph)	0	391	0	164	130	164	0	0	355	70	0	0
Future Volume (vph)	0	391	0	164	130	164	0	0	355	70	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5	4.5			4.5	4.5		
Lane Util. Factor		0.95		0.97	0.95	0.88			0.88	1.00		
Frt		1.00		1.00	1.00	0.85			0.85	1.00		
Flt Protected		1.00		0.95	1.00	1.00			1.00	0.95		
Satd. Flow (prot)		3539		3433	3539	2787			2787	1770		
Flt Permitted		1.00		0.95	1.00	1.00			1.00	0.76		
Satd. Flow (perm)		3539		3433	3539	2787			2787	1410		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	425	0	178	141	178	0	0	386	76	0	0
RTOR Reduction (vph)	0	0	0	0	0	117	0	0	171	0	0	0
Lane Group Flow (vph)	0	425	0	178	141	61	0	0	215	76	0	0
Turn Type	Prot	NA	Perm	Prot	NA	Prot	D.P+P		Perm	D.Pm		Perm
Protected Phases	7	4		3	8	8	5	2			6	
Permitted Phases			4				6		2	2		6
Actuated Green, G (s)		16.3		10.0	30.8	30.8			50.2	50.2		
Effective Green, g (s)		16.3		10.0	30.8	30.8			50.2	50.2		
Actuated g/C Ratio		0.18		0.11	0.34	0.34			0.56	0.56		
Clearance Time (s)		4.5		4.5	4.5	4.5			4.5	4.5		
Vehicle Extension (s)		3.0		3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		640		381	1211	953			1554	786		
v/s Ratio Prot		c0.12		c0.05	0.04	0.02						
v/s Ratio Perm									c0.08	0.05		
v/c Ratio		0.66		0.47	0.12	0.06			0.14	0.10		
Uniform Delay, d1		34.3		37.5	20.3	19.9			9.5	9.3		
Progression Factor		1.00		1.00	1.00	1.00			1.00	0.72		
Incremental Delay, d2		2.6		0.9	0.0	0.0			0.2	0.2		
Delay (s)		36.9		38.4	20.3	19.9			9.7	7.0		
Level of Service		D		D	C	B			A	A		
Approach Delay (s)		36.9			26.7			9.7			7.0	
Approach LOS		D			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			24.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			38.6%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: Street C (Major Collector East) & Street A (Parkway)

01 Build AM.syn
03/09/2021













	↖	→	↘	↙	←	↖	↘	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑	↘	↖↖	↑↑	↘	↖	↑↑	↘	↖	↑↑	↘↖
Traffic Volume (vph)	399	698	20	149	976	185	59	0	158	120	0	390
Future Volume (vph)	399	698	20	149	976	185	59	0	158	120	0	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00		1.00	1.00		0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770		1583	1770		2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.76		1.00	0.76		1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1410		1583	1410		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	434	759	22	162	1061	201	64	0	172	130	0	424
RTOR Reduction (vph)	0	0	13	0	0	117	0	0	133	0	0	117
Lane Group Flow (vph)	434	759	9	162	1061	84	64	0	39	130	0	307
Turn Type	Prot	NA	Perm	Prot	NA	Perm	D,P+P		Perm	D,P+P		pt+ov
Protected Phases	7	4		3	8		5	2		1	6	6 7
Permitted Phases			4			8	6		2	2		
Actuated Green, G (s)	14.1	37.3	37.3	8.8	32.0	32.0	25.9		20.2	25.9		40.1
Effective Green, g (s)	14.1	37.3	37.3	8.8	32.0	32.0	25.9		20.2	25.9		40.1
Actuated g/C Ratio	0.16	0.41	0.41	0.10	0.36	0.36	0.29		0.22	0.29		0.45
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	537	1466	656	335	1258	562	423		355	428		1241
v/s Ratio Prot	c0.13	0.21		0.05	c0.30		0.01			c0.02		0.11
v/s Ratio Perm			0.01			0.05	0.04		0.02	c0.07		
v/c Ratio	0.81	0.52	0.01	0.48	0.84	0.15	0.15		0.11	0.30		0.25
Uniform Delay, d1	36.6	19.6	15.5	38.4	26.7	19.7	23.7		27.7	24.6		15.5
Progression Factor	1.00	1.00	1.00	0.92	1.16	2.48	1.00		1.00	1.01		1.10
Incremental Delay, d2	8.7	0.3	0.0	0.9	4.5	0.1	0.2		0.6	0.4		0.1
Delay (s)	45.4	20.0	15.5	36.4	35.4	49.1	23.9		28.4	25.4		17.2
Level of Service	D	B	B	D	D	D	C		C	C		B
Approach Delay (s)		29.0			37.4			27.1			19.1	
Approach LOS		C			D			C			B	

Intersection Summary

HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

























HCM Unsignalized Intersection Capacity Analysis 17: Street C (Major Collector East) & Street F (Major Collector East)

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 03/09/2021

							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	50	27	39	76	28	111	
Future Volume (Veh/h)	50	27	39	76	28	111	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	54	29	42	83	30	121	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				TWLT	None		
Median storage (veh)				2			
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	197	15	151				
vC1, stage 1 conf vol	30						
vC2, stage 2 conf vol	167						
vCu, unblocked vol	197	15	151				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3	2.2				
p0 queue free %	93	97	97				
cM capacity (veh/h)	797	1061	1428				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	54	29	42	83	15	15	121
Volume Left	54	0	42	0	0	0	0
Volume Right	0	29	0	0	0	0	121
cSH	797	1061	1428	1700	1700	1700	1700
Volume to Capacity	0.07	0.03	0.03	0.05	0.01	0.01	0.07
Queue Length 95th (ft)	5	2	2	0	0	0	0
Control Delay (s)	9.8	8.5	7.6	0.0	0.0	0.0	0.0
Lane LOS	A	A	A				
Approach Delay (s)	9.4		2.6		0.0		
Approach LOS	A						
Intersection Summary							
Average Delay			3.1				
Intersection Capacity Utilization			18.8%		ICU Level of Service		A
Analysis Period (min)			15				













HCM Unsignalized Intersection Capacity Analysis
 18: Street C (Major Collector East) & Street E (Minor Collector East)

01 Build AM.syn
 03/09/2021

																	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Lane Configurations																	
Traffic Volume (veh/h)	29	30	37	16	104	0	70	19	30	0	57	9					
Future Volume (Veh/h)	29	30	37	16	104	0	70	19	30	0	57	9					
Sign Control	Free			Free			Stop			Stop							
Grade	0%			0%			0%			0%							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92					
Hourly flow rate (vph)	32	33	40	17	113	0	76	21	33	0	62	10					
Pedestrians																	
Lane Width (ft)																	
Walking Speed (ft/s)																	
Percent Blockage																	
Right turn flare (veh)									4	4							
Median type	TWLTL			TWLTL													
Median storage (veh)	2			2													
Upstream signal (ft)																	
pX, platoon unblocked																	
vC, conflicting volume	113				73				280	244	33	271	284	113			
vC1, stage 1 conf vol							97	97				147	147				
vC2, stage 2 conf vol							183	147				124	137				
vCu, unblocked vol	113				73				280	244	33	271	284	113			
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2			
tC, 2 stage (s)							6.1	5.5				6.1	5.5				
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3			
p0 queue free %	98				99				89	97	97	100	91	99			
cM capacity (veh/h)	1476				1527				679	699	1041	736	690	940			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2							
Volume Total	32	33	40	17	113	0	76	54	0	72							
Volume Left	32	0	0	17	0	0	76	0	0	0							
Volume Right	0	0	40	0	0	0	0	33	0	10							
cSH	1476	1700	1700	1527	1700	1700	679	1703	1700	801							
Volume to Capacity	0.02	0.02	0.02	0.01	0.07	0.00	0.11	0.03	0.00	0.09							
Queue Length 95th (ft)	2	0	0	1	0	0	9	2	0	7							
Control Delay (s)	7.5	0.0	0.0	7.4	0.0	0.0	11.0	9.2	0.0	10.5							
Lane LOS	A				A				B	A	A	B					
Approach Delay (s)	2.3				1.0				10.3	10.5							
Approach LOS							B										
Intersection Summary																	
Average Delay				5.6													
Intersection Capacity Utilization				25.5%	ICU Level of Service			A									
Analysis Period (min)				15													













HCM Unsignalized Intersection Capacity Analysis
 19: Street B (Principal Arterial East) & Street D (Major Collector East)

01 Build AM.syn
 03/09/2021

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	1	145	89	66	192	2		
Future Volume (Veh/h)	1	145	89	66	192	2		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	1	158	97	72	209	2		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage (veh)								
Upstream signal (ft)				1233				
pX, platoon unblocked								
vC, conflicting volume	439	104	211					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	439	104	211					
tC, single (s)	6.8	6.9	4.1					
tC, 2 stage (s)								
tF (s)	3.5	3.3	2.2					
p0 queue free %	100	83	93					
cM capacity (veh/h)	507	930	1357					
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	1	158	97	36	36	104	104	2
Volume Left	1	0	97	0	0	0	0	0
Volume Right	0	158	0	0	0	0	0	2
cSH	507	930	1357	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.17	0.07	0.02	0.02	0.06	0.06	0.00
Queue Length 95th (ft)	0	15	6	0	0	0	0	0
Control Delay (s)	12.1	9.7	7.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A	A					
Approach Delay (s)	9.7		4.5			0.0		
Approach LOS	A							
Intersection Summary								
Average Delay			4.3					
Intersection Capacity Utilization			23.6%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis
 20: Street B (Principal Arterial East) & Street E (Minor Collector East)

01 Build AM.syn
 03/09/2021

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	55	99	49	11	6	61		
Future Volume (Veh/h)	55	99	49	11	6	61		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	60	108	53	12	7	66		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage (veh)								
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	119	4	73					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	119	4	73					
IC, single (s)	6.8	6.9	4.1					
IC, 2 stage (s)								
IF (s)	3.5	3.3	2.2					
p0 queue free %	93	90	97					
cM capacity (veh/h)	834	1079	1525					
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	60	108	53	6	6	4	4	66
Volume Left	60	0	53	0	0	0	0	0
Volume Right	0	108	0	0	0	0	0	66
cSH	834	1079	1525	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.10	0.03	0.00	0.00	0.00	0.00	0.04
Queue Length 95th (ft)	6	8	3	0	0	0	0	0
Control Delay (s)	9.7	8.7	7.4	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A	A					
Approach Delay (s)	9.0		6.1			0.0		
Approach LOS	A							
Intersection Summary								
Average Delay			6.3					
Intersection Capacity Utilization			19.4%		ICU Level of Service		A	
Analysis Period (min)			15					













HCM Signalized Intersection Capacity Analysis 21: Street B (Principal Arterial East) & Street A (Parkway)

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	62	561	371	250	677	62	416	0	296	184	0	149
Future Volume (vph)	62	561	371	250	677	62	416	0	296	184	0	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lane Util. Factor	0.97	0.95	0.88	0.97	0.95	1.00	0.97		0.88	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	2787	3433	3539	1583	3433		2787	3433		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	3539	2787	3433	3539	1583	3433		2787	3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	610	403	272	736	67	452	0	322	200	0	162
RTOR Reduction (vph)	0	0	211	0	0	45	0	0	55	0	0	121
Lane Group Flow (vph)	67	610	192	272	736	22	452	0	267	200	0	41
Turn Type	Prot	NA	pt+ov	Prot	NA	Perm	Prot		pt+ov	Prot		Perm
Protected Phases	7	4	4 5	3	8		5	2	2 3	1	6	
Permitted Phases						8						6
Actuated Green, G (s)	4.2	22.3	42.9	10.9	29.0	29.0	16.1		44.8	9.4		22.7
Effective Green, g (s)	4.2	22.3	42.9	10.9	29.0	29.0	16.1		44.8	9.4		22.7
Actuated g/C Ratio	0.05	0.25	0.48	0.12	0.32	0.32	0.18		0.50	0.10		0.25
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5			4.5		4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	160	876	1328	415	1140	510	614		1387	358		399
v/s Ratio Prot	0.02	0.17	0.07	c0.08	c0.21		c0.13		c0.10	0.06		
v/s Ratio Perm						0.01						0.03
v/c Ratio	0.42	0.70	0.14	0.66	0.65	0.04	0.74		0.19	0.56		0.10
Uniform Delay, d1	41.7	30.8	13.2	37.8	26.1	21.0	34.9		12.6	38.3		25.8
Progression Factor	1.41	0.68	2.63	0.74	0.90	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.6	2.2	0.0	3.5	1.2	0.0	4.6		0.1	1.9		0.5
Delay (s)	60.4	23.1	34.9	31.3	24.7	21.0	39.5		12.6	40.2		26.3
Level of Service	E	C	C	C	C	C	D		B	D		C
Approach Delay (s)		29.8			26.1			28.3			34.0	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay		28.7										
HCM 2000 Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		90.0							18.0			
Intersection Capacity Utilization		52.7%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 22: Street B (Principal Arterial East) & Street C (Major Collector East)

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 03/09/2021

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	0	91	31	6	22	0		
Future Volume (Veh/h)	0	91	31	6	22	0		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	0	99	34	7	24	0		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage (veh)								
Upstream signal (ft)	1163							
pX, platoon unblocked								
vC, conflicting volume	96	12	24					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	96	12	24					
tC, single (s)	6.8	6.9	4.1					
tC, 2 stage (s)								
tF (s)	3.5	3.3	2.2					
p0 queue free %	100	91	98					
cM capacity (veh/h)	874	1065	1589					
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	99	34	4	4	12	12	0
Volume Left	0	0	34	0	0	0	0	0
Volume Right	0	99	0	0	0	0	0	0
cSH	1700	1065	1589	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.09	0.02	0.00	0.00	0.01	0.01	0.00
Queue Length 95th (ft)	0	8	2	0	0	0	0	0
Control Delay (s)	0.0	8.7	7.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A	A					
Approach Delay (s)	8.7		6.1			0.0		
Approach LOS	A							
Intersection Summary								
Average Delay	6.8							
Intersection Capacity Utilization	15.6%			ICU Level of Service			A	
Analysis Period (min)	15							

HCM Signalized Intersection Capacity Analysis
23: FM 1101 & Street A (Parkway)/Kohlenberg N

01 Build AM.syn
03/09/2021

	↖	→	↗	↖	←	↗	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	→	↗		↖↖		↖↖	↑↖		↖	↑↑	↗↗
Traffic Volume (vph)	648	0	416	28	0	3	359	147	24	6	186	538
Future Volume (vph)	648	0	416	28	0	3	359	147	24	6	186	538
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	0.95		1.00		0.97	0.95		1.00	0.95	0.88
Frt	1.00	0.85	0.85		0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1504	1504		1760		3433	3465		1770	3539	2787
Flt Permitted	0.95	1.00	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1504	1504		1840		3433	3465		1770	3539	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	704	0	452	30	0	3	390	160	26	7	202	585
RTOR Reduction (vph)	0	152	133	0	32	0	0	10	0	0	0	211
Lane Group Flow (vph)	704	74	93	0	1	0	390	176	0	7	202	374
Turn Type	Prot	NA	custom	Perm	NA		Prot	NA		Prot	NA	pl+ov
Protected Phases	7	4	7 5		8		5	2		1	6	6 7
Permitted Phases				8								
Actuated Green, G (s)	21.5	29.3	37.2		3.3		15.7	45.8		1.4	31.5	57.5
Effective Green, g (s)	21.5	29.3	37.2		3.3		15.7	45.8		1.4	31.5	57.5
Actuated g/C Ratio	0.24	0.33	0.41		0.04		0.17	0.51		0.02	0.35	0.64
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	820	489	621		67		598	1763		27	1238	1780
v/s Ratio Prot	c0.21	c0.05	0.06				c0.11	0.05		0.00	0.06	c0.13
v/s Ratio Perm					0.00							
v/c Ratio	0.86	0.15	0.15		0.02		0.65	0.10		0.26	0.16	0.21
Uniform Delay, d1	32.8	21.5	16.5		41.8		34.6	11.4		43.8	20.2	6.8
Progression Factor	1.05	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.9	0.1	0.1		0.1		2.6	0.1		5.1	0.3	0.1
Delay (s)	42.4	21.6	16.6		41.9		37.2	11.5		48.8	20.4	6.8
Level of Service	D	C	B		D		D	B		D	C	A
Approach Delay (s)		33.3			41.9			28.9			10.7	
Approach LOS		C			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			25.4				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			50.9%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
24: Kohlenburg & Street B (Principal Arterial East)

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↑	↱	↰	↱
Traffic Volume (vph)	105	210	241	74	122	229
Future Volume (vph)	105	210	241	74	122	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.33	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	621	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	228	262	80	133	249
RTOR Reduction (vph)	0	0	0	64	0	192
Lane Group Flow (vph)	114	228	262	16	133	57
Turn Type	D,P+P	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		5	
Permitted Phases	8			8		6
Actuated Green, G (s)	23.7	28.2	17.7	17.7	27.7	20.6
Effective Green, g (s)	23.7	28.2	17.7	17.7	27.7	20.6
Actuated g/C Ratio	0.26	0.31	0.20	0.20	0.31	0.23
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	240	583	366	311	544	362
v/s Ratio Prot	0.03	c0.12	c0.14		c0.08	
v/s Ratio Perm	0.09			0.01		c0.04
v/c Ratio	0.47	0.39	0.72	0.05	0.24	0.16
Uniform Delay, d1	26.5	24.2	33.8	29.3	23.3	27.8
Progression Factor	1.00	1.00	0.84	0.59	1.00	1.01
Incremental Delay, d2	1.5	0.4	6.5	0.1	1.1	0.9
Delay (s)	28.0	24.6	35.0	17.3	24.4	28.8
Level of Service	C	C	D	B	C	C
Approach Delay (s)		25.7	30.9		27.3	
Approach LOS		C	C		C	







Intersection Summary

HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group







HCM Unsignalized Intersection Capacity Analysis 29: FM 1101 & Kohlenburg

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03/09/2021

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Volume (veh/h)	107	205	175	439	514	152
Future Volume (Veh/h)	107	205	175	439	514	152
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	223	190	477	559	165
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1498	642	724			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1498	642	724			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	53	78			
cM capacity (veh/h)	106	474	879			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	339	667	724			
Volume Left	116	190	0			
Volume Right	223	0	165			
cSH	216	879	1700			
Volume to Capacity	1.57	0.22	0.43			
Queue Length 95th (ft)	533	21	0			
Control Delay (s)	317.5	5.1	0.0			
Lane LOS	F	A				
Approach Delay (s)	317.5	5.1	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		64.2				
Intersection Capacity Utilization		97.6%		ICU Level of Service	F	
Analysis Period (min)		15				










HCM Unsignalized Intersection Capacity Analysis
31: FM 1101 & Kroesche Ln

01 Build AM.syn
03/09/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YT		T			T
Traffic Volume (veh/h)	12	12	604	6	13	617
Future Volume (Veh/h)	12	12	604	6	13	617
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	13	657	7	14	671
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1360	660			664	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1360	660			664	
IC, single (s)	6.4	6.2			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	92	97			98	
cM capacity (veh/h)	161	463			925	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	26	664	685			
Volume Left	13	0	14			
Volume Right	13	7	0			
cSH	239	1700	925			
Volume to Capacity	0.11	0.39	0.02			
Queue Length 95th (ft)	9	0	1			
Control Delay (s)	21.9	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	21.9	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			52.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 32: FM 1101 & E Watson Ln

01 Build AM.syn
03/09/2021

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	18	22	787	714	52
Future Volume (Veh/h)	26	18	22	787	714	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	20	24	855	776	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1708	804	833			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1708	804	833			
tC, single (s)	6.4	6.2	4.1			
tC, 2-stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	71	95	97			
cM capacity (veh/h)	97	383	800			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	48	879	833			
Volume Left	28	24	0			
Volume Right	20	0	57			
cSH	141	800	1700			
Volume to Capacity	0.34	0.03	0.49			
Queue Length 95th (ft)	35	2	0			
Control Delay (s)	43.2	0.8	0.0			
Lane LOS	E	A				
Approach Delay (s)	43.2	0.8	0.0			
Approach LOS	E					
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		69.1%		ICU Level of Service	C	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 33: E Watson Ln & Soechting Ln

01 Build AM.syn
03/09/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		↰	↱
Traffic Volume (veh/h)	1	60	71	3	13	7
Future Volume (Veh/h)	1	60	71	3	13	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	65	77	3	14	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	80				146	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80				146	78
IC, single (s)	4.1				6.4	6.2
IC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1518				846	982
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	66	80	22			
Volume Left	1	0	14			
Volume Right	0	3	8			
cSH	1518	1700	891			
Volume to Capacity	0.00	0.05	0.02			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.1	0.0	9.1			
Lane LOS	A		A			
Approach Delay (s)	0.1	0.0	9.1			
Approach LOS			A			
Intersection Summary						
Average Delay		1.2				
Intersection Capacity Utilization		14.0%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 40: Street D (Major Collector East) & Street C (Major Collector East)

01 Build AM.syn

03/09/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↑	↱	↰	↱
Traffic Volume (veh/h)	23	10	10	59	81	10
Future Volume (Veh/h)	23	10	10	59	81	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	11	11	64	88	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)					4	
Median type		TWLT	TL			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	75				72	11
vC1, stage 1 conf vol					11	
vC2, stage 2 conf vol					61	
vCu, unblocked vol	75				72	11
IC, single (s)	4.1				6.4	6.2
IC, 2 stage (s)					5.4	
IF (s)	2.2				3.5	3.3
p0 queue free %	98				90	99
cM capacity (veh/h)	1524				921	1070
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	25	11	11	64	99	
Volume Left	25	0	0	0	88	
Volume Right	0	0	0	64	11	
cSH	1524	1700	1700	1700	1037	
Volume to Capacity	0.02	0.01	0.01	0.04	0.10	
Queue Length 95th (ft)	1	0	0	0	8	
Control Delay (s)	7.4	0.0	0.0	0.0	9.2	
Lane LOS	A				A	
Approach Delay (s)	5.1		0.0		9.2	
Approach LOS					A	
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			19.1%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗	↗		
Traffic Vol, veh/h	0	20	543	33	0	0
Future Vol, veh/h	0	20	543	33	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized		None		None		None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	590	36	0	0

Major/Minor	Minor1	Major1
Conflicting Flow All	- 313	0 0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	- 6.94	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	- 3.32	-
Pot Cap-1 Maneuver	0 683	-
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	683	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s	10.4	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBRWBIn1
Capacity (veh/h)	-	683
HCM Lane V/C Ratio	-	0.032
HCM Control Delay (s)	-	10.4
HCM Lane LOS	-	B
HCM 95th %ile Q(veh)	-	0.1

HCM 2010 TWSC
9: IH-35 NBFR & Street E (Minor Collector East)

01 Build AM.syn
03/09/2021

Intersection						
Int Delay, s/veh	6.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		
Traffic Vol, veh/h	0	208	1717	104	0	0
Future Vol, veh/h	0	208	1717	104	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None		None	-	None
Storage Length	-	0	-	145	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	226	1866	113	0	0

Major/Minor	Minor1	Major1
Conflicting Flow All	- 933	0 0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	- 6.94	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	- 3.32	-
Pol Cap-1 Maneuver	0 268	-
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	- 268	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s	62.9	0
HCM LOS	F	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	268
HCM Lane V/C Ratio	-	0.844
HCM Control Delay (s)	-	62.9
HCM Lane LOS	-	F
HCM 95th %tile Q(veh)	-	7

HCM 2010 TWSC
8: IH-35 NBFR & Street F (Major Collector East)

01 Build AM.syn
03/09/2021

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		
Traffic Vol, veh/h	0	158	1756	148	0	0
Future Vol, veh/h	0	158	1756	148	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	-	0	-	145	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	172	1909	161	0	0

Major/Minor	Minor	Major		
Conflicting Flow All	-	955	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	259	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	259	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	42.6	0
HCM LOS	E	
Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	259
HCM Lane V/C Ratio	-	0.663
HCM Control Delay (s)	-	42.6
HCM Lane LOS	-	E
HCM 95th %ile Q(veh)	-	4.2

HCM Signalized Intersection Capacity Analysis
1: IH-35 NBFR & W Watson Ln

02 Build PM.syn
03/09/2021

	↖	↗	↙	↑	↓	↘
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗		↙	↑↓		
Traffic Volume (vph)	61	0	113	172	0	0
Future Volume (vph)	61	0	113	172	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5		
Lane Util. Factor	0.97		0.91	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	0.99		
Satd. Flow (prot)	3433		1610	3372		
Flt Permitted	0.95		0.95	0.99		
Satd. Flow (perm)	3433		1610	3372		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	0	123	187	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	66	0	101	209	0	0
Turn Type	Prot		Prot	NA		
Protected Phases	1 2		12 4	4		
Permitted Phases						
Actuated Green, G (s)	26.0		55.0	55.0		
Effective Green, g (s)	26.0		55.0	55.0		
Actuated g/C Ratio	0.29		0.61	0.61		
Clearance Time (s)				4.5		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)	991		983	2060		
v/s Ratio Prot	c0.02		c0.06	0.06		
v/s Ratio Perm						
v/c Ratio	0.07		0.10	0.10		
Uniform Delay, d1	23.2		7.3	7.3		
Progression Factor	1.15		1.00	1.00		
Incremental Delay, d2	0.0		0.0	0.0		
Delay (s)	26.7		7.3	7.3		
Level of Service	C		A	A		
Approach Delay (s)	26.7			7.3	0.0	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.10			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			26.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis 2: IH-35 SBFR & W Watson Ln







02 Build PM.syn
03/09/2021

	↖	→	↗	↖	←	↗	↖	↑	↗	↘	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑					↖	↑↑	↗
Traffic Volume (vph)	0	61	120	0	113	0	0	0	0	0	159	210
Future Volume (vph)	0	61	120	0	113	0	0	0	0	0	159	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5						4.5	4.5
Lane Util. Factor		0.95			1.00						0.91	1.00
Frt		0.90			1.00						1.00	0.85
Flt Protected		1.00			1.00						1.00	1.00
Satd. Flow (prot)		3187			1863						3390	1583
Flt Permitted		1.00			1.00						1.00	1.00
Satd. Flow (perm)		3187			1863						3390	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	66	130	0	123	0	0	0	0	0	173	228
RTOR Reduction (vph)	0	74	0	0	0	0	0	0	0	0	0	178
Lane Group Flow (vph)	0	122	0	0	123	0	0	0	0	0	173	50
Turn Type		NA		Prot	NA					Prot	NA	Perm
Protected Phases		6		5	5 6					8 16	8	
Permitted Phases												8
Actuated Green, G (s)		38.7			61.1						19.9	19.9
Effective Green, g (s)		38.7			61.1						19.9	19.9
Actuated g/C Ratio		0.43			0.68						0.22	0.22
Clearance Time (s)		4.5									4.5	4.5
Vehicle Extension (s)		3.0									3.0	3.0
Lane Grp Cap (vph)		1370			1264						749	350
v/s Ratio Prot		0.04			c0.07						c0.05	
v/s Ratio Perm												0.03
v/c Ratio		0.09			0.10						0.23	0.14
Uniform Delay, d1		15.2			5.0						28.8	28.2
Progression Factor		1.00			0.20						1.00	1.00
Incremental Delay, d2		0.1			0.0						0.7	0.9
Delay (s)		15.3			1.0						29.5	29.1
Level of Service		B			A						C	C
Approach Delay (s)		15.3			1.0			0.0			29.2	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			20.6			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.15									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			26.5%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

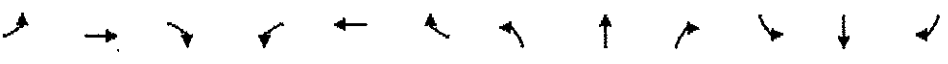
HCM Unsignalized Intersection Capacity Analysis
3: IH-35 SBFR & Woods Path

02 Build PM.syn
03/09/2021

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations		↰			↗↗	↰		
Traffic Volume (veh/h)	0	167	0	0	323	30		
Future Volume (Veh/h)	0	167	0	0	323	30		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	0	182	0	0	351	33		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage (veh)								
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	351	176	384					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	351	176	384					
tC, single (s)	6.8	6.9	4.1					
tC, 2 stage (s)								
tF (s)	3.5	3.3	2.2					
p0 queue free %	100	78	100					
cM capacity (veh/h)	620	837	1171					
Direction, Lane #	EB 1	SB 1	SB 2	SB 3				
Volume Total	182	176	176	33				
Volume Left	0	0	0	0				
Volume Right	182	0	0	33				
cSH	837	1700	1700	1700				
Volume to Capacity	0.22	0.10	0.10	0.02				
Queue Length 95th (ft)	21	0	0	0				
Control Delay (s)	10.5	0.0	0.0	0.0				
Lane LOS	B							
Approach Delay (s)	10.5	0.0						
Approach LOS	B							
Intersection Summary								
Average Delay		3.4						
Intersection Capacity Utilization		25.9%	ICU Level of Service		A			
Analysis Period (min)		15						

HCM Signalized Intersection Capacity Analysis 5: IH-35 SBFR & Street A (Parkway)

02 Build PM.syn
03/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑↑	↑
Traffic Volume (vph)	0	531	927	1162	979	0	0	0	0	834	283	526
Future Volume (vph)	0	531	927	1162	979	0	0	0	0	834	283	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.91	0.91					0.91	0.91	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	0.98					0.95	0.97	1.00
Satd. Flow (prot)		5085	1583	1610	3337					1610	3292	1583
Flt Permitted		1.00	1.00	0.95	0.60					0.95	0.97	1.00
Satd. Flow (perm)		5085	1583	1610	2031					1610	3292	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	577	1008	1263	1064	0	0	0	0	907	308	572
RTOR Reduction (vph)	0	0	136	0	0	0	0	0	0	0	0	268
Lane Group Flow (vph)	0	577	872	758	1569	0	0	0	0	453	762	304
Turn Type		NA	Perm	Prot	NA					Prot	NA	custom
Protected Phases		6		5	5 6					16 8	8	
Permitted Phases			6									16 8
Actuated Green, G (s)		33.5	33.5	32.5	66.0					40.5	40.5	40.5
Effective Green, g (s)		33.5	33.5	32.5	66.0					40.5	40.5	40.5
Actuated g/C Ratio		0.28	0.28	0.27	0.55					0.34	0.34	0.34
Clearance Time (s)		4.5	4.5	4.5							4.5	
Vehicle Extension (s)		3.0	3.0	3.0							3.0	
Lane Grp Cap (vph)		1419	441	436	1470					543	1111	534
v/s Ratio Prot		0.11		c0.47	0.29					c0.28	0.23	
v/s Ratio Perm			c0.55		0.30							0.19
v/c Ratio		0.41	1.98	1.74	1.07					0.83	0.69	0.57
Uniform Delay, d1		35.2	43.2	43.8	27.0					36.7	34.3	32.6
Progression Factor		1.00	1.00	0.89	0.87					1.00	1.00	1.00
Incremental Delay, d2		0.9	448.4	333.2	32.0					10.6	1.8	1.4
Delay (s)		36.0	491.6	372.2	55.6					47.3	36.0	34.0
Level of Service		D	F	F	E					D	D	C
Approach Delay (s)		325.8			158.7			0.0			38.2	
Approach LOS		F			F			A			D	
Intersection Summary												
HCM 2000 Control Delay			167.4			HCM 2000 Level of Service					F	
HCM 2000 Volume to Capacity ratio			1.53									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			158.8%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: IH-35 NBFR & Street A (Parkway)













02 Build PM.syn

03/09/2021

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖			↖	↖	↖	↖	↖			
Traffic Volume (vph)	710	655	0	0	600	528	1541	62	886	0	0	0
Future Volume (vph)	710	655	0	0	600	528	1541	62	886	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	0.91	0.91			0.86	0.86	0.91	0.86	0.91			
Frt	1.00	1.00			0.95	0.85	1.00	0.96	0.85			
Flt Protected	0.95	0.99			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1610	3342			4586	1362	1610	2966	1441			
Flt Permitted	0.95	0.57			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1610	1943			4586	1362	1610	2966	1441			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	772	712	0	0	652	574	1675	67	963	0	0	0
RTOR Reduction (vph)	0	0	0	0	66	234	0	31	324	0	0	0
Lane Group Flow (vph)	486	998	0	0	873	53	837	1250	263	0	0	0
Turn Type	Prot	NA			NA	Perm	Prot	NA	Perm			
Protected Phases	1	1 2			2		12 4	4				
Permitted Phases						2			4			
Actuated Green, G (s)	30.0	52.3			22.3	22.3	54.2	54.2	28.2			
Effective Green, g (s)	30.0	52.3			22.3	22.3	54.2	54.2	28.2			
Actuated g/C Ratio	0.25	0.44			0.19	0.19	0.45	0.45	0.23			
Clearance Time (s)	4.5				4.5	4.5		4.5	4.5			
Vehicle Extension (s)	3.0				3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	402	1196			852	253	727	1339	338			
v/s Ratio Prot	c0.30	0.21			c0.19		c0.52	0.42				
v/s Ratio Perm		0.16				0.04			0.18			
v/c Ratio	1.21	0.83			1.02	0.21	1.15	1.11dl	0.78			
Uniform Delay, d1	45.0	30.0			48.9	41.4	32.9	31.2	43.0			
Progression Factor	0.84	0.83			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	111.2	4.1			37.3	0.4	83.5	12.0	10.7			
Delay (s)	149.1	28.9			86.1	41.8	116.4	43.2	53.7			
Level of Service	F	C			F	D	F	D	D			
Approach Delay (s)		68.3			75.7			68.1			0.0	
Approach LOS		E			E			E			A	
Intersection Summary												
HCM 2000 Control Delay		69.9			HCM 2000 Level of Service			E				
HCM 2000 Volume to Capacity ratio		1.17										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		158.8%			ICU Level of Service			H				
Analysis Period (min)		15										
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 10: IH-35 SBFR & Conrad Ln/Kohlenburg

02 Build PM.syn
03/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↙	↑↑					↙	↑↑	↑
Traffic Volume (vph)	0	126	623	316	707	0	0	0	0	153	374	217
Future Volume (vph)	0	126	623	316	707	0	0	0	0	153	374	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.86	0.86	0.91	0.91					0.91	0.91	1.00
Frt		0.89	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		4292	1362	1610	3383					1610	3383	1583
Flt Permitted		1.00	1.00	0.95	0.93					0.95	1.00	1.00
Satd. Flow (perm)		4292	1362	1610	3158					1610	3383	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	137	677	343	768	0	0	0	0	166	407	236
RTOR Reduction (vph)	0	142	142	0	0	0	0	0	0	0	0	176
Lane Group Flow (vph)	0	334	196	309	802	0	0	0	0	149	424	60
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		6		5	5 6					16 8	16 8	
Permitted Phases			6									16 8
Actuated Green, G (s)		41.8	41.8	35.2	77.0					29.5	29.5	29.5
Effective Green, g (s)		41.8	41.8	35.2	77.0					29.5	29.5	29.5
Actuated g/C Ratio		0.35	0.35	0.29	0.64					0.25	0.25	0.25
Clearance Time (s)		4.5	4.5	4.5								
Vehicle Extension (s)		3.0	3.0	3.0								
Lane Grp Cap (vph)		1495	474	472	2092					395	831	389
v/s Ratio Prot		0.08		c0.19	0.11					0.09	c0.13	
v/s Ratio Perm			c0.14		0.13							0.04
v/c Ratio		0.22	0.41	0.65	0.38					0.38	0.51	0.15
Uniform Delay, d1		27.6	29.8	37.1	10.2					37.6	39.0	35.5
Progression Factor		1.00	1.00	0.44	0.42					1.00	1.00	1.00
Incremental Delay, d2		0.3	2.6	3.0	0.1					0.6	0.5	0.2
Delay (s)		28.0	32.4	19.4	4.4					38.2	39.6	35.6
Level of Service		C	C	B	A					D	D	D
Approach Delay (s)		29.8			8.6			0.0			38.2	
Approach LOS		C			A			A			D	
Intersection Summary												
HCM 2000 Control Delay		23.7				HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio		0.54										
Actuated Cycle Length (s)		120.0				Sum of lost time (s)				18.0		
Intersection Capacity Utilization		87.3%				ICU Level of Service				E		
Analysis Period (min)		15										
c Critical Lane Group												

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
11: IH-35 NBFR & Kohlenburg

02 Build PM.syn
03/09/2021

	↖	→	↘	↙	←	↖	↘	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↑			↑↑↑	↖	↖	↖↑	↖			
Traffic Volume (vph)	67	212	0	0	392	231	603	247	418	0	0	0
Future Volume (vph)	67	212	0	0	392	231	603	247	418	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	0.91	0.91			0.91	1.00	0.91	0.91	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1610	3385			5085	1583	1610	3299	1583			
Flt Permitted	0.95	0.95			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1610	3238			5085	1583	1610	3299	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	230	0	0	426	251	655	268	454	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	213	0	0	261	0	0	0
Lane Group Flow (vph)	66	237	0	0	426	38	327	596	193	0	0	0
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	1	1 2			2		12 4	12 4				
Permitted Phases						2			12 4			
Actuated Green, G (s)	37.4	55.4			18.0	18.0	51.1	51.1	51.1			
Effective Green, g (s)	37.4	55.4			18.0	18.0	51.1	51.1	51.1			
Actuated g/C Ratio	0.31	0.46			0.15	0.15	0.43	0.43	0.43			
Clearance Time (s)	4.5				4.5	4.5						
Vehicle Extension (s)	3.0				3.0	3.0						
Lane Grp Cap (vph)	501	1540			762	237	685	1404	674			
v/s Ratio Prot	0.04	c0.05			c0.08		c0.20	0.18				
v/s Ratio Perm		0.02				0.02			0.12			
v/c Ratio	0.13	0.15			0.56	0.16	0.48	0.42	0.29			
Uniform Delay, d1	29.6	18.7			47.3	44.4	24.8	24.1	22.5			
Progression Factor	0.53	0.41			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.1	0.0			0.9	0.3	0.5	0.2	0.2			
Delay (s)	15.9	7.8			48.2	44.7	25.4	24.4	22.8			
Level of Service	B	A			D	D	C	C	C			
Approach Delay (s)		9.6			46.9			24.1			0.0	
Approach LOS		A			D			C			A	

Intersection Summary

HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis 13: Street G & Street A (Parkway)

02 Build PM.syn
03/09/2021

	↖	→	↗	↖	←	↗	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖	↗	↖↖	↖↖	↗↗	↖	↖↖	↗↗	↖	↖↖	↗
Traffic Volume (vph)	0	257	0	71	439	71	0	0	222	198	0	0
Future Volume (vph)	0	257	0	71	439	71	0	0	222	198	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5	4.5			4.5	4.5		
Lane Util. Factor		0.95		0.97	0.95	0.88			0.88	1.00		
Frt		1.00		1.00	1.00	0.85			0.85	1.00		
Flt Protected		1.00		0.95	1.00	1.00			1.00	0.95		
Satd. Flow (prot)		3539		3433	3539	2787			2787	1770		
Flt Permitted		1.00		0.95	1.00	1.00			1.00	0.76		
Satd. Flow (perm)		3539		3433	3539	2787			2787	1410		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	279	0	77	477	77	0	0	241	215	0	0
RTOR Reduction (vph)	0	0	0	0	0	56	0	0	88	0	0	0
Lane Group Flow (vph)	0	279	0	77	477	21	0	0	153	215	0	0
Turn Type	Prot	NA	Perm	Prot	NA	Prot	D,P+P		Perm	D,Pm		Perm
Protected Phases	7	4		3	8	8	6	2			6	
Permitted Phases			4				6		2	2		6
Actuated Green, G (s)		13.2		6.3	24.0	24.0			57.0	57.0		
Effective Green, g (s)		13.2		6.3	24.0	24.0			57.0	57.0		
Actuated g/C Ratio		0.15		0.07	0.27	0.27			0.63	0.63		
Clearance Time (s)		4.5		4.5	4.5	4.5			4.5	4.5		
Vehicle Extension (s)		3.0		3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		519		240	943	743			1765	893		
v/s Ratio Prot		0.08		0.02	c0.13	0.01						
v/s Ratio Perm									0.05	c0.15		
v/c Ratio		0.54		0.32	0.51	0.03			0.09	0.24		
Uniform Delay, d1		35.6		39.8	28.0	24.4			6.4	7.1		
Progression Factor		1.00		1.00	1.00	1.00			1.00	0.94		
Incremental Delay, d2		1.1		0.8	0.4	0.0			0.1	0.6		
Delay (s)		36.6		40.6	28.4	24.4			6.5	7.3		
Level of Service		D		D	C	C			A	A		
Approach Delay (s)		36.6			29.4			6.5			7.3	
Approach LOS		D			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			23.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			38.5%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: Street C (Major Collector East) & Street A (Parkway)

02 Build PM.syn

03/09/2021

	↖	→	↗	↖	←	↗	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑	↗	↖↖	↑↑	↗	↖	↑↑	↗	↖	↑↑	↗↗
Traffic Volume (vph)	309	1074	67	425	753	63	39	0	362	67	0	237
Future Volume (vph)	309	1074	67	425	753	63	39	0	362	67	0	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00		1.00	1.00		0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770		1583	1770		2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.78		1.00	0.76		1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1410		1583	1410		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	336	1167	73	462	818	68	42	0	393	73	0	258
RTOR Reduction (vph)	0	0	46	0	0	43	0	0	297	0	0	142
Lane Group Flow (vph)	336	1167	27	462	818	25	42	0	96	73	0	116
Turn Type	Prot	NA	Perm	Prot	NA	Perm	D,P+P		Perm	D,P+P		pt+ov
Protected Phases	7	4		3	8		5	2		1	6	6
Permitted Phases			4			8	6		2	2		
Actuated Green, G (s)	14.2	33.9	33.9	13.5	33.2	33.2	24.6		20.5	24.6		40.3
Effective Green, g (s)	14.2	33.9	33.9	13.5	33.2	33.2	24.6		20.5	24.6		40.3
Actuated g/C Ratio	0.16	0.38	0.38	0.15	0.37	0.37	0.27		0.23	0.27		0.45
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	541	1333	596	514	1305	583	397		360	401		1247
v/s Ratio Prot	0.10	c0.33		c0.13	0.23		0.00			c0.01		0.04
v/s Ratio Perm			0.02			0.02	0.03		c0.06	0.04		
v/c Ratio	0.62	0.88	0.05	0.90	0.63	0.04	0.11		0.27	0.18		0.09
Uniform Delay, d1	35.4	26.1	17.8	37.6	23.3	18.2	24.3		28.6	24.8		14.3
Progression Factor	1.00	1.00	1.00	0.87	1.00	1.00	1.00		1.00	1.00		3.20
Incremental Delay, d2	2.2	6.7	0.0	14.1	0.7	0.0	0.1		1.8	0.2		0.0
Delay (s)	37.6	32.8	17.8	46.9	24.0	18.2	24.5		30.4	25.1		45.8
Level of Service	D	C	B	D	C	B	C		C	C		D
Approach Delay (s)		33.1			31.6			29.8			41.2	
Approach LOS		C			C			C			D	













Intersection Summary

HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 17: Street C (Major Collector East) & Street F (Major Collector East)

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
















							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	251	90	32	90	73	317	
Future Volume (Veh/h)	251	90	32	90	73	317	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	273	98	35	98	79	345	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				TWLT	None		
Median storage (veh)				2			
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	247	40	424				
vC1, stage 1 conf vol	79						
vC2, stage 2 conf vol	168						
vCu, unblocked vol	247	40	424				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3	2.2				
p0 queue free %	65	90	97				
cM capacity (veh/h)	782	1023	1132				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	273	98	35	98	40	40	345
Volume Left	273	0	35	0	0	0	0
Volume Right	0	98	0	0	0	0	345
cSH	782	1023	1132	1700	1700	1700	1700
Volume to Capacity	0.35	0.10	0.03	0.06	0.02	0.02	0.20
Queue Length 95th (ft)	39	8	2	0	0	0	0
Control Delay (s)	12.1	8.9	8.3	0.0	0.0	0.0	0.0
Lane LOS	B	A	A				
Approach Delay (s)	11.2		2.2		0.0		
Approach LOS	B						
Intersection Summary							
Average Delay			4.8				
Intersection Capacity Utilization			29.6%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

02 Build PM.syn













18: Street C (Major Collector East) & Street E (Minor Collector East)

03/09/2021

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	54	111	92	38	111	0	121	54	28	0	79	18								
Future Volume (Veh/h)	54	111	92	38	111	0	121	54	28	0	79	18								
Sign Control	Free			Free			Stop			Stop										
Grade	0%			0%			0%			0%										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
Hourly flow rate (vph)	59	121	100	41	121	0	132	59	30	0	86	20								
Pedestrians																				
Lane Width (ft)																				
Walking Speed (ft/s)																				
Percent Blockage																				
Right turn flare (veh)							4			4										
Median type	TWLTL			TWLTL																
Median storage (veh)	2			2																
Upstream signal (ft)																				
pX, platoon unblocked																				
vC, conflicting volume	121	221			495			442	121	486	542	121								
VC1, stage 1 conf vol				239			239	203			203									
VC2, stage 2 conf vol				256			203	284			339									
vCu, unblocked vol	121	221			495			442	121	486	542	121								
IC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2								
IC, 2 stage (s)				6.1			5.5	6.1			5.5									
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3								
p0 queue free %	96	97			75			90	97	100	84	98								
cM capacity (veh/h)	1467	1348			528			587	930	541	536	930								
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2										
Volume Total	59	121	100	41	121	0	132	89	0	106										
Volume Left	59	0	0	41	0	0	132	0	0	0										
Volume Right	0	0	100	0	0	0	0	30	0	20										
cSH	1467	1700	1700	1348	1700	1700	528	885	1700	660										
Volume to Capacity	0.04	0.07	0.06	0.03	0.07	0.00	0.25	0.10	0.00	0.16										
Queue Length 95th (ft)	3	0	0	2	0	0	25	8	0	14										
Control Delay (s)	7.6	0.0	0.0	7.8	0.0	0.0	14.1	10.9	0.0	12.2										
Lane LOS	A			A			B	B	A	B										
Approach Delay (s)	1.6	2.0			12.8			12.2												
Approach LOS				B			B													
Intersection Summary																				
Average Delay	6.4																			
Intersection Capacity Utilization	29.7%			ICU Level of Service			A													
Analysis Period (min)	15																			













HCM Unsignalized Intersection Capacity Analysis
 19: Street B (Principal Arterial East) & Street D (Major Collector East)

02 Build PM.syn
 03/09/2021

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	6	213	253	215	142	5		
Future Volume (Veh/h)	6	213	253	215	142	5		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	7	232	275	234	154	5		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage (veh)								
Upstream signal (ft)				1233				
pX, platoon unblocked								
vC, conflicting volume	821	77	159					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	821	77	159					
tC, single (s)	6.8	6.9	4.1					
tC, 2 stage (s)								
tF (s)	3.5	3.3	2.2					
p0 queue free %	97	76	81					
cM capacity (veh/h)	252	968	1418					
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	232	275	117	117	77	77	5
Volume Left	7	0	275	0	0	0	0	0
Volume Right	0	232	0	0	0	0	0	5
CSH	252	968	1418	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.24	0.19	0.07	0.07	0.05	0.05	0.00
Queue Length 95th (ft)	2	23	18	0	0	0	0	0
Control Delay (s)	19.7	9.9	8.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	A	A					
Approach Delay (s)	10.2		4.4			0.0		
Approach LOS	B							
Intersection Summary								
Average Delay			5.2					
Intersection Capacity Utilization			31.3%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis
 20: Street B (Principal Arterial East) & Street E (Minor Collector East)

02 Build PM.syn
 03/09/2021

															
Movement	EBL	EBR	NBL	NBT	SBT	SBR									
Lane Configurations															
Traffic Volume (veh/h)	61	97	115	13	17	127									
Future Volume (Veh/h)	61	97	115	13	17	127									
Sign Control	Stop			Free	Free										
Grade	0%			0%	0%										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92									
Hourly flow rate (vph)	66	105	125	14	18	138									
Pedestrians															
Lane Width (ft)															
Walking Speed (ft/s)															
Percent Blockage															
Right turn flare (veh)															
Median type				None	None										
Median storage (veh)															
Upstream signal (ft)															
pX, platoon unblocked															
vC, conflicting volume	275	9	156												
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	275	9	156												
IC, single (s)	6.8	6.9	4.1												
IC, 2 stage (s)															
IF (s)	3.5	3.3	2.2												
p0 queue free %	90	90	91												
cM capacity (veh/h)	631	1070	1422												
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3							
Volume Total	66	105	125	7	7	9	9	138							
Volume Left	66	0	125	0	0	0	0	0							
Volume Right	0	105	0	0	0	0	0	138							
cSH	631	1070	1422	1700	1700	1700	1700	1700							
Volume to Capacity	0.10	0.10	0.09	0.00	0.00	0.01	0.01	0.08							
Queue Length 95th (ft)	9	8	7	0	0	0	0	0							
Control Delay (s)	11.4	8.7	7.8	0.0	0.0	0.0	0.0	0.0							
Lane LOS	B	A	A												
Approach Delay (s)	9.7	7.0		0.0											
Approach LOS	A														
Intersection Summary															
Average Delay	5.7														
Intersection Capacity Utilization	23.1%			ICU Level of Service				A							
Analysis Period (min)	15														

HCM Signalized Intersection Capacity Analysis
21: Street B (Principal Arterial East) & Street A (Parkway)













02 Build PM.syn
03/09/2021

	↖	→	↗	↖	←	↗	↖	↑	↗	↘	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑	↗↗	↖↖	↑↑	↗	↖↖	↑↑	↗↗	↖↖	↑↑	↗
Traffic Volume (vph)	172	839	426	372	725	207	395	0	270	120	0	113
Future Volume (vph)	172	839	426	372	725	207	395	0	270	120	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lane Util. Factor	0.97	0.95	0.88	0.97	0.95	1.00	0.97		0.88	0.97		1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	2787	3433	3539	1583	3433		2787	3433		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	3539	2787	3433	3539	1583	3433		2787	3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	912	463	404	788	225	429	0	293	130	0	123
RTOR Reduction (vph)	0	0	237	0	0	147	0	0	38	0	0	96
Lane Group Flow (vph)	187	912	226	404	788	78	429	0	255	130	0	27
Turn Type	Prot	NA	pt+ov	Prot	NA	Perm	Prot		pt+ov	Prot		Perm
Protected Phases	7	4	4 5	3	8		5	2	2 3	1	6	
Permitted Phases						8						6
Actuated Green, G (s)	9.1	26.2	44.0	12.5	29.6	29.6	13.3		43.2	7.1		20.0
Effective Green, g (s)	9.1	26.2	44.0	12.5	29.6	29.6	13.3		43.2	7.1		20.0
Actuated g/C Ratio	0.10	0.29	0.49	0.14	0.33	0.33	0.15		0.48	0.08		0.22
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5			4.5		4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	347	1030	1362	476	1163	520	507		1337	270		351
v/s Ratio Prot	0.05	c0.26	0.08	c0.12	c0.22		c0.12		c0.09	0.04		
v/s Ratio Perm						0.05						0.02
v/c Ratio	0.54	0.89	0.17	0.85	0.68	0.15	0.85		0.19	0.48		0.08
Uniform Delay, d1	38.5	30.5	12.8	37.8	26.1	21.3	37.4		13.4	39.7		27.7
Progression Factor	1.45	0.52	0.92	0.76	0.99	1.38	1.00		1.01	1.00		1.00
Incremental Delay, d2	1.0	6.2	0.0	11.7	1.4	0.1	12.3		0.1	1.4		0.4
Delay (s)	56.7	22.0	11.8	40.4	27.1	29.6	49.6		13.6	41.0		28.1
Level of Service	E	C	B	D	C	C	D		B	D		C
Approach Delay (s)		23.1			31.3			35.0			34.8	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			29.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			63.0%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group













HCM Unsignalized Intersection Capacity Analysis
 22: Street B (Principal Arterial East) & Street C (Major Collector East)

02 Build PM.syn
 03/09/2021

									
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	0	60	103	26	15	0			
Future Volume (Veh/h)	0	60	103	26	15	0			
Sign Control	Stop			Free	Free				
Grade	0%			0%	0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Hourly flow rate (vph)	0	65	112	28	16	0			
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn flare (veh)									
Median type				None	None				
Median storage (veh)									
Upstream signal (ft)	1163								
pX, platoon unblocked									
vC, conflicting volume	254	8	16						
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol	254	8	16						
tC, single (s)	6.8	6.9	4.1						
tC, 2 stage (s)									
IF (s)	3.5	3.3	2.2						
p0 queue free %	100	94	93						
cM capacity (veh/h)	663	1072	1600						
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	
Volume Total	0	65	112	14	14	8	8	0	
Volume Left	0	0	112	0	0	0	0	0	
Volume Right	0	65	0	0	0	0	0	0	
cSH	1700	1072	1600	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.06	0.07	0.01	0.01	0.00	0.00	0.00	
Queue Length 95th (ft)	0	5	6	0	0	0	0	0	
Control Delay (s)	0.0	8.6	7.4	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A	A	A						
Approach Delay (s)	8.6		5.9			0.0			
Approach LOS	A								
Intersection Summary									
Average Delay	6.3								
Intersection Capacity Utilization	15.7%		ICU Level of Service				A		
Analysis Period (min)	15								

HCM Signalized Intersection Capacity Analysis 23: FM 1101 & Street A (Parkway)/Kohlenberg N

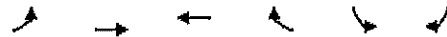
02 Build PM.syn
03/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	T	R		T		TT	TT		T	TT	TT
Traffic Volume (vph)	715	0	427	16	0	4	492	250	10	1	279	804
Future Volume (vph)	715	0	427	16	0	4	492	250	10	1	279	804
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	0.95		1.00		0.97	0.95		1.00	0.95	0.88
Frt	1.00	0.85	0.85		0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1504	1504		1744		3433	3519		1770	3539	2787
Flt Permitted	0.95	1.00	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1504	1504		1815		3433	3519		1770	3539	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	0	464	17	0	4	535	272	11	1	303	874
RTOR Reduction (vph)	0	162	125	0	20	0	0	2	0	0	0	358
Lane Group Flow (vph)	777	70	107	0	1	0	535	281	0	1	303	516
Turn Type	Prot	NA	custom	Perm	NA		Prot	NA		Prot	NA	pt+ov
Protected Phases	7	4	7.5		8		5	2		1	6	6.7
Permitted Phases				8								
Actuated Green, G (s)	20.5	27.2	41.7		2.2		21.2	48.1		1.2	28.1	53.1
Effective Green, g (s)	20.5	27.2	41.7		2.2		21.2	48.1		1.2	28.1	53.1
Actuated g/C Ratio	0.23	0.30	0.46		0.02		0.24	0.53		0.01	0.31	0.59
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	781	454	696		44		808	1880		23	1104	1644
v/s Ratio Prot	c0.23	c0.05	0.07				c0.16	0.08		0.00	0.09	c0.19
v/s Ratio Perm					0.00							
v/c Ratio	0.99	0.15	0.15		0.01		0.66	0.15		0.04	0.27	0.31
Uniform Delay, d1	34.7	23.0	14.0		42.8		31.2	10.6		43.8	23.3	9.3
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	25.8	0.1	0.1		0.1		2.1	0.2		0.8	0.6	0.1
Delay (s)	60.4	23.1	14.0		42.9		33.2	10.8		44.6	23.9	9.4
Level of Service	E	C	B		D		C	B		D	C	A
Approach Delay (s)		44.7			42.9			25.4			13.2	
Approach LOS		D			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			28.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			57.6%				ICU Level of Service		B			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
24: Kohlenburg & Street B (Principal Arterial East)

02 Build PM.syn
03/09/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↑	↱	↰	↱
Traffic Volume (vph)	331	239	308	211	191	244
Future Volume (vph)	331	239	308	211	191	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Frt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Frt Permitted	0.23	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	434	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	360	260	335	229	208	265
RTOR Reduction (vph)	0	0	0	179	0	237
Lane Group Flow (vph)	360	260	335	50	208	28
Turn Type	D,P+P	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		5	
Permitted Phases	8			8		6
Actuated Green, G (s)	38.1	42.6	19.8	19.8	24.4	9.5
Effective Green, g (s)	38.1	42.6	19.8	19.8	24.4	9.5
Actuated g/C Ratio	0.42	0.47	0.22	0.22	0.27	0.11
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	455	881	409	348	479	167
v/s Ratio Prot	c0.16	0.14	c0.18		c0.12	
v/s Ratio Perm	0.17			0.03		c0.02
v/c Ratio	0.79	0.30	0.82	0.14	0.43	0.17
Uniform Delay, d1	19.9	14.5	33.4	28.3	27.1	36.6
Progression Factor	1.00	1.00	0.84	0.56	0.98	1.01
Incremental Delay, d2	9.1	0.2	12.1	0.2	2.9	2.2
Delay (s)	29.0	14.7	40.2	16.0	29.5	39.2
Level of Service	C	B	D	B	C	D
Approach Delay (s)		23.0	30.4		35.0	
Approach LOS		C	C		C	







Intersection Summary

HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group







HCM Unsignalized Intersection Capacity Analysis 29: FM 1101 & Kohlenburg

02 Build PM.syn
03/09/2021

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Volume (veh/h)	140	272	318	603	537	191
Future Volume (Veh/h)	140	272	318	603	537	191
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	152	296	346	655	584	208
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2035	688	792			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2035	688	792			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	34	58			
cM capacity (veh/h)	36	446	829			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	448	1001	792			
Volume Left	152	346	0			
Volume Right	296	0	208			
cSH	93	829	1700			
Volume to Capacity	4.83	0.42	0.47			
Queue Length 95th (ft)	Err	52	0			
Control Delay (s)	Err	9.8	0.0			
Lane LOS	F	A				
Approach Delay (s)	Err	9.8	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		2003.3				
Intersection Capacity Utilization		123.7%		ICU Level of Service		H
Analysis Period (min)		15				







HCM Unsignalized Intersection Capacity Analysis
31: FM 1101 & Kroesche Ln

02 Build PM.syn
03/09/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	S	T
Traffic Volume (veh/h)	6	9	913	13	27	626
Future Volume (Veh/h)	6	9	913	13	27	626
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	10	992	14	29	680
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1737	999			1006	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1737	999			1006	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	97			96	
cM capacity (veh/h)	92	295			689	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	17	1006	709			
Volume Left	7	0	29			
Volume Right	10	14	0			
cSH	155	1700	689			
Volume to Capacity	0.11	0.59	0.04			
Queue Length 95th (ft)	9	0	3			
Control Delay (s)	31.1	0.0	1.1			
Lane LOS	D		A			
Approach Delay (s)	31.1	0.0	1.1			
Approach LOS	D					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization		64.9%		ICU Level of Service		C
Analysis Period (min)		15				

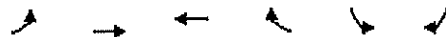
HCM Unsignalized Intersection Capacity Analysis
32: FM 1101 & E Watson Ln

02 Build PM.syn
03/09/2021

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Volume (veh/h)	54	25	18	948	1073	25
Future Volume (Veh/h)	54	25	18	948	1073	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	27	20	1030	1166	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2250	1180	1193			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2250	1180	1193			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	0	88	97			
cM capacity (veh/h)	44	232	585			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	86	1050	1193			
Volume Left	59	20	0			
Volume Right	27	0	27			
cSH	59	585	1700			
Volume to Capacity	1.45	0.03	0.70			
Queue Length 95th (ft)	190	3	0			
Control Delay (s)	390.2	1.2	0.0			
Lane LOS	F	A				
Approach Delay (s)	390.2	1.2	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		14.9				
Intersection Capacity Utilization		75.5%		ICU Level of Service		D
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 33: E Watson Ln & Soechting Ln

02 Build PM.syn
03/09/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←	↑		↘	
Traffic Volume (veh/h)	24	57	51	15	6	4
Future Volume (Veh/h)	24	57	51	15	6	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	62	55	16	7	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	71				177	63
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	71				177	63
IC, single (s)	4.1				6.4	6.2
IC, 2 stage (s)						
IF (s)	2.2				3.5	3.3
p0 queue free %	98				99	100
cM capacity (veh/h)	1529				799	1002
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	88	71	11			
Volume Left	26	0	7			
Volume Right	0	16	4			
cSH	1529	1700	862			
Volume to Capacity	0.02	0.04	0.01			
Queue Length 95th (ft)	1	0	1			
Control Delay (s)	2.3	0.0	9.2			
Lane LOS	A		A			
Approach Delay (s)	2.3	0.0	9.2			
Approach LOS			A			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization		21.0%		ICU Level of Service	A	
Analysis Period (min)		15				

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis 40: Street D (Major Collector East) & Street C (Major Collector East)

02 Build PM.syn
 03/09/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↑	↱	↰	↱
Traffic Volume (veh/h)	70	30	59	145	139	50
Future Volume (Veh/h)	70	30	59	145	139	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	33	64	158	151	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)					4	
Median type		TWLT	TL			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	222				249	64
vC1, stage 1 conf vol					64	
vC2, stage 2 conf vol					185	
vCu, unblocked vol	222				249	64
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
IF (s)	2.2				3.5	3.3
p0 queue free %	94				80	95
cM capacity (veh/h)	1347				770	1000
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	76	33	64	158	205	
Volume Left	76	0	0	0	151	
Volume Right	0	0	0	158	54	
cSH	1347	1700	1700	1700	1046	
Volume to Capacity	0.06	0.02	0.04	0.09	0.20	
Queue Length 95th (ft)	4	0	0	0	18	
Control Delay (s)	7.8	0.0	0.0	0.0	10.3	
Lane LOS	A				B	
Approach Delay (s)	5.5		0.0		10.3	
Approach LOS					B	
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utilization			24.9%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection

Int Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↖			
Traffic Vol, veh/h	0	109	928	100	0	0
Future Vol, veh/h	0	109	928	100	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	118	1009	109	0	0

Major/Minor	Minor1	Major1
Conflicting Flow All	- 559	0 0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	- 6.94	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	- 3.32	-
Pot Cap-1 Maneuver	0 472	-
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	- 472	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s	15.2	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	472
HCM Lane V/C Ratio	-	0.251
HCM Control Delay (s)	-	15.2
HCM Lane LOS	-	C
HCM 95th %ile Q(veh)	-	1

HCM 2010 TWSC
9: IH-35 NBFR & Street E (Minor Collector East)

02 Build PM.syn
03/09/2021

Intersection						
Int Delay, s/veh	72.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗	↗		
Traffic Vol, veh/h	0	272	2830	285	0	0
Future Vol, veh/h	0	272	2830	285	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	145	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	296	3076	310	0	0

Major/Minor	Minor1	Major1
Conflicting Flow All	- 1538	0 0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	- 6.94	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	- 3.32	-
Plat Cap-1 Maneuver	0 ~ 105	-
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	- ~ 105	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s\$ 906.5		0
HCM LOS	F	

Minor Lane/Major Mvmt	NBT	NBRWBLb1
Capacity (veh/h)	-	105
HCM Lane V/C Ratio	-	2.816
HCM Control Delay (s)	-	\$ 906.5
HCM Lane LOS	-	F
HCM 95th %ile Q(veh)	-	27.8

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	251.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗	↗		
Traffic Vol, veh/h	0	530	2637	480	0	0
Future Vol, veh/h	0	530	2637	480	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	145	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	576	2866	522	0	0

Major/Minor	Minor1	Major1
Conflicting Flow All	- 1433	0 0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	- 6.94	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	- 3.32	-
Pot Cap-1 Maneuver	0 ~ 123	-
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	- ~ 123	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-


Approach	WB	NB
HCM Control Delay, s	1728.3	0
HCM LOS	F	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	123
HCM Lane V/C Ratio	-	4.684
HCM Control Delay (s)	-	1728.3
HCM Lane LOS	-	F
HCM 95th %ile Q(veh)	-	60.2

Notes			
-	Volume exceeds capacity	\$	Delay exceeds 300s
+	Computation Not Defined	*	All major volume in platoon

HCM Signalized Intersection Capacity Analysis
5: IH-35 SBFR & Street A (Parkway)

03 Mit AM.syn
03/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑↑	↑
Traffic Volume (vph)	0	370	675	997	571	0	0	0	0	628	65	310
Future Volume (vph)	0	370	675	997	571	0	0	0	0	628	65	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.86	0.86	0.91	0.91					0.91	0.91	1.00
Frt		0.93	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	0.98					0.95	0.96	1.00
Satd. Flow (prot)		4462	1362	1610	3315					1610	3255	1583
Flt Permitted		1.00	1.00	0.95	0.56					0.95	0.96	1.00
Satd. Flow (perm)		4462	1362	1610	1914					1610	3255	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	402	734	1084	621	0	0	0	0	683	71	337
RTOR Reduction (vph)	0	138	284	0	0	0	0	0	0	0	0	223
Lane Group Flow (vph)	0	631	83	564	1141	0	0	0	0	341	413	114
Turn Type		NA	Perm	Prot	NA					Prot	NA	custom
Protected Phases		6		5	5 6					16 8	8	
Permitted Phases			6									16 8
Actuated Green, G (s)		27.1	27.1	38.9	66.0					40.5	40.5	40.5
Effective Green, g (s)		27.1	27.1	38.9	66.0					40.5	40.5	40.5
Actuated g/C Ratio		0.23	0.23	0.32	0.55					0.34	0.34	0.34
Clearance Time (s)		4.5	4.5	4.5							4.5	
Vehicle Extension (s)		3.0	3.0	3.0							3.0	
Lane Grp Cap (vph)		1007	307	521	1506					543	1098	534
v/s Ratio Prot		0.14		c0.35	0.25					c0.21	0.13	
v/s Ratio Perm			0.06		c0.17							0.07
v/c Ratio		0.63	0.27	1.08	0.76					0.63	0.38	0.21
Uniform Delay, d1		41.9	38.3	40.5	20.8					33.4	30.2	28.4
Progression Factor		1.00	1.00	0.65	0.63					1.00	1.00	1.00
Incremental Delay, d2		3.0	2.2	53.7	1.2					2.3	0.2	0.2
Delay (s)		44.8	40.4	80.2	14.3					35.7	30.4	28.6
Level of Service		D	D	F	B					D	C	C
Approach Delay (s)		43.4			36.1			0.0			31.5	
Approach LOS		D			D			A			C	
Intersection Summary												
HCM 2000 Control Delay			37.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			116.1%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 6: IH-35 NBFR & Street A (Parkway)












03 Mit AM.syn
03/09/2021

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗			↖↗↘	↖	↖	↖↗	↖			
Traffic Volume (vph)	401	597	0	0	814	700	754	63	739	0	0	0
Future Volume (vph)	401	597	0	0	814	700	754	63	739	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	0.91	0.91			0.86	0.86	0.91	0.86	0.91			
Frt	1.00	1.00			0.95	0.85	1.00	0.93	0.85			
Flt Protected	0.95	0.99			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	1610	3371			4589	1362	1610	2911	1441			
Flt Permitted	0.95	0.57			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	1610	1943			4589	1362	1610	2911	1441			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	436	649	0	0	885	761	820	68	803	0	0	0
RTOR Reduction (vph)	0	0	0	0	65	271	0	142	326	0	0	0
Lane Group Flow (vph)	353	732	0	0	1201	109	443	705	75	0	0	0
Turn Type	Prot	NA			NA	Perm	Prot	NA	Perm			
Protected Phases	1	1 2			2		12 4	4				
Permitted Phases						2			4			
Actuated Green, G (s)	31.0	65.4			34.4	34.4	41.1	41.1	22.5			
Effective Green, g (s)	31.0	65.4			34.4	34.4	41.1	41.1	22.5			
Actuated g/C Ratio	0.26	0.55			0.29	0.29	0.34	0.34	0.19			
Clearance Time (s)	4.5				4.5	4.5		4.5	4.5			
Vehicle Extension (s)	3.0				3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	415	1427			1315	390	551	997	270			
v/s Ratio Prot	c0.22	0.13			c0.26		c0.28	0.24				
v/s Ratio Perm		0.15				0.08			0.05			
v/c Ratio	0.85	0.51			0.91	0.28	0.80	0.71	0.28			
Uniform Delay, d1	42.3	17.2			41.4	33.2	35.8	34.2	41.8			
Progression Factor	0.61	0.56			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	13.1	0.3			9.9	0.4	8.3	2.3	0.6			
Delay (s)	38.7	9.9			51.2	33.6	44.1	36.5	42.4			
Level of Service	D	A			D	C	D	D	D			
Approach Delay (s)		19.3			47.1			39.9			0.0	
Approach LOS		B			D			D			A	
Intersection Summary												
HCM 2000 Control Delay		37.5			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		116.1%			ICU Level of Service			H				
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: FM 1101 & Kohlenburg

03 Mit AM.syn
03/09/2021

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	107	205	175	439	514	152
Future Volume (vph)	107	205	175	439	514	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1805	
Flt Permitted	0.95	1.00	0.27	1.00	1.00	
Satd. Flow (perm)	1770	1583	506	1863	1805	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	223	190	477	559	165
RTOR Reduction (vph)	0	177	0	0	16	0
Lane Group Flow (vph)	116	46	190	477	708	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	8.7	8.7	24.4	24.4	24.4	
Effective Green, g (s)	8.7	8.7	24.4	24.4	24.4	
Actuated g/C Ratio	0.21	0.21	0.58	0.58	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	365	327	293	1079	1046	
v/s Ratio Prot	c0.07			0.26	c0.39	
v/s Ratio Perm		0.03	0.38			
v/c Ratio	0.32	0.14	0.65	0.44	0.68	
Uniform Delay, d1	14.2	13.6	6.0	5.0	6.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.2	4.9	0.3	1.8	
Delay (s)	14.7	13.8	10.8	5.3	7.9	
Level of Service	B	B	B	A	A	
Approach Delay (s)	14.1			6.9	7.9	
Approach LOS	B			A	A	
Intersection Summary						
HCM 2000 Control Delay	8.7			HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio	0.58					
Actuated Cycle Length (s)	42.1			Sum of lost time (s)		9.0
Intersection Capacity Utilization	63.2%			ICU Level of Service		B
Analysis Period (min)	15					
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗	↗		
Traffic Vol, veh/h	0	208	1717	104	0	0
Future Vol, veh/h	0	208	1717	104	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	145	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	226	1866	113	0	0













Major/Minor	Minor1	Major1
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	0	0
Stage 1	0	0
Stage 2	0	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	0
HCM Lane LOS	-	A
HCM 95th %ile Q(veh)	-	-

HCM Signalized Intersection Capacity Analysis 29: FM 1101 & Kohlenburg

04 Mit PM.syn
03/09/2021

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	140	272	318	603	537	191
Future Volume (vph)	140	272	318	603	537	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1797	
Flt Permitted	0.95	1.00	0.10	1.00	1.00	
Satd. Flow (perm)	1770	1583	191	1863	1797	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	296	346	655	584	208
RTOR Reduction (vph)	0	249	0	0	15	0
Lane Group Flow (vph)	152	47	346	655	777	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	11.4	11.4	51.6	51.6	34.6	
Effective Green, g (s)	11.4	11.4	51.6	51.6	34.6	
Actuated g/C Ratio	0.16	0.16	0.72	0.72	0.48	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	280	250	411	1335	863	
v/s Ratio Prot	c0.09		c0.15	0.35	0.43	
v/s Ratio Perm		0.03	c0.46			
v/c Ratio	0.54	0.19	0.84	0.49	0.90	
Uniform Delay, d1	27.9	26.3	19.5	4.5	17.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	0.4	14.4	0.3	12.4	
Delay (s)	30.0	26.6	33.9	4.7	29.6	
Level of Service	C	C	C	A	C	
Approach Delay (s)	27.8			14.8	29.6	
Approach LOS	C			B	C	
Intersection Summary						
HCM 2000 Control Delay			22.6	HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			72.0	Sum of lost time (s)		13.5
Intersection Capacity Utilization			76.5%	ICU Level of Service		D
Analysis Period (min)			15			

c Critical Lane Group

HCM 2010 TWSC
8: IH-35 NBFR & Street F (Major Collector East)

04 Mit PM.syn
03/09/2021

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		
Traffic Vol, veh/h	0	530	2637	480	0	0
Future Vol, veh/h	0	530	2637	480	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	-	0	-	145	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	576	2866	522	0	0

Major/Minor	Minor1	Major1
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	0	0
Stage 1	0	0
Stage 2	0	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s	0	0
HCM LOS	A	

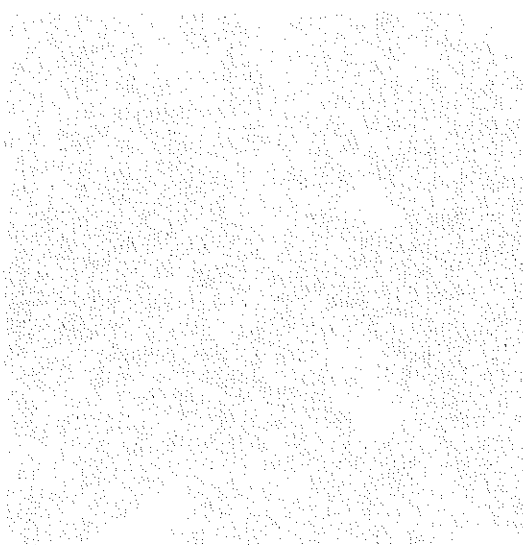
Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	0
HCM Lane LOS	-	A
HCM 95th %ile Q(veh)	-	-

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗	↗		
Traffic Vol, veh/h	0	272	2830	285	0	0
Future Vol, veh/h	0	272	2830	285	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	145	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	296	3076	310	0	0

Major/Minor	Minor1	Major1
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	0	0
Stage 1	0	0
Stage 2	0	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	0
HCM Lane LOS	-	A
HCM 95th %ile Q(veh)	-	-

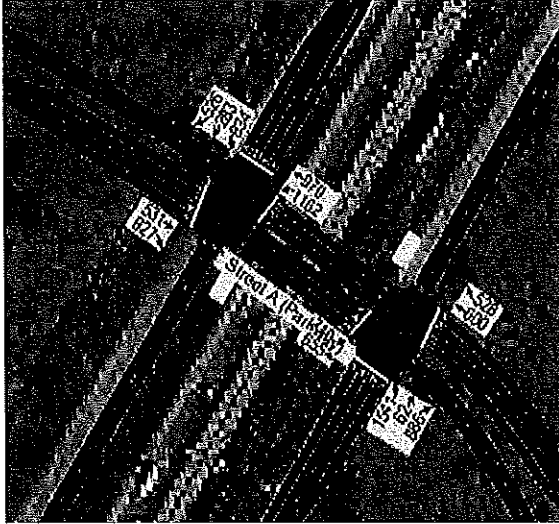


APPENDIX H

Mitigation Summary

GLO TRACT Appendix H Mitigation Summary

1. IH-35 SBFR at Street A & IH-35 NBFR at Street A
Convert the EB approach from T-T-T-R to T-T-TR-R will help reduce delay but not fully mitigate. This intersection is considered fully built-out.



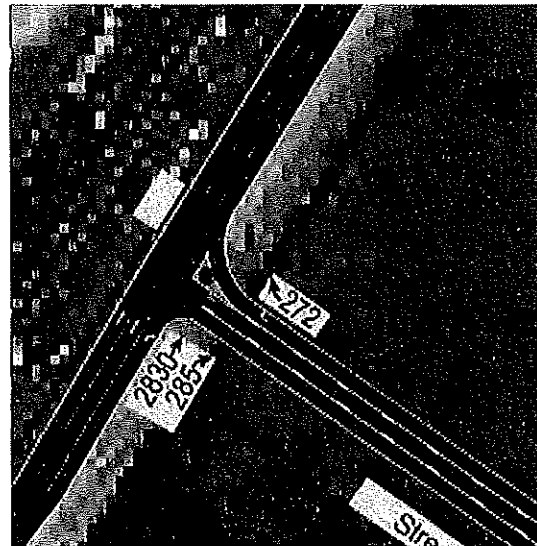
2. IH-35 NBFR at Watson Ln E An acceleration Lane is recommended, because it will help WB right-turn volume delay.



3. IH-35 NBFR at Street F An acceleration Lane is recommended, because it will help WB right-turn volume delay.



4. IH-35 NBFR at Street E An acceleration Lane is recommended, because it will help WB right-turn volume delay.

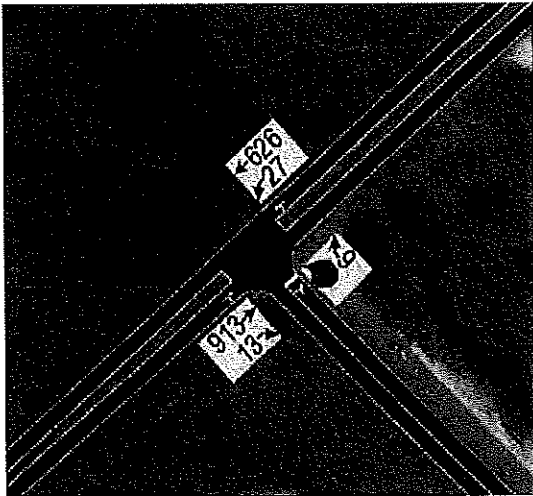


GLO TRACT Appendix H Mitigation Summary

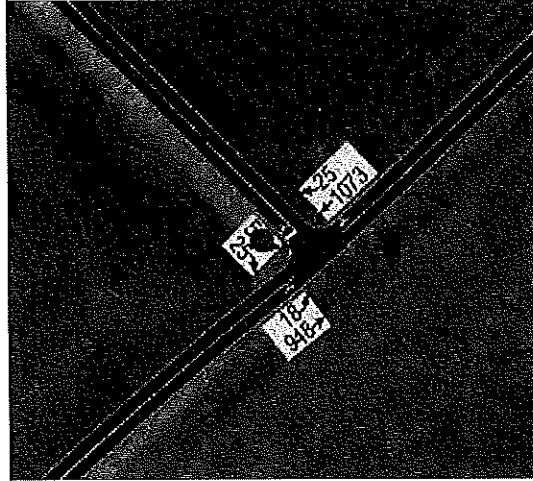
5. **FM 1101 at Kohlenberg Rd** Signalization is recommended, and it is likely to meet warrants. Additionally, it is recommended to install NB left-turn lane and EB right-turn lane.



6. **FM 1101 at Kroesche Ln** No Improvements recommended. Signalization will help but it is unlikely to meet warrants.



7. **FM 1101 at Watson Ln E** No Improvements recommended. Right-turn and left-turn lanes were tried, but the delay did not improve. Signalization will help but it is unlikely to meet warrants.



APPENDIX I

Detailed Cost Estimate

GLO TRACT
OPINION OF PROBABLE CONSTRUCTION COST
SUMMARY

January 24, 2020

		N/A LOTS 2315 ACRE	
I.	PHASE 1	\$	44,794,800
II.	PHASE 2	\$	38,553,750
III.	PHASE 3	\$	42,516,650
IV.	PHASE 4	\$	16,975,150
V.	PHASE 5	\$	483,000
VI.	OFFSITE STREET IMPROVEMENTS	\$	17,796,250
PROJECT TOTAL:			\$161,119,600

UNIT COST ANALYSIS:

Cost per Lot =	N/A	<input checked="" type="checkbox"/>	NO DESIGN COMPLETED
Cost per Acre =	\$69,598	<input type="checkbox"/>	PRELIMINARY DESIGN
		<input type="checkbox"/>	FINAL DESIGN
		<input type="checkbox"/>	OTHER

PREPARED BY: Pape-Dawson Engineers, Inc.
DATE: 1/24/2020
JOB NO.: 30002-00
DOC ID: P:\300\02\00\Excel\Cost Estimates\OPC January 2020

**GLO TRACT - PHASE 1
PUBLIC STREET IMPROVEMENTS**

(INCLUDES COLLECTORS, MINOR AND MAJOR ARTERIALS, OFFSITE/MAJOR DRAINAGE)

STREET C - ROW VARIES (60'-90' ROW)			
4,925 lf ~ Major Collector w/divided 4 lanes and 2,650 lf ~ Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street C (Major Collector)	4,000	5	\$ 3,788,000
Street C (Minor Collector)	2,700	4	\$ 2,045,000
Right Turn Decel Lane at Street D			\$ 75,000
Right Turn Decel Lane at Street A (2)			\$ 150,000
Right Turn Decel Lane at Street B			\$ 75,000
Traffic Signal at Street C/Street B Intersection			\$ 300,000
Traffic Signal at Street C/Street D Intersection			\$ 300,000
Subtotal Streets			\$ 6,733,000
OTHER	LF	Cost/LF	Other Cost Summary
12" Water	4,800	\$ 100	\$ 480,000
24" Water	2,100	\$ 180	\$ 378,000
Culvert Crossing #10			\$ 105,000
Subtotal Other			\$ 963,000
Engineering			\$ 769,600
Contingency (5%)			\$ 384,800
TOTAL STREET C COST			\$ 8,850,400

STREET D (90' ROW)			
Major Collector w/divided 4 lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street D	1,000	5	\$ 947,000
Right Turn Decel Lane at Street C			\$ 75,000
Right Turn Decel Lane at IH35			\$ 75,000
Subtotal Streets			\$ 1,097,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water	300	\$ 100	\$ 30,000
24" Water	700	\$ 180	\$ 126,000
Subtotal Other			\$ 156,000
Engineering			\$ 125,300
Contingency (5%)			\$ 62,650
TOTAL STREET D COST			\$ 1,440,950

STREET B (100' ROW)			
4 Lane Minor Arterial w/median			
STREET	LF	No. of Lanes	Street Cost Summary
Street B	1,400	5	\$ 1,326,000
Right Turn Decel Lane at Street C			\$ 75,000
Right Turn Decel Lane at Street A			\$ 75,000
<i>Subtotal Streets</i>			\$ 1,476,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water	1,400	100	\$ 140,000
Culvert Crossing #4			\$ 105,000
<i>Subtotal Other</i>			\$ 245,000
Engineering			\$ 172,100
Contingency (5%)			\$ 86,050
TOTAL STREET B COST			\$ 1,979,150

STREET A (200' ROW)			
4 lane Half-Parkway			
STREET	LF	No. of Lanes	Street Cost Summary
Street A	2,900	5	\$ 2,746,000
Right Turn Decel Lane at Street B			\$ 75,000
Right Turn Decel Lane at FM1101 (2)			\$ 150,000
Traffic Signal at FM1101			\$ 300,000
<i>Subtotal Streets</i>			\$ 3,271,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water	2,900	100	\$ 290,000
<i>Subtotal Other</i>			\$ 290,000
Engineering			\$ 356,100
Contingency (5%)			\$ 178,050
TOTAL STREET A COST			\$ 4,095,150

PHASE 1 OFFSITE WATER, DETENTION AND SEWER IMPROVMENTS			
DETENTION			
Detention Basin 1		\$	225,000
Detention Basin 2		\$	375,000
Detention Basin 3		\$	135,000
Detention Basin 4		\$	8,000,000
Detention Basin 10		\$	345,000
<i>Subtotal Detention</i>		\$	<i>9,080,000</i>
OFFSITE WATER		LF	Cost/LF
24" Water (Off-site to EST)	6,800	\$	180
Elevated Storage Tank		\$	5,000,000
<i>Subtotal Offsite Water</i>		\$	<i>6,224,000</i>
OFFSITE SEWER		LF	Cost/LF
8" Sewer Main	8,000	\$	80
10" Sewer Main	900	\$	100
12" Sewer Main	3,100	\$	120
24" Sewer Main	300	\$	250
30" Sewer Main	4,800	\$	300
Lift Station #3		\$	1,300,000
Wastewater Treatment Plant (Phase 1A)		\$	5,500,000
<i>Subtotal Offsite Sewer</i>		\$	<i>9,417,000</i>
Engineering		\$	2,472,100
Contingency (5%)		\$	1,236,050
TOTAL PHASE 1 OFFSITE IMPROVEMENTS		\$	28,429,150
TOTAL PHASE 1 IMPROVEMENTS		\$	44,794,800

**GLO TRACT - PHASE 2
PUBLIC STREET IMPROVEMENTS**

(INCLUDES COLLECTORS, MINOR AND MAJOR ARTERIALS, OFFSITE/MAJOR DRAINAGE
IMPROVEMENTS, WATER MAINS)

STREET E (60' ROW)			
Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street E	1,800	4	\$ 1,364,000
Right Turn Decel Lane at Street D			\$ 75,000
Right Turn Decel Lane at Street B			\$ 75,000
Traffic Signal at Street D/Street E			\$ 300,000
Traffic Signal at Street B/Street E			\$ 300,000
<i>Subtotal Streets</i>			\$ 2,114,000
Engineering			\$ 211,400
Contingency (5%)			\$ 105,700
TOTAL STREET E COST			\$ 2,431,100

STREET D (60' ROW)			
Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street D	1,400	4	\$ 1,061,000
Right Turn Decel Lane at Street E			\$ 75,000
<i>Subtotal Streets</i>			\$ 1,136,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water	1,400	\$ 100	\$ 140,000
Culvert #5			\$ 150,000
<i>Subtotal Other</i>			\$ 290,000
Engineering			\$ 142,600
Contingency (5%)			\$ 71,300
TOTAL STREET D COST			\$ 1,639,900

STREET B (100' ROW)			
4 Lane Minor Arterial w/median			
STREET	LF	No. of Lanes	Street Cost Summary
Street B	6,900	5	\$ 6,534,000
Right Turn Decel Lane at Street E			\$ 75,000
Right Turn Decel Lane at Street A			\$ 75,000
Traffic Signal at Street A			\$ 300,000
Subtotal Streets			\$ 6,984,000
OTHER	LF	Cost/LF	Water Cost Summary
16" Water	5,000	140	\$ 700,000
Culvert #6			\$ 365,000
Culvert #9			\$ 185,000
Subtotal Other			\$ 1,250,000
Engineering			\$ 823,400
Contingency (5%)			\$ 411,700
TOTAL STREET B COST			\$ 9,469,100

STREET F (60' ROW)			
Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street F	2,400	4	\$ 1,818,000
Right Turn Decel Lane at IH35			\$ 125,000
Subtotal Streets			\$ 1,943,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water	2,400	100	\$ 240,000
12" Water bore across IH35	500	1000	\$ 500,000
Subtotal Other			\$ 740,000
Engineering			\$ 268,300
Contingency (5%)			\$ 134,150
TOTAL STREET F COST			\$ 3,085,450

STREET A (200' ROW)			
4 lane Half-Parkway			
STREET	LF	No. of Lanes	Street Cost Summary
Right Turn Decel Lane at FM1102			\$ 75,000
Subtotal Streets			\$ 75,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water adjacent to Hunter Road	5,000	100	\$ 500,000
Subtotal Other			\$ 500,000
Engineering			\$ 57,500
Contingency (5%)			\$ 28,750
TOTAL STREET A COST			\$ 661,250

PHASE 2 OFFSITE WATER, DETENTION AND SEWER IMPROVMENTS			
DETENTION			
Detention Basin 5		\$	535,000
Detention Basin 6		\$	8,000,000
<i>Subtotal Detention</i>		\$	8,535,000
OFFSITE SEWER	LF	Cost/LF	Sewer Cost Summary
8" Sewer Main	6,800	\$ 80	\$ 544,000
10" Sewer Main	3,800	\$ 100	\$ 380,000
12" Sewer Main	7,200	\$ 120	\$ 864,000
15" Sewer Main	5,300	\$ 150	\$ 795,000
24" Sewer Main	2,300	\$ 250	\$ 575,000
Lift Station #2			\$ 2,300,000
Wastewater Treatment Plant (Phase 1B)			\$ 4,500,000
<i>Subtotal Offsite Sewer</i>		\$	9,958,000
Engineering		\$	1,849,300
Contingency (5%)		\$	924,650
TOTAL PHASE 2 OFFSITE IMPROVEMENTS		\$	21,266,950
TOTAL PHASE 2 IMPROVEMENTS		\$	38,553,750

**GLO TRACT - PHASE 3
PUBLIC STREET IMPROVEMENTS**

(INCLUDES COLLECTORS, MINOR AND MAJOR ARTERIALS, OFFSITE/MAJOR DRAINAGE
IMPROVEMENTS, WATER MAINS)

STREET A (200' ROW)			
12,000 lf ~ 4 lane half Parkway and 2,600 lf ~ Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street A (4 lane half Parkway)	12,000	5	\$ 11,364,000
Street A (Minor Collector)	2,600	4	\$ 1,970,000
Right Turn Decel Lane at IH35 (2)			\$ 250,000
Right Turn Decel Lane at Street C (2)			\$ 150,000
Right Turn Decel Lane at Street B			\$ 75,000
Right Turn Decel Lane at Street F			\$ 75,000
Right Turn Decel Lane at Street G (2)			\$ 150,000
Traffic Signal at Street C			\$ 300,000
Traffic Signal at IH35			\$ 600,000
Traffic Signal at Street F			\$ 300,000
Traffic Signal at Street G			\$ 300,000
Subtotal Streets			\$ 15,534,000
OTHER	LF	Cost/LF	Water Cost Summary
24" Water	15,000	\$ 180	\$ 2,700,000
24" Water bore across IH35	500	\$ 1,200	\$ 600,000
Culvert #11			\$ 350,000
Culvert #1			\$ 1,290,000
Culvert #12			\$ 206,000
Culvert #13			\$ 475,000
Subtotal Other			\$ 5,621,000
Engineering			\$ 2,115,500
Contingency (5%)			\$ 1,057,750
TOTAL STREET A COST			\$ 24,328,250

STREET G (100' ROW)			
4 Lane Minor Arterial w/median			
STREET	LF	No. of Lanes	Street Cost Summary
Street G	2,200	5	\$ 2,083,000
Right Turn Decel Lane at Street A			\$ 75,000
Subtotal Streets			\$ 2,158,000
OTHER	LF	Cost/LF	Water Cost Summary
16" Water	2,400	180	\$ 432,000
Culvert #7			\$ 290,000
Subtotal Other			\$ 722,000
Engineering			\$ 288,000
Contingency (5%)			\$ 144,000
TOTAL STREET G COST			\$ 3,312,000

HCM 2010 TWSC
8: IH-35 NBFR & Street F (Major Collector East)

03 Mit AM.syn
03/09/2021

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		
Traffic Vol, veh/h	0	158	1756	148	0	0
Future Vol, veh/h	0	158	1756	148	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	-	0	-	145	-	-
Veh In Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	172	1909	161	0	0


Major/Minor	Minor1	Major1
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	0	0
Stage 1	0	0
Stage 2	0	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	NB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)		
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	0
HCM Lane LOS	-	A
HCM 95th %ile Q(veh)	-	-

HCM Signalized Intersection Capacity Analysis 5: IH-35 SBFR & Street A (Parkway)

04 Mit PM.syn
03/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑↑	↑
Traffic Volume (vph)	0	531	927	1162	979	0	0	0	0	834	283	526
Future Volume (vph)	0	531	927	1162	979	0	0	0	0	834	283	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.86	0.86	0.91	0.91					0.91	0.91	1.00
Frt		0.93	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	0.98					0.95	0.97	1.00
Satd. Flow (prot)		4470	1362	1610	3337					1610	3292	1583
Flt Permitted		1.00	1.00	0.95	0.54					0.95	0.97	1.00
Satd. Flow (perm)		4470	1362	1610	1839					1610	3292	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	577	1008	1263	1064	0	0	0	0	907	308	572
RTOR Reduction (vph)	0	131	136	0	0	0	0	0	0	0	0	278
Lane Group Flow (vph)	0	950	368	758	1569	0	0	0	0	453	762	294
Turn Type		NA	Perm	Prot	NA					Prot	NA	custom
Protected Phases		6		5	5 6					16 8	8	
Permitted Phases			6									16 8
Actuated Green, G (s)		33.5	33.5	32.5	66.0					40.5	40.5	40.5
Effective Green, g (s)		33.5	33.5	32.5	66.0					40.5	40.5	40.5
Actuated g/C Ratio		0.28	0.28	0.27	0.55					0.34	0.34	0.34
Clearance Time (s)		4.5	4.5	4.5							4.5	
Vehicle Extension (s)		3.0	3.0	3.0							3.0	
Lane Grp Cap (vph)		1247	380	436	1417					543	1111	534
v/s Ratio Prot		0.21		c0.47	0.30					c0.28	0.23	
v/s Ratio Perm			0.27		c0.31							0.19
v/c Ratio		0.91dr	0.97	1.74	1.11					0.83	0.69	0.55
Uniform Delay, d1		39.6	42.7	43.8	27.0					36.7	34.3	32.3
Progression Factor		1.00	1.00	0.89	0.89					1.00	1.00	1.00
Incremental Delay, d2		4.4	39.2	333.2	49.4					10.6	1.8	1.2
Delay (s)		44.0	81.9	372.2	73.4					47.3	36.0	33.6
Level of Service		D	F	F	E					D	D	C
Approach Delay (s)		56.1			170.7			0.0			38.1	
Approach LOS		E			F			A			D	
Intersection Summary												
HCM 2000 Control Delay			97.3			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			139.6%			ICU Level of Service			H			
Analysis Period (min)			15									
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
6: IH-35 NBFR & Street A (Parkway)

04 Mit PM.syn
03/09/2021

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗			↖↗↘	↖	↖	↖↗	↖			
Traffic Volume (vph)	710	655	0	0	600	528	1541	62	886	0	0	0
Future Volume (vph)	710	655	0	0	600	528	1541	62	886	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	0.91	0.91			0.86	0.86	0.91	0.86	0.91			
Frt	1.00	1.00			0.95	0.85	1.00	0.96	0.85			
Flt Protected	0.95	0.99			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1610	3342			4586	1362	1610	2966	1441			
Flt Permitted	0.95	0.67			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1610	1943			4586	1362	1610	2966	1441			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	772	712	0	0	652	574	1675	67	963	0	0	0
RTOR Reduction (vph)	0	0	0	0	66	234	0	31	324	0	0	0
Lane Group Flow (vph)	486	998	0	0	873	53	837	1250	263	0	0	0
Turn Type	Prot	NA			NA	Perm	Prot	NA	Perm			
Protected Phases	1	1 2			2		12 4	4				
Permitted Phases						2			4			
Actuated Green, G (s)	30.0	52.3			22.3	22.3	54.2	54.2	28.2			
Effective Green, g (s)	30.0	52.3			22.3	22.3	54.2	54.2	28.2			
Actuated g/C Ratio	0.25	0.44			0.19	0.19	0.45	0.45	0.23			
Clearance Time (s)	4.5				4.5	4.5		4.5	4.5			
Vehicle Extension (s)	3.0				3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	402	1196			852	253	727	1339	338			
v/s Ratio Prot	c0.30	0.21			c0.19		c0.52	0.42				
v/s Ratio Perm		0.15				0.04			0.18			
v/c Ratio	1.21	0.83			1.02	0.21	1.15	1.11dl	0.78			
Uniform Delay, d1	45.0	30.0			48.9	41.4	32.9	31.2	43.0			
Progression Factor	0.83	0.82			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	107.9	3.3			37.3	0.4	83.5	12.0	10.7			
Delay (s)	145.5	27.8			86.1	41.8	116.4	43.2	53.7			
Level of Service	F	G			F	D	F	D	D			
Approach Delay (s)		66.3				75.7		68.1			0.0	
Approach LOS		E				E		E			A	
Intersection Summary												
HCM 2000 Control Delay		69.4					HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio		1.17										
Actuated Cycle Length (s)		120.0					Sum of lost time (s)		18.0			
Intersection Capacity Utilization		139.6%					ICU Level of Service		H			
Analysis Period (min)		15										
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

PHASE 3 OFFSITE WATER, DETENTION AND SEWER IMPROVMENTS			
DETENTION			
Detention Basin 8		\$	560,000
Detention Basin 9		\$	310,000
Detention Basin 7		\$	350,000
<i>Subtotal Detention</i>		\$	<i>1,220,000</i>
OFFSITE WATER	LF	Cost/LF	Water Cost Summary
12" Water adjacent to IH35	3,200	\$ 100	\$ 320,000
<i>Subtotal Offsite Water</i>		\$	<i>320,000</i>
OFFSITE SEWER	LF	Cost/LF	Sewer Cost Summary
8" Sewer Main	200	\$ 80	\$ 16,000
10" Sewer Main	3,000	\$ 100	\$ 300,000
15" Sewer Main	2,000	\$ 150	\$ 300,000
18" Sewer Main	900	\$ 200	\$ 180,000
Lift Station #1			\$ 1,600,000
Wastewater Treatment Plant (Phase 2)			\$ 9,000,000
<i>Subtotal Offsite Sewer</i>		\$	<i>11,396,000</i>
Engineering		\$	<i>1,293,600</i>
Contingency (5%)		\$	<i>646,800</i>
TOTAL PHASE 3 OFFSITE IMPROVEMENTS		\$	14,876,400
TOTAL PHASE 3 IMPROVEMENTS		\$	42,516,650

**GLO TRACT - PHASE 4
PUBLIC STREET IMPROVEMENTS**

(INCLUDES COLLECTORS, MINOR AND MAJOR ARTERIALS, OFFSITE/MAJOR DRAINAGE
IMPROVEMENTS, WATER MAINS)

STREET D (60' ROW)			
Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street D	3,300	4	\$ 2,500,000
Right Turn Decel Lane at Street B			\$ 75,000
Right Turn Decel Lane at Street E			\$ 75,000
Traffic Signal at Street B			\$ 300,000
Subtotal Streets			\$ 2,950,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water	3,300	\$ 100	\$ 330,000
Subtotal Other			\$ 330,000
Engineering			\$ 328,000
Contingency (5%)			\$ 164,000
TOTAL STREET D COST			\$ 3,772,000

STREET E (60' ROW)			
Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street E	825	4	\$ 625,000
Right Turn Decel Lane at IH35			\$ 75,000
Subtotal Streets			\$ 700,000
Engineering			\$ 70,000
Contingency (5%)			\$ 35,000
TOTAL STREET E COST			\$ 805,000

STREET F (60' ROW)			
Minor Collector w/3 lanes and bike lanes			
STREET	LF	No. of Lanes	Street Cost Summary
Street F	2,000	4	\$ 1,515,000
Right Turn Decel Lane at Street A			\$ 75,000
Subtotal Streets			\$ 1,590,000
OTHER	LF	Cost/LF	Water Cost Summary
12" Water	2,000	100	\$ 200,000
Culvert #8			\$ 105,000
Subtotal Other			\$ 305,000
Engineering			\$ 189,500
Contingency (5%)			\$ 94,750
TOTAL STREET F COST			\$ 2,179,250

STREET B (100' ROW) 4 Lane Minor Arterial w/median			
STREET	LF	No. of Lanes	Street Cost Summary
Street B	1,000	5	\$ 947,000
Right Turn Decel Lane at Kohlenberg			\$ 75,000
Traffic Signal at Kohlenberg			\$ 300,000
		<i>Subtotal Streets</i>	\$ 1,322,000
Engineering			\$ 132,200
Contingency (5%)			\$ 66,100
TOTAL STREET B COST			\$ 1,520,300

STREET G (100' ROW) 4 Lane Minor Arterial w/median			
STREET	LF	No. of Lanes	Street Cost Summary
Street G	3,900	5	\$ 3,693,000
Right Turn Decel Lane at Street A			\$ 75,000
		<i>Subtotal Streets</i>	\$ 3,768,000
OTHER	LF	Cost/LF	Water Cost Summary
16" Water	3,900	140	\$ 546,000
Culvert #2			\$ 250,000
Culvert #3 (Existing Goodwin Lane)			\$ 540,000
		<i>Subtotal Other</i>	\$ 1,336,000
Engineering			\$ 510,400
Contingency (5%)			\$ 255,200
TOTAL STREET A COST			\$ 5,869,600

PHASE 4 OFFSITE WATER, DETENTION AND SEWER IMPROVEMENTS			
DETENTION			
Detention Basin 11			\$ 220,000
		<i>Subtotal Detention</i>	\$ 220,000
OFFSITE WATER	LF	Cost/LF	Water Cost Summary
12" Water adjacent to IH35	3,800	\$ 100	\$ 380,000
		<i>Subtotal Offsite Water</i>	\$ 380,000
OFFSITE SEWER	LF	Cost/LF	Sewer Cost Summary
8" Sewer Main	6,800	\$ 80	\$ 544,000
10" Sewer Main	1,400	\$ 100	\$ 140,000
12" Sewer Main	3,000	\$ 120	\$ 360,000
Lift Station #4			\$ 816,000
		<i>Subtotal Offsite Sewer</i>	\$ 1,860,000
Engineering			\$ 246,000
Contingency (5%)			\$ 123,000
TOTAL PHASE 4 OFFSITE IMPROVEMENTS			\$ 2,829,000
TOTAL PHASE 4 IMPROVEMENTS			\$ 16,975,150

**GLO TRACT - PHASE 5
PUBLIC STREET IMPROVEMENTS**

(INCLUDES COLLECTORS, MINOR AND MAJOR ARTERIALS, OFFSITE/MAJOR DRAINAGE
IMPROVEMENTS, WATER MAINS)

PHASE 5 OFFSITE WATER, DETENTION AND SEWER IMPROVMENTS			
DETENTION			
Detention Basin #12		\$	420,000
<i>Subtotal Detention</i>		\$	420,000
Engineering		\$	42,000
Contingency (5%)		\$	21,000
TOTAL PHASE 5 OFFSITE IMPROVEMENTS		\$	483,000
TOTAL PHASE 5 IMPROVEMENTS		\$	483,000

GLO TRACT - OFFSITE STREET IMPROVEMENTS
PUBLIC STREET IMPROVEMENTS

(INCLUDES OFFSITE STREET IMPROVEMENTS BASED ON PRELIMINARY TIA)

OFFSITE STREET IMPROVEMENTS		
FM1101		
Assumes improving approx. 3,700 lf FM1101 to a Minor Arterial along the GLO East frontage.	\$	5,960,000
KOHLBERG		
Assumes improving approx. 3,100 lf Kohlenberg to a Minor Arterial along the GLO East frontage.	\$	4,990,000
KOHLBERG/FM1101 INTERSECTION		
Assumes improving the Kohlenberg/FM1101 intersection to include a traffic signal, dual left-turns and right turn lanes in all directions.	\$	1,100,000
FM1101/STREET A INTERSECTION		
Assumes adding dual left-turns and right turn lanes on FM1101	\$	500,000
STREET B EXTENSION		
Assumes construction of approx. 1,400 lf ~ half of a Minor Arterial (3 lanes)	\$	795,000
STREET G EXTENSION		
Assumes improving approx. 2,200 lf Street G (Goodwin Lane) to half of a Minor Arterial (3 lanes) along the GLO West frontage.	\$	2,130,000
Subtotal Offsite Street		\$ 15,475,000
Engineering	\$	1,547,500
Contingency (5%)	\$	773,750
TOTAL OFFSITE STREET IMPROVEMENTS		\$ 17,796,250

**GLO TRACT
OPINION OF PROBABLE COST
NOTES**

January 24, 2020

Below is a summary of notes, assumptions and exclusions related to the GLO Tract site planning and cost estimates:

GENERAL

- These estimates exclude any internal improvements to the multi-family, single family, or commercial pods.
- Estimates based on land plan dated 12/22/19.
- Estimates include phasing provided by SouthStar.
- Costs were based on average construction costs for similar project in the area.
- Costs do not include permitting fees, platting fees, or other soft costs.
- Estimates do not include any landscaping, trees or fencing.
- Estimates do not include inflation of construction costs over time.

WATER

- Estimates assume that New Braunfels Utilities will be the water provider.
- Impact Fees were not included in the cost estimates.
- This cost estimate does not include any offsite water improvements. NBU is currently researching offsite infrastructure requirements and costs.
- Two tanks will be required to serve the GLO Tract: the onsite 1.4 MG Kohlenberg elevated storage tank and the offsite 2.0 MG Goodwin elevated storage tank.
- Estimates exclude the future NBU Goodwin elevated storage tank.
- Estimates include the total cost of the Kohlenberg 1.4 MG elevated storage tank to be located on GLO – East. Cost sharing will be negotiated.
- Water main sizes are estimates provided by Pape-Dawson. No water modelling has been conducted at this time.

SEWER

- Estimates include a total fee of \$19,000,000 for the wastewater sewer treatment plan provided by Integrated Water Services. Phasing of the plant, and flows for each phase, was provided by Integrated Water Services and assumed constructing the plant in three phases. Flows for each phase of the plant were provided by Integrated Water Services.
- Maximum sewer depth was assumed to be 20 ft when determining location of lift stations.

STREETS

- Bike lanes were excluded from these estimates with the exception of Minor Collectors. All other street sections assume joint use paths.
- Proposed right-of-way widths were estimated based on the preliminary Traffic Impact Analysis. Number of lanes assumed for this OPC do not include oversizing by the City and/or County.
- These estimates exclude cost sharing for adjacent road improvements by the City and/or County.
- External traffic improvements have been excluded from this estimate since preparation of the Traffic Impact Analysis is ongoing and has not yet been completed. Once the TIA is complete, the estimates will need to be updated to include the required offsite improvements.
- Estimates exclude any slope, retaining wall, drainage improvements at the IH 35 intersection. Further coordination is required with TxDOT to determine what additional improvements may be required for the addition of a turnaround lane.
- For the proposed streets, an estimate of 1.0 million/lane/mile was used to estimate the collector and arterial type roads. As directed by SouthStar, these estimates include a 5% contingency.
- Except where noted, proposed improvements to existing offsite and adjacent roads were not included. These estimates exclude any reconstruction of existing streets (Goodwin Lane and Woods Path).
- If required, turn lanes and signals were included at proposed intersections with existing streets.
- Street estimates do include a separate line item for engineering which was assumed to be 10% of construction cost.

FLOODPLAIN/DRAINAGE

- Detention basins were sized using an estimate of 0.3 acre-ft/acre for the contributing watershed.
- Basin areas were calculated assuming an average depth of 3 ft.
- Basin quantities assumed 50% excavation and 50% embankment based on the required volume.

- There are no existing models or hydrology for the existing FEMA floodplain. A FEMA LOMR will need to be prepared with the first unit to determine the limits of the floodplain.
- Existing contours shown are based on aerial topography. Field survey will be required for the flood study to determine the actual limits of the floodplain.
- Bridge sizing was based on \$100/sf of required area which includes contingency. No additional aesthetics or facades are included in this assumption.
- Detention Basins 4 and 6 will be regulated dams. Further evaluation and pricing is required.

END OF NOTES

APPENDIX J

New Braunfels Scoping Meeting



Conference Memo

PROJECT: GLO New Braunfels DATE: 11/7/2019

CONFERENCE LOCATION: City of New Braunfels (Landa-Public Works Conference Room) CONFERENCE DATE: 11/7/2019

PURPOSE OF MEETING: Traffic Study Scoping Meeting

ATTENDEES: Jim (SouthStar), Trey Marsh (Bitterblue), Todd Blackmon, Garry Ford, Mary Hamman, Mathew (Planning)

FROM: Justin Clark, P.E. PTOE PROJECT NO.: N/A

CC: All Attendees

DISCUSSION:

- Parkway is planned to go out to SH 130 and a gateway
 - One alignment uses FM 1101
 - One alignment goes to FM 758
 - Quarter Mile spacing of major intersections and very limited access otherwise
 - City desires to build the entire cross section for Parkway Section
- Western Tract
 - Extend Goodwin-Conrads Roadway from Bond project to the north through the site
- Collector Roadway
 - Need a network of collector roadways within the site to handle traffic
- Major Thoroughfare Plan to be completed in January
- They have talked to Comal ISD about schools
- Have talked to the Fire Department and need a station west of IH-35
- Have talked to Parks and are planning for regional and linear park.
- Traffic Impacts Analysis
 - Roadway Sizes and Capacity
 - Intersections and Capacity
 - Access is important
 - Future Improvements from TxDOT and City of New Braunfels
 - Do true TIAs as we each small segment
 - Boundaries of Study Area
 - Kohlenburg Interchange

TBPE Firm Registration #170 | TBPLS Firm Registration #10026600

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- FM 1101 - Kohlenburg Signal trigger by adjacent development
 - Been pushing TxDOT to Widen from FM 306 to Kohlenburg
 - Watson (East and West)
- Project Timeline and Development
 - Start Building In December 2020 or Construction in early 2021
 - Utilities are the biggest issue
 - 7,000 Dwelling Units
 - MUD district is established and therefore Develop Agreement is required.
 - PCI, Brown and Gay, and WSP did the schematic
 - Get counts thorough TxDOT (Clayton)
 - Look at Traffic Projections to check distribution

END MEMO

APPENDIX K

Preliminary Master Development Plan



PRELIMINARY
 The information shown is based on the best information available and is subject to change without notice.
 Landowners and localities per street direction.



MAYFAIR • MASTER FRAMEWORK PLAN (G4)

11000 Mayfair Blvd
 October 6, 2019
 11000219
 Southstar Communities

1100 - 1110
MAYFAIR
 - The District -

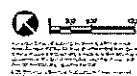


Exhibit G

(Form of Strategic Partnership Agreement)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**

STRATEGIC PARTNERSHIP AGREEMENT

between the

CITY OF NEW BRAUNFELS, TEXAS

and the

COMAL COUNTY WATER IMPROVEMENT DISTRICT NO. 3

STATE OF TEXAS

§

§

COUNTY OF COMAL

§

This Strategic Partnership Agreement (this "**Agreement**") is between THE CITY OF NEW BRAUNFELS, TEXAS, a home rule municipal corporation ("**City**"), acting by and through its duly authorized Mayor, and the COMAL COUNTY WATER IMPROVEMENT DISTRICT NO. 3, a Texas water control and improvement district ("**District**"), acting by and through its duly authorized Board of Directors, under the authority of Article XVI, Section 59 of the Texas Constitution and Chapters 49 and 51 of the Texas Water Code, as amended.

RECITALS:

- A. Texas Local Government Code, Section 43.0751 (the "Act") authorizes the City and the District to negotiate and enter into a strategic partnership agreement by mutual consent.
- B. The District and the City desire that effective, efficient, and responsible local government be provided to citizens of the District and the City before, during, and after the City annexes the District for full purposes. To that end, the District and the City also desire to avoid any unnecessary duplication of services and taxes, and to provide for the orderly and seamless succession of the District.
- C. By this Agreement, the Parties desire to establish, among other things, (i) terms and conditions of the City's limited purpose annexation of certain lands comprising the commercial portion of the District, as described in this Agreement and in accordance with the Act and (ii) provisions regarding the City's delivery of City Services (hereinafter defined) prior to full purpose annexation of the District, in accordance with the Texas Interlocal Cooperation Act, Chapter 791 of the Texas Government Code.
- D. The District and the City acknowledge that this Agreement does not require the District to provide revenue to the City solely for the purpose of obtaining an agreement with the City to forego annexation of the District.

NOW, THEREFORE, for and in consideration of the mutual agreements, covenants, and conditions contained in this Agreement, and other good and valuable consideration, the District and the City agree as follows:

ARTICLE I FINDINGS

- 1.1 The District is a water control and improvement district created pursuant to Article XVI, Section 59 of the Texas Constitution, and Chapters 49 and 51 of the Texas Water Code.
- 1.2 The District's boundaries include the approximately 1,888 acres of land in Comal County shown in the map attached as Exhibit A, that is located outside of the corporate limits of the City and within the extra-territorial jurisdiction ("ETJ") of the City (the "Eligible Property").
- 1.3 The land subject to this Agreement consists of the Eligible Property as shown on Exhibit A and described in Exhibit B attached to this Agreement.
- 1.4 The land initially subject to limited purpose annexation includes approximately _____ acres of property designated for commercial development (the "Initial Tract") as shown in Exhibit C and described in Exhibit D and attached to this Agreement.
- 1.5 The District and the City acknowledge and agree that, in accordance with the requirements of Subsection (p)(2) of the Act, this Agreement provides benefits to the City and the District, including revenue, services, and regulatory benefits which are reasonable and equitable to both the District and the City.
- 1.6 The City and the District desire to enter into this Agreement providing for limited purpose annexation of the Limited Purposes Tract (defined below) for the purpose of collecting Sales and Use Tax Revenues within the annexed areas in accordance with Subsection (k) of the Act.
- 1.7 The District will provide notice of two public hearings concerning the adoption of this Agreement and the proposed limited purpose annexation of the Limited Purposes Tract, in accordance with the procedural requirements of the Act.
- 1.8 The Board of Directors of the District conducted two public hearings regarding this Agreement and the proposed limited purpose annexation of the Limited Purposes Tract on _____, at _____ p.m. within the District at _____, New Braunfels, Texas and on _____, at _____ p.m. within the District at _____, New Braunfels, Texas, at which members of the public who wished to present testimony or evidence regarding this Agreement and the proposed limited purpose annexation were given the opportunity to do so in accordance with the procedural requirements of the Act.
- 1.9 The Board of Directors of the District approved this Agreement on _____, 2021, in open session at a meeting held in accordance with Chapter 551 of the Texas Government Code.

- 1.10 The City provided notice of two public hearings concerning the adoption of this Agreement and the proposed limited purpose annexation of the Limited Purposes Tract, in accordance with the procedural requirements of the Act.
- 1.11 The City Council conducted two public hearings regarding this Agreement and the proposed limited purpose annexation of the Limited Purposes Tract on _____, at _____, 2021 at City Hall, 550 Landa St., New Braunfels, Texas and on _____, 2021, at _____ at City Hall, 550 Landa St., New Braunfels, Texas, at which members of the public who wished to present testimony or evidence regarding this Agreement and the proposed limited purpose annexation were given the opportunity to do so in accordance with the procedural requirements of the Act.
- 1.12 The City Council approved this Agreement on _____, 2021, in open session at a meeting held in accordance with Chapter 551 of the Texas Government Code, which approval occurred after the Board of Directors of the District approved this Agreement.
- 1.13 All procedural requirements imposed by law for the execution and adoption of this Agreement have been met.

ARTICLE II DEFINITIONS

- 2.1 "Act" means Texas Local Government Code § 43.0751 and any amendments thereto.
- 2.2 "Agreement" means this Strategic Partnership Agreement between the City and the District, as may be amended from time to time pursuant to the terms of this Agreement.
- 2.3 "Board" means the Board of Directors of the District.
- 2.4 "City" means the City of New Braunfels, a Texas home rule municipal corporation, located in Comal and Guadalupe Counties, Texas.
- 2.5 "City Council" means the elected body of the City of New Braunfels, as such term is defined in Section 1.02 of the Charter.
- 2.6 "City Manager" means the chief administrative officer of the City.
- 2.7 "City Services" shall have the meaning described in Section 6.2 hereof.
- 2.8 "Comptroller" means the Comptroller of Public Accounts of the State of Texas.
- 2.9 "Development Agreement" means the means the Development Agreement between the City and Southstar at Mayfair, LLC for Proposed Mixed Use Development, including any assignments as authorized therein and future

amendments thereto. The Development Agreement provides for certain public services and facilities in the District.

- 2.10 "District" means the Comal County Water Improvement District No. 3, a water control and improvement district created or operating under the authority of Article XVI, Section 59 of the Texas Constitution and Chapters 49 and 51 of the Texas Water Code, as amended.
- 2.11 "District Type B Revenues" has the meaning set forth in the definition of "Sales and Use Tax Revenues".
- 2.12 "Effective Date" means the date on which the City Council adopts this Agreement, as provided in Section 3.3.
- 2.13 "Eligible Property" means all real property within the borders of the District that is subject to the Development Agreement.
- 2.14 "ETJ" means the extraterritorial jurisdiction of the City.
- 2.15 "ESD No. 7" shall have the meaning described in Section 6.1 hereof.
- 2.16 "Fire and EMS Contract" shall have the meaning described in Section 6.1 hereof.
- 2.17 "Fire and EMS Services" shall have the meaning described in Section 6.1 hereof.
- 2.18 "Full Purpose Annexation" means full purpose annexation as provided for in the Act.
- 2.19 "Initial Tract" means all of that certain approximately ____ acre tract located within the District and in Comal County, Texas as shown in **Exhibit C** and described in **Exhibit D**.
- 2.20 "Landowner" means Southstar at Mayfair LP, a Delaware Limited Partnership, its successors or assigns.
- 2.21 "Limited Purpose Annexation" means annexation for the limited purpose of collecting Sales and Use Tax as provided for in the Act.
- 2.22 "Limited Purpose Tract" means the Initial Tract and all or any portion(s) of the Eligible Property after it has been annexed for limited purposes pursuant to Section 3.9 of this Agreement.
- 2.23 "Notice" means notice as defined in Section 8.3 of this Agreement.
- 2.24 "Party" means, individually, the City or the District, their successors and assigns.
- 2.25 "Parties" means, together, the City and the District.
- 2.26 "Sales and Use Tax Revenues" means those revenues (a) received by the City from the sales and use tax authorized to be imposed by the City on sales

consummated at locations within the Limited Purpose Tract pursuant to the Act and Chapter 321 of the Texas Tax Code, and to the extent not otherwise controlled or regulated, in whole or in part, by another governmental entity, authority, or applicable law, ordinance, rule, or regulation less (b) any portion of such sales and use tax dedicated to the purposes described in Chapters 501-505 of the Texas Local Government Code (such portion being referred to as the "District Type B Revenues").

- 2.27 "Sector Plan" shall have the meaning described in the Development Agreement.
- 2.28 "TIA" means the Project Transportation Plan dated _____, prepared by _____ and referred to in the Development Agreement, as may be amended from time to time.

ARTICLE III LIMITED-PURPOSE ANNEXATION

- 3.1 Generally. Subject to the terms of this Agreement and the Development Agreement, the District and the City agree that the City, from time to time, shall annex certain property included in approved plats within the City for the limited purpose of collecting Sales and Use Tax Revenues within such annexed property pursuant to Subsection (k) of the Act. The District and the City further agree that the City shall annex such properties for limited purposes in accordance with Section 3.9 of this Agreement within one hundred eighty (180) days following the recording in the Comal County Real Property Records of a final plat of such property within the Eligible Property.
- 3.2 Limited Purpose Annexation Procedures. The City Council shall adopt a Limited Purpose Annexation ordinance consistent with this Agreement at a meeting conducted in accordance with Chapter 551 of the Texas Government Code, and the District acknowledges that no additional notices, hearings, or other procedures are required by law in order to approve such Limited Purpose Annexation of all or any portion of the Eligible Property.
- 3.3 Effective Date. Pursuant to Subsection (c) of the Act, this Agreement is effective on _____, 2021, the date of adoption of this Agreement by the City.
- 3.4 Filing in Property Records. Upon approval by the City, the City or the District shall file this Agreement in the Real Property Records of Comal County, Texas. **As provided in § 43.0751(c) of the Act, this Agreement binds each owner as of the Effective Date and each future owner of land included within the District's boundaries. Landowner has executed this Agreement to evidence its consent to the Agreement and the recording of the Agreement.**
- 3.5 Property Taxes and District Liability for Debts of the City. During the term of this Agreement, except as provided in Article IV regarding Sales and Use Tax, (a) owners of taxable property within the District (by reason of mere ownership of that land) shall not be liable for any present or future debts of the City until Full

Purpose Annexation takes effect in accordance with the Development Agreement, and (b) current and future ad valorem taxes levied by the City will not be levied on taxable property within the District until Full Purpose Annexation takes effect in accordance with the Development Agreement, or as otherwise authorized by future statutory amendments.

- 3.6 Powers and Functions Retained by the District. After Limited Purpose Annexation under this Agreement, the District shall continue to be authorized to exercise all powers and functions of the District, and to provide the services authorized by those powers within its boundaries, pursuant to existing law or any amendments or additions thereto. The District's assets, liabilities, indebtedness and obligations will remain the responsibility of the District. Except as provided by law, upon Full Purpose Annexation, neither the City nor any owners of taxable property within the City (by reason of mere ownership of that land) shall be liable for any present or future debts of the District.
- 3.7 Continuing Right. The City's rights under Section 3.1 herein to annex all or any portion of the Eligible Property for the limited purpose of collecting Sales and Use Tax Revenues within the Limited Purpose Tract are continuing and may be exercised through the adoption of multiple annexation ordinances for portions of the Limited Purpose Tract.
- 3.8 District Consents to Non-Contiguous Limited Purposes Annexation. The District consents to the annexation of non-contiguous portions of the Eligible Property as authorized by Subsection (r) of the Act.
- 3.9 Additional Land Annexed for Limited Purposes. The City's approval of a Sector Plan in the Eligible Property that contains property designated for commercial or "mixed commercial and residential" development that is not yet included in the Limited Purposes Tract shall serve as the City's agreement to annex such additional property into the City for limited purposes (whether or not contiguous to the then-existing Limited Purpose Tract). For purposes of clarity, it is agreed that only that portion of the Eligible Property that is designated as "commercial" or "mixed commercial and residential" development on an approved Sector Plan will be annexed into the City and made a part of the Limited Purpose Tract. The City shall take all necessary steps under this Agreement to complete the limited purpose annexation of such commercial or "mixed commercial and residential" property approved in such Sector Plan upon the recording of a Final Plat containing such property and upon annexation such additional land shall be considered part of the Limited Purpose Tract.

ARTICLE IV VOTING RIGHTS IN THE DISTRICT

- 4.1 Qualified Voters. The qualified voters residing within the Limited Purpose Tract may vote in City elections pursuant to Texas Local Government Code Section 43.130(a). Voting rights are subject to all federal and state laws and regulations.

- 4.2 Eligibility to Vote. On or after the fifteenth (15th) day but before the fifth (5th) day before the date of the first election held in which the residents of the Limited Purpose Tract are entitled to vote as set out in Section 4.1 herein, the City, at its own expense, shall publish a quarter page advertisement in a newspaper of general circulation in the City notifying residents of the Limited Purpose Tract of their eligibility to vote in the election and stating the location of all polling places for the residents. The District, at its own expense, may provide for similar notice in a newspaper of general circulation in the District or otherwise.

ARTICLE V SALES AND USE TAX

- 5.1 Imposition of Sales and Use Tax. The City shall impose a sales and use tax within the Limited Purpose Tract pursuant to Subsection (k) of the Act. The sales and use tax shall be imposed on all eligible commercial activities at the rate of 1.5%, or such other maximum rate allowed under Chapter 321 of the Texas Tax Code or otherwise permitted under the laws of the State of Texas and imposed by the City. Collection of the Sales and Use Tax Revenues shall take effect on the date described in Texas Tax Code Section 321.102.
- 5.2 Payment of Sales and Use Tax to the District. In return for the benefits received by the City pursuant to this Agreement, the City shall pay to the District an amount equal to forty percent (40%) of the Sales and Use Tax Revenues reported on the "Confidential Local Tax Information Report" for the Limited Purpose Tract provided by the Comptroller and received by the City from the Comptroller (less the adjustment for the District Type B Revenues) for the first five (5) years after a certificate of occupancy is issued for the initial sales tax producing property within any portion of the Limited Purpose Tract designated as "commercial" or "mixed commercial and residential" on the applicable Sector Plan. The District and the City acknowledge and understand that the Comptroller may not issue its first Confidential Local Tax Information Report reflecting Sales and Use Tax Revenues from the Limited Purpose Tract until a minimum of four (4) businesses within the Limited Purpose Tract are collecting Sales and Use Tax and that no payment will be due from the City to the District until such a report is received, provided that when the first such report is received, the City will make any retroactive payments due to the District in accordance with this Agreement to reflect any previously received but not reported Sales and Use Taxes from businesses within the Limited Purpose Tract. The City, beginning in the sixth (6th) year, shall pay to the District an amount equal to fifty percent (50%) of the Sales and Use Tax Revenues reported on the "Confidential Local Tax Information Report" for the Limited Purpose Tract provided by the Comptroller and received by the City from the Comptroller (less the adjustment for the District Type B Revenues). The City shall deliver the District's portion of the Sales and Use Tax revenues to the District within thirty (30) days of the City's receipt of that Report from the Comptroller, by regular U.S. Mail or other method of delivery mutually acceptable to the Parties. Texas Government Code Chapter 2251 shall govern and provide the penalty if the City fails to deliver the District's portion in a timely manner. For the purposes of determining the applicable overdue date

under Chapter 2251, the City is deemed to have received an invoice from the District on the date the City receives the Sales and Use Tax Revenues from the Comptroller without further action from the District.

- 5.3 Amended and Supplemental Reports. If and when the Comptroller adjusts its calculations of Sales and Use Tax Revenues generated within the boundaries of the Limited Purpose Tract or issues supplemental tax reports, then any revenues reflected in such adjusted calculations or supplemental reports will be divided and paid as provided above, and the District and the City agree to pay the other any sums necessary to correct any prior over or under distributions. The City and the District agree that, for purposes of Section 321.3022 of the Texas Tax Code, this Agreement qualifies also as a revenue sharing agreement.
- 5.4 Reporting. Within thirty (30) days of the City's receipt of each sales tax report provided by the Comptroller, the City shall deliver to the District a condensed version of the report, containing only the contents relating to retail sales tax collected and retailers in the Limited Purpose Tract.
- 5.5 Notification of Comptroller. The City shall send notice of this Agreement, together with other required documentation, to the Comptroller in the manner provided by Texas Tax Code, Section 321.102, within ten (10) days after the City Council annexes any portion of the Eligible Property for limited purposes. The City shall send to the District a copy of any notice from the Comptroller delaying the effectiveness of the Sales and Use Tax Revenues in the Eligible Property.
- 5.6 District Use of Sales and Use Tax Revenue. The District may use the Sales and Use Tax Revenues received by the District pursuant to this Agreement for any lawful purpose.
- 5.7 City Use of Sales and Use Tax Revenue. Without limiting the terms of Section 5.11 below, the Sales and Use Tax Revenues received and retained by the City pursuant to this Agreement may be used by the City for any lawful purpose.
- 5.8 District Audit Rights. The District may audit the Sales and Use Tax collections by the City solely to determine whether the Sales and Use Tax Revenue payments have been made to the District in accordance with this Agreement. Any audit shall be made at the District's sole cost and expense and may be performed at any time during the City's regular business hours by an auditor hired by the District on thirty (30) days written notice to the City. For the purpose of any audits, the City shall maintain and make available to the District or its representatives all books, records, documents and other evidence of accounting procedures or practices in whatever form sufficiently maintained to reflect the collection of all Sales and Use Tax Revenues that are subject to this Agreement. For the avoidance of doubt, the District's audit rights provides the District with no right to see any City book, record, document, or other evidence unrelated to the Sales and Use Tax collections received pursuant to this Agreement.
- 5.9 City Audit Rights. The District is required by law in certain circumstances to prepare an annual audit within one hundred and thirty-five (135) days after the

close of the District's fiscal year. The District shall provide a copy of its annual audit to the City within thirty (30) days after the audit is completed and approved and accepted by the District's board of directors. The District shall not unreasonably delay the approval of its annual audit.

- 5.10 Termination. Unless agreed, ordered or specifically provided otherwise, all Sales and Use Tax Revenues collected by the City from the Limited Purpose Tract after the date of termination of this Agreement and satisfaction of obligations described in Section 5.2 shall be retained by the City and may be used for any lawful purpose.
- 5.11 District Type B Revenues. During the term of this Agreement, the City shall collect a portion of the sales and use tax from the Limited Purpose Tract in the form of District Type B Revenues, which are not included within the term "Sales and Use Tax Revenues." During the term of this Agreement, a portion of the District Type B Revenues (such portion to be determined in accordance with the following sentence) shall be devoted to approved projects (a) within the Eligible Property and (b) that comply with the terms of Chapters 501-505 of the Texas Local Government Code, all in accordance with the procedures outlined in Chapters 501-505 of the Texas Local Government Code. The applicable portion of the District Type B Revenues that are subject to the preceding sentence shall match the District's percentage for any applicable year as described in Section 5.2 above (either 40% or 50%, depending on the year in question). The City and the New Braunfels Industrial Development Corporation shall enter into a written agreement reflecting the foregoing and the City shall provide a copy of the agreement to the District. Nothing in this Agreement is intended to limit the expenditure of additional District Type B Revenues within the District, pursuant and subject to compliance with the terms and procedures outlined in Chapters 501-505 of the Texas Local Government Code and upon application therefore and agreement by the City to do so.
- 5.12 Notice of Breach and Opportunity to Cure. In no event will the City or the District be in breach of this Agreement unless it receives written notice of the breach from the other Party and fails to cure or remedy such breach within the time period described in Section 8.1 below.

ARTICLE VI SERVICES

- 6.1 Fire and EMS Services. Pursuant to Chapter 791 of the Texas Local Government Code, the Interlocal Cooperation Act, the District and the City agree that fire and emergency services shall be provided to the District by Comal County Emergency Services District No. 7 ("ESD No. 7") pursuant to the same terms and conditions as set forth in that certain Service Provider Contract by and between the City and ESD No. 7, as such Contract may be amended from time to time (such services shall be herein referred to as the "Fire and EMS Services", and such Contract shall be herein referred to as the "Fire and EMS Contract"). The City currently provides all Fire and EMS Services to ESD No. 7, in which the

District is currently located, in return for payment from ESD No. 7 under the Fire and EMS Contract. The District and the City further agree that the term Fire and EMS Services shall include all services provided to the City pursuant to the Fire and EMS Contract, including Fire Protection and Suppression, Hazardous Materials and Control, Emergency Rescue, Emergency Medical Services, and other emergency assistance as described in Section 1.01 of the Fire and EMS Contract. Notwithstanding the foregoing, in the event the Fire and EMS Contract is terminated or amended, which would have the effect of the City no longer providing the District Fire and EMS Services under the Fire and EMS Contract, the City and the District shall cooperate and enter into an Interlocal Agreement, whereby the City shall provide Fire and EMS Services in the District on the same basis of payment and on similar terms as provided for in the Fire and EMS Contract as was in effect on the date of termination of the Fire and EMS Contract; provided, however, such Interlocal Agreement shall provide for potential modification of payment terms over time as would be customary for agreements of such type and as may be agreed upon by the Parties.

- 6.2 Police Services. The City and the District acknowledge that (a) the District may contract with the City for the City to provide police services to the District in accordance with Chapter 791 of the Texas Government Code, the Interlocal Cooperation Act, and pursuant to Section 49.216 of the Texas Water Code and other applicable state laws and (b) at this time, no agreement has been reached for the City to provide such police services to the District.

- (a) In the event that hereafter the City and the District reach an agreement whereby the City shall provide police services to the District, such agreement shall be reflected in a written amendment to this Agreement executed by duly authorized signatories of the District and the City.
- (b) If and until such time as the City and the District reach an agreement whereby the City shall provide police services to the District, the District may provide or contract for the police services in any manner permitted by law.
- (c) City Training Obligations Regarding Police Services. The City will be responsible for training its police officers on the different jurisdiction and powers of police officers when they exercise police powers within the District as compared to within the corporate limits of the City.

- 6.3 City Services. The City and the District acknowledge that as of the Effective Date, the District may not have the lawful authority to provide code enforcement services, animal control services, or health inspection services (collectively, whether one or more, the "City Services") within the District. In the event there is a change in or clarification to applicable state law and the City and District agree the District is authorized to perform such City Services, then for purposes of establishing the Parties' rights and obligations with respect to City Services, Section 6.2. is deemed to be copied below in its entirety with each reference to "police services" revised to read "City Services" and each reference to "police

officers" revised to read "City Services inspectors or agents". The District agrees not to oppose any attempt by the City to clarify the District's legislative authority to perform the City Services and contract with the City to perform those City Services, whether by amendment to applicable law or an Attorney General's opinion, provided that, in order to better assess whether the enforcement of certain of the City Services by means of private deed restrictions imposed pursuant to the Development Agreement is adequate, the City agrees not to seek such clarification or require the District to contract with the City for City Services until ten (10) years after the Effective Date of the Development Agreement.

- 6.4 Solid Waste Disposal. The City may provide Solid Waste Disposal services to all residents within the District in the same manner and on the same terms as provided to residents of the City, except that until Full Purpose Annexation, the residential rate for District residents shall be equal to one hundred five percent (105%) of the rate charged to City residents for Solid Waste Disposal services.

ARTICLE VII FULL PURPOSE ANNEXATION

- 7.1 No Full Purpose Annexation. The timing, procedures, and restrictions on Full Purpose Annexation shall continue to be governed by the terms set forth in the Development Agreement.
- 7.2 Strip Annexation of Portions of Limited Purposes Tract. The District agrees to cooperate with and assist the City in strip annexing one or more areas in the Eligible Property in the manner prescribed by law and subject to any limits prescribed by applicable law, which does not result in the dissolution of the District, none of which may exceed five hundred twenty-five (525) feet in width at its widest point or such other width limitation subsequently imposed by law, as reasonably necessary for the City to connect areas within the Limited Purposes Tract to the City that the City intends to annex for limited purposes. The City agrees that such areas shall be located within right-of-way areas or along lot lines whenever possible. Notwithstanding the zoning designation approved for the annexed area, such area may be developed and used in accordance with the Development Agreement.

ARTICLE VIII DEFAULT/REMEDIES

- 8.1 Default. In the event of a default under or violation of this Agreement, the non-defaulting party shall send the defaulting party written notice describing the breach in reasonable detail. Except as otherwise specifically provided in this Agreement, the defaulting party shall have thirty (30) days following receipt of the notice of default or violation to initiate steps to cure the default or violation. The defaulting party shall thereafter have sixty (60) days to cure the default or violation. If the defaulting party fails to timely initiate steps to cure or to thereafter diligently proceed to cure, the non-defaulting party may bring suit to enforce this

Agreement and seek any remedy provided at law or in equity. In the event such a suit is filed, the prevailing party shall be entitled, in addition to any other remedies to which it is entitled, to receive its attorneys' fees and court costs.

- 8.2 Waiver of Sovereign Immunity; Chapter 271, Texas Local Government Code. The Parties hereby agree that this Agreement constitutes an agreement for providing goods and/or services to the District and the City, which is subject to the provisions of Subchapter I of Chapter 271 of the Texas Local Government Code and any successor statutes. In accordance with Sections 271.152 and 271.153 of the Texas Local Government Code, the District and the City hereby waive, to the maximum extent allowed by law, any constitutional, statutory or common law right to sovereign or governmental immunity from liability or suit and expressly consent to be sued and held liable with respect to their performance and/or failure to fully and timely perform each and every obligation under this Agreement, but only to the extent such liability or suit arises from or relates to this Agreement or a claim brought under this Agreement.

ARTICLE IX MISCELLANEOUS

- 9.1 Approval. This Agreement shall not be effective until it is approved and executed by the respective governing bodies of the City and the District and recorded in the Real Property Records of Comal County pursuant to Section 3.4 of this Agreement.
- 9.2 Term. Except as provided below, the term of this Agreement shall commence on the Effective Date and continue thereafter until 12:01 a.m. on the day immediately following the date the City annexes the District for full purposes in accordance with this Agreement and the Development Agreement; provided, however, in the event the District and City mutually agree for purposes allowed under Section 43.0751(g) of the Act, as may be amended, to extend the term hereof until the tenth (10th) anniversary of the date the City annexes the District for full purposes in accordance with this Agreement and the Development Agreement, such later date shall be the date of termination of this Agreement. The provisions of this Agreement relating to the collection of Sales and Use Tax Revenues will automatically terminate with regard to any portion of the Limited Purpose Tract upon disannexation or Full Purpose Annexation of the Limited Purposes Tract.
- 9.3 Notices. Any notice required by this Agreement shall be void and of no effect unless given in accordance with the provisions of this Section 9.3. All notices shall be in writing and delivered, either by personal delivery or commercial delivery service to the office of the person to whom the notice is directed, or by United States Mail, postage prepaid, as a registered or certified item, return receipt requested. Notices delivered by personal delivery or commercial delivery service shall be deemed to have been given upon receipt at the office of the person to whom the notice is directed. Notices delivered by mail shall be deemed to have been given on the third (3rd) day after the date such notice is

deposited in a Post Office or other depository under the care or custody of the United States Postal Service, enclosed in a wrapper with proper postage affixed and addressed, as provided below. Notice may also be provided by facsimile transmission. Facsimile notice shall be deemed to have been given upon the sender's receipt of electronic confirmation of delivery to the facsimile station indicated below.

The proper address and facsimile number for the District is as follows:

Comal County Water Improvement District, No. 3

Attention: _____

with copies to:

The proper address and facsimile number for the City is as follows:

City of New Braunfels
Attn: City Manager
550 Landa St.
New Braunfels, Texas 78130
Fax: (830) 626-5578

with copies to:

City Attorney
550 Landa St.
New Braunfels, Texas 78130
Fax: (830) 626-5578

Any Party may change the address or facsimile number for notices specified above by giving the other party ten (10) days' advance written notice of such change of address or facsimile number.

- 9.4 Assignment. This Agreement may not be assigned or partially assigned by either party without the prior written consent of the non-assigning party, which shall not be unreasonably withheld.
- 9.5 Sub-Districts. If any sub-districts are created by or within the District, the City may not agree with any such sub-district to amend or otherwise alter the terms of

this Agreement, but the City may continue to negotiate amendments to this Agreement with the District. The City and the District intend that any sub-district will be bound to and governed by this Agreement, as it may be amended from time to time, and the City and the District each agrees to take steps reasonably necessary to ensure all of the sub-districts are governed by this single Agreement, as amended from time to time, including ratifying this Agreement or its amendments by the sub-districts or entering into a separate agreement between the sub-district and the City confirming the sub-district's and City's agreement to be bound by all of the terms of this Agreement, as amended, with respect to the area contained in any sub-district.

- 9.6 Governing Law. THIS AGREEMENT MUST BE GOVERNED BY AND CONSTRUED AND ENFORCED IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT REGARD TO ANY CHOICE OF LAW RULES OR PRINCIPLES TO THE CONTRARY, AND THE OBLIGATIONS OF THE PARTIES HERETO ARE AND SHALL BE PERFORMABLE IN COMAL COUNTY, TEXAS.
- 9.7 No Oral Modification. This Agreement may not be supplemented, modified or amended, except by written agreement with approval of the governing bodies of the District and the City.
- 9.8 No Oral Waiver. The parties may waive any of the conditions or obligations of the other party under this Agreement, but any such waiver shall be effective only if in writing and signed by the waiving party.
- 9.9 Headings, Gender, etc. The headings used in this Agreement have been inserted for convenience and do not constitute matter to be construed or interpreted in connection with this Agreement. Unless the context of this Agreement otherwise requires (a) words of any gender are deemed to include each other gender, (b) words using the singular or plural number also include the plural or singular number, respectively.
- 9.10 Partial Invalidity. If any clause or provision of this Agreement is or should ever be held to be illegal, invalid, or unenforceable under any present or future law applicable to the terms hereof, then and in that event, it is the intention of the Parties that the remainder of this Agreement shall not be affected thereby, and that in lieu of each such clause or provision of this Agreement that is illegal, invalid, or unenforceable, there be added as a part of this Agreement a clause or provision as similar in terms to such illegal, invalid, or unenforceable clause or provision as may be possible and be legal, valid, and enforceable.
- 9.11 Authorization. The District and the City represent that each party executing this Agreement on behalf of the District and the City possesses all requisite authority to execute this Agreement on that such party's behalf.
- 9.12 Holidays. If any deadline, or any date on which any duties or obligations under this Agreement are to be performed falls on a Saturday, Sunday or legal holiday, that date is automatically extended to the next business day.

9.13 Incorporation of Exhibits by Reference. All exhibits attached to this Agreement are incorporated into this Agreement by reference and for the purposes set forth in this Agreement, as follows:

Exhibit A	Map of the District
Exhibit B	Description of the District
Exhibit C	Map of the Initial Tract
Exhibit D	Legal Description of the Initial Tract

EXECUTED and EFFECTIVE as of the Effective Date.

COMAL COUNTY WATER IMPROVEMENT DISTRICT NO. 3:

By: _____,
_____, President, Board of Directors

ATTEST:

_____,
_____, Secretary, Board of Directors

THE CITY OF NEW BRAUNFELS:

By: _____
Robert Camareno, City Manager

ATTEST:

Caitlin Krobot, City Secretary

THE STATE OF TEXAS §
 §
COUNTY OF COMAL §

Before me, the undersigned authority, on this day personally appeared _____, President of the Board of Directors of the Comal County Improvement District No. 3, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as the act and deed of said water control improvement district, for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____ 2012.

Notary Public, State of Texas

Print Name: _____

My Commission Expires: _____

APPROVED AND ACKNOWLEDGED

SOUTHSTAR AT MAYFAIR, LLC, a Texas limited liability company

By: _____

Name: _____

Title: _____

EXHIBIT A

(MAP OF THE ELIGIBLE PROPERTY)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**

EXHIBIT B
(DESCRIPTION OF THE ELIGIBLE TRA)

All of the _____ acres described in the Act of _____ relating to the creation of Comal County Water Control & Improvement District No. 3, which is comprised of all of the real property included in the metes and bounds description as Tract "A" and the metes and bounds description as Tract "B" attached herein.

EXHIBIT C

(MAP OF THE INITIAL TRACT)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**

EXHIBIT D

(LEGAL DESCRIPTION OF THE INITIAL TRACT)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**

Exhibit H

(Overlapping Property)

**ADDED TO EFFECT
SCANNING PER COMAL
COUNTY CLERK**

Exhibit H
Overlapping Property



Schedule 7

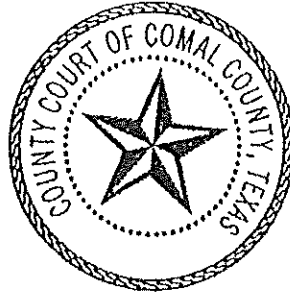
PARK SCHEDULE (Draft based on Projections)

Total Projected Residential Units: 6,000

		Pre- Quartile	Quartile 1	Quartile 2	Quartile 3	Quartile 4	TOTAL
Residential Units		750	750	1,500	1,500	1,500	6,000 units
PARK TYPE (Minimum Dedication)		Minimum Development Schedule					
Private Parks	Pocket Parks Dedication	1 park	1 park	1 park	2 parks	2 parks	7 Pocket Parks
	Recreation Centers Dedication	0	1 Rec Center	0	0	1 Rec Center (5 acres)	2 Rec Centers
Public Parks	Greenbelt/Conser vation Parks/ Trails Dedication	16 acres	15 acres	28 acres	TBD (combined w/ Community parks = 75 acres) TBD	TBD (combined w/ Community parks = 95 acres) TBD	133 acres
	Community Parks Dedication	31 acres	0	40 acres			120 acres
	Natural/Conser vation Area	TBD (pending utility easement agreements and development progression)					77 acres
Minimum Total Dedicated Public Parks Acreage		47 acres	15 acres	68 acres	75 acres	95 acres	331 acres
Total Parks Investment*		\$1,528,500	\$1,528,500	\$3,057,000	\$3,057,000	\$3,057,000	\$12,228,000.00

Note: Owner may satisfy any or all of its obligations in the Park Schedule in advance of the schedule.

*These figures include both the onsite fee credit and offsite payment required in Section 7.2.1.



This page has been added to comply with the statutory requirement that the clerk shall stamp the recording information at the bottom of the last page.

This page becomes part of the document identified by the file clerk number affixed on preceding pages.

Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
05/06/2024 10:45:52 AM
TAMMY 451 Page(s)
202406013596



Bobbie Koepp