

Title: SECOND READING, public hearing, discussion and possible adoption of Bill No. 2748, an ordinance for approval of a Development Agreement by and between the City of Sparks, The Foothills at Wingfield, LLC and Albert D. Seeno Construction Company concerning the development of real property 65 acres in size located east of Golden Eagle Regional Park and south of Vista Boulevard, Sparks, NV (PCN18-0005) (FOR POSSIBLE ACTION)

Petitioner/Presenter: The Foothills at Wingfield, LLC and Albert D. Seeno Construction Company/Armando Ornelas, Assistant Community Services Director

Recommendation: The Planning Commission recommends that the City Council adopt Bill No. 2748, an ordinance for approval of a Development Agreement by and between the City of Sparks, The Foothills at Wingfield, LLC and Albert D. Seeno Construction Company concerning the development of real property 65 acres in size located east of Golden Eagle Regional Park and south of Vista Boulevard, Sparks, NV

Financial Impact: No direct financial cost. The fiscal impact analysis submitted by the applicant estimates this annexation and single-family development of between 420 and 475 single family units.

Business Impact (Per NRS 237):

A Business Impact Statement is not required because this is not a rule.

Agenda Item Brief:

The proposed Development Agreement (the "Agreement") is for three parcels totaling 65 acres located east of Golden Eagle Regional Park and south of Vista Boulevard. The parties to the Agreement are the City of Sparks, Foothills at Wingfield, LLC (the property owner) and Albert D. Seeno Construction Company (the developer). The Agreement addresses the type and intensity of development permitted on the site, the land use entitlements necessary to develop the site, and the infrastructure needed to comply with Truckee Meadows Regional Plan and the Sparks Comprehensive Plan concurrency requirements.

The Agreement is coming forward for City Council consideration in conjunction with two related requests for: certification of a Comprehensive Plan amendment to change the land use designation of the site from Open Space (OS), Commercial (C), Multi-Family (MF24), High Density Residential (HDR), Large Lot Residential (LLR), and Mixed Use (MU) to Intermediate Density Residential (IDR); and, rezoning of the subject property from A5 (Agriculture) to SF6 (Single Family – 6, 000 sq. ft. lots).

Background:

This site is located directly east of and adjacent to Golden Eagle Regional Park (GERP) (Exhibit 1 – Vicinity Map). The site is 65 acres in size and is comprised of one parcel that is approximately 60 acres in size and two parcels that are each approximately 2.5 acres in size. There is an agricultural building on the 60-acre parcel and an uninhabited single-family home and several accessory buildings on the smaller parcels. All existing buildings will be removed with the future development of this site.

Access to the site is via a Bureau of Land Management (BLM) access easement that starts at the intersection of Homerun Drive and Vista Boulevard on the GERP site. The existing easement then follows Homerun Drive to Touchdown Drive and turns east onto an unnamed maintenance yard access road (Exhibit 2 – Existing Easement). Homerun Drive, Touchdown Drive, and the unnamed maintenance yard access road are maintained by the City of Sparks but are not City streets because the City does not own the right-of-way or the roads. Rather, the roads are part of the City's lease agreement with BLM for GERP. The proposed realignment of the existing access easement and approval of said alignment by BLM are addressed in the Analysis section of this staff report.

The site has a variety of Comprehensive Plan land use designations: Open Space (OS), Commercial (C), Multi-Family (MF24), High Density Residential (HDR), Large Lot Residential (LLR), and Mixed Use (MU). These designations were adopted in 2007 (PCN07075). After approval of these land uses, a planned development handbook for development of the site

was initiated but was never processed or adopted. The zoning for this site is A-5 (Agriculture), which would only allow this property to be subdivided into parcels at least 5 acres in size. The applicant no longer believes that the existing land use designations and configuration are a viable development scenario and has submitted applications to amend the Comprehensive Plan and rezone the property.

The two 2.5-acre parcels in the southwest corner of the site were annexed in 2015 (PCN15036) and the City zoning of A-5 was assigned to the parcels at that time.

The applicant has requested to amend the Comprehensive Plan Land Use designations to Intermediate Density Residential (IDR) and change the zoning to Single Family Residential (SF6). Because of the need for conditions and requirements to address access and sewer capacity issues to meet the requirements for concurrency in the Comprehensive and Regional Plans, staff recommended that the applicant enter into a development agreement with the City of Sparks.

On August 2, 2018, the Planning Commission reviewed these three requests, approved the Comprehensive Plan amendment, and recommended that the City Council approve the development agreement and rezoning requests. (Please refer to the Planning Commission Report of Action.)

On October 10, 2018, the Regional Planning Commission (RPC) held a public hearing and reviewed the requested Comprehensive Plan amendment. The RPC determined that the Comprehensive Plan amendment conforms with the Truckee Meadows Regional Plan.

#### Analysis:

The proposed Development Agreement (the "Agreement") must be approved by the Sparks City Council to take effect. The Planning Commission was responsible for reviewing the agreement for consistency with the Comprehensive Plan.

#### Summary of Development Agreement Terms

Permitted uses and density are addressed in Section 3.1, which specifies that between 420 and 475 residential units are permitted at a gross density between 6.4 and 7.3 dwelling units per acre. Single family detached and attached units are permitted in the portion of the property for which SF6 zoning is requested.

Section 3.2 requires the developer to provide documentation of its legal right to access the site through BLM land for the uses and densities contemplated by the proposed Agreement.

Required infrastructure improvements are addressed in Section 3.3. This includes the off-site infrastructure, at the developer's expense, necessary for the proposed project. The required improvements include, without limitation:

- \* Necessary sanitary sewer upgrades.
- \* Street improvements to address the additional traffic that the proposed development will generate. This includes:
  - o Construction of an all-weather second fire apparatus access road prior to the storage of any combustible materials on the site. The Agreement as proposed by staff requires the second fire apparatus access road to be privately maintained. The developer has expressed its preference that the proposed Agreement be amended to reflect that the second fire apparatus access road will be publicly maintained.
  - o Intersection improvements at Vista Boulevard and Homerun Drive to increase right and left turn lane storage capacity.
  - o All streets from Vista Boulevard to the site shall be built to City standards prior to

issuance of a certificate of occupancy or final inspection.

- o The developer shall be responsible for maintaining all streets from Vista Boulevard to the site during all construction.
  - o Stop signs shall be installed at the south and east approaches of the intersection of Homerun Drive and Touchdown Drive. An exclusive left turn lane shall be installed at the north approach of this intersection as well. These improvements shall be completed prior to the issuance of a certificate of occupancy or final inspection.
  - o The roadway construction schedule shall be coordinated with the City's Parks and Recreation Department and Community Services Department. The public access to GERP must be maintained for the duration of all construction of the project and the master developer will be responsible for all damage to streets and other improvements.
  - o Prior to the issuance of the certificate of occupancy or final inspection of any dwelling units in excess of 75 dwelling units in the project, the intersection of Vista Boulevard, Homerun Drive, and Scorpius Drive shall be improved to include one exclusive left turn lane, one shared left turn/through lane, and one exclusive right turn lane at the south approach.
- \* All internal streets and sidewalks shall be privately owned and maintained. The primary access to the site shall be privately maintained until such a time that the City needs to use some portion of the primary access to access future park facilities.
- \* Prior to the approval of any tentative map, a report estimating the cost to maintain the private streets and an estimate of the assessment necessary to provide adequate funding to perform said maintenance shall be submitted to the City for review. The City may deny tentative map requests if the report does not comply with NRS Chapter 116A regarding reserve studies.
- \* The developer shall provide pedestrian and bicycle access routes to GERP.

Section 3.3 also requires that the master developer establish and maintain a landscape buffer at least 25 feet wide between the proposed homes and GERP for the purpose of screening the homes from the lights and noises generated at GERP.

Section 4 permits the City Council to review the developer's compliance with the terms of the Agreement within 12 months of its effective date. It also requires the developer to report, every 24 months after that initial review, on the number of units approved and built, development densities, and the status of the project.

Section 6.1 specifies the duration of the Agreement, which is 10 years. The Agreement grants the developer the right to request one 5-year extension subject to certain conditions.

#### Comprehensive Plan Amendment Findings

The purpose of bundling the Agreement with the Comprehensive Plan amendment and rezoning requests is to provide the public, third-party reviewing agencies, the Planning Commission, and City Council with an understanding of the proposed development of the subject property at the time these requests are considered. The Agreement is also intended to serve as the basis for satisfying the concurrency requirement (Goal 3.5 and Policy 3.5.1) of the 2012 Truckee Meadows Regional Plan for infrastructure and public services that must be addressed with the land use applications.

The Planning Commission found the Agreement consistent with the Comprehensive Plan in part because the Agreement obligates the developer to construct private access infrastructure to a site that does not abut public right-of-way. The Agreement also requires the developer to construct intersection improvements in the City right-of-way on Vista Boulevard and a second fire apparatus access road.

The Agreement thus supports and is consistent with the following Comprehensive Plan goals and policies:

*Policy MG5 When reviewing master plan amendments for sites over 5 acres, the City will evaluate or cause to be evaluated: a) the impacts on existing and planned facilities and infrastructure; b) the impacts on existing and planned public services; c) the proposed land use in relationship to existing land uses; and, d) the fiscal implications for public service providers of the proposed land use changes as documented in a fiscal impact analysis.*

*Policy CF1: When reviewing new development, the City will not approve an application unless the City services can be provided at acceptable service levels.*

In support of Policy MG5, the applicant has submitted, and City staff and the Planning Commission have reviewed, sewer and traffic studies (attached) that provide recommendations detailing how the impacts of this proposed development on existing infrastructure can be mitigated. The applicant also submitted a fiscal impact analysis (Exhibit D to Agreement) that was reviewed by City staff and the Planning Commission, in conformance with Policy MG5. The proposed Agreement supports a finding that the City can provide municipal services to the subject property concurrent with its development, complying with Policy CF1. This enabled the Planning Commission to make certain findings, including those regarding concurrency and fiscal impacts, in support of the applicant's development agreement, Comprehensive Plan land use amendment and rezoning requests.

Alternatives:

1. The City Council can adopt Bill 2748 for approval of the Development Agreement as presented.
2. The City Council can modify the Development Agreement subject to the consent of The Foothills at Wingfield, LLC and Albert D. Seeno Construction Company.
3. The City Council can reject the Development Agreement.

Recommended Motion:

I move to adopt Bill No. 2748, an ordinance for approval of a Development Agreement by and between the City of Sparks, The Foothills at Wingfield, LLC and Albert D. Seeno Construction Company concerning the development of real property 65 acres in size located east of Golden Eagle Regional Park and south of Vista Boulevard, Sparks, NV

When Recorded Return to:  
Sparks City Clerk  
PO Box 857  
Sparks, NV 89432

**BILL NO. 2748**

**INTRODUCED BY COUNCIL**

**ORDINANCE NO. \_\_\_\_\_**

**PCN18-0005 - WINGFIELD COMMONS,  
65 ACRES GENERALLY LOCATED EAST  
OF GOLDEN EAGLE REGIONAL PARK  
AND SOUTH OF VISTA BOULEVARD.**

**AN ORDINANCE BY THE CITY OF SPARKS TO APPROVE A DEVELOPMENT AGREEMENT WITH THE FOOTHILLS AT WINGFIELD, LLC AND ALBERT D. SEENO CONSTRUCTION COMPANY CONCERNING THE DEVELOPMENT OF PARCELS TOTALING 65 ACRES IN SIZE LOCATED EAST OF GOLDEN EAGLE REGIONAL PARK AND SOUTH OF VISTA BOULEVARD, SPARKS, NEVADA AND OTHER MATTERS PROPERLY RELATED THERETO.**

WHEREAS, The Foothills at Wingfield, LLC owns certain real property situated in the County of Washoe, State of Nevada more specifically described as three parcels with Assessor's Parcel Numbers 084-550-02, 084-550-07 and 084-550-08, more particularly described on Exhibit A and depicted on Exhibit B attached hereto and incorporated by this reference (collectively, the "Property");

WHEREAS, the City is authorized, pursuant to Chapter 278 of the Nevada Revised Statutes and Title 20 of the Sparks Municipal Code, to enter into agreements concerning the development of land such as this Agreement with persons having a legal or equitable interest in real property;

WHEREAS, The Foothills at Wingfield, LLC filed comprehensive plan and zoning applications with the City of Sparks to change the comprehensive plan and zoning designations on the Property, more particularly described as City of Sparks Application Nos. PCN18-0005, MPA18-0001, and RZ18-0001 (collectively, the "Applications");

WHEREAS, the City, The Foothills at Wingfield, LLC and Albert D. Seeno Construction Company (collectively, the "Parties") acknowledge that this Agreement will (i) promote the health, safety and general welfare of the City and its inhabitants, (ii) minimize uncertainty in planning for and securing orderly development of the Property and surrounding areas, (iii) ensure attainment of the maximum efficient utilization of resources within the City at the least economic cost to its citizens, and (iv) otherwise achieve the goals and purposes for which the laws governing development agreements were enacted;

WHEREAS, the Parties desire to enter this Agreement to provide for processing of the Applications and development of the Property; and

WHEREAS, NRS 278.0203 and SMC 20.05.09 allow the Sparks City Council to approve a development agreement by ordinance.

**NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF SPARKS DOES ORDAIN:**

**SECTION 1:** The Development Agreement by and between the City of Sparks, The Foothills at Wingfield, LLC and Albert D. Seeno Construction Company is approved.

**SECTION 2:** All ordinances or parts of ordinances in conflict herewith are hereby repealed.

**SECTION 3:** The City Clerk is instructed and authorized to publish the title to this ordinance as provided by law and to record the approved Development Agreement as provided by law.

**SECTION 4:** This ordinance shall become effective upon

passage, approval, publication and recordation.

**SECTION 5:** The provisions of this ordinance shall be liberally construed to effectively carry out its purposes in the interest of the public health, safety, welfare and convenience.

**SECTION 6:** If any subsection, phrase, sentence or portion of this section is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portions.

**SECTION 7:** The City Council finds that this ordinance is not likely to impose a direct and significant economic burden upon a business or directly restrict the formation, operation or expansion of a business, or is otherwise exempt from Nevada Revised Statutes Chapter 237.

**PASSED AND ADOPTED** this \_\_\_\_\_ day of \_\_\_\_\_, 2018, by the following vote of the City Council:

**AYES:**

**NAYS:**

**ABSENT:**

**ABSTAIN:**

**APPROVED** this \_\_\_\_\_ day of \_\_\_\_\_, 2018 by:

\_\_\_\_\_  
**Ron Smith, Mayor**

**ATTEST:**

**APPROVED AS TO FORM & LEGALITY:**

\_\_\_\_\_  
**Teresa Gardner, City Clerk**

\_\_\_\_\_  
**CHESTER H. ADAMS, City Attorney**

EXHIBIT "A"  
LEGAL DESCRIPTION  
APN 084-550-02, 084-550-07, & 084-550-08

Three parcels of land being the same as Parcel D of Parcel Map No. 115, according to the map thereof, filed in the office of the County Recorder of Washoe County, State of Nevada, on November 11, 1974, as File No. 346696, and the Southwest Quarter (SW ¼) of Southwest Quarter (SW ¼) of Northeast Quarter (NE ¼) of Southeast Quarter (SE ¼) and the Northwest Quarter (NW ¼) of Southwest Quarter (SW ¼) of Northeast Quarter (NE ¼) of Southeast Quarter (SE ¼) of Section 18, Township 20 North, Range 21 East, MDM, being more particularly described as follows:

Beginning at the East Quarter corner of said Section 18;  
thence along the East boundary of said Section 18 North 00°36'37" East a distance of 1321.50 feet to the Northeast corner of said Parcel D, also being the North 1/16 corner of said Section 18;  
thence departing said East boundary and along the North boundary of said Parcel D North 89°21'52" West a distance of 1318.34 feet to the Northwest corner of said Parcel D also being the North-East 1/16 corner of said Section 18;  
thence departing said North boundary and along the West boundary of said Parcel D South 00°30'07" West a distance of 1320.71 feet to the Center-East 1/16 corner;  
thence continuing along said West boundary South 00°29'21" West a distance of 660.27 feet to the Southwest corner of said Parcel D also being the Center-North-Southeast 1/64 corner of said Section 18;  
thence departing the boundary of said Parcel D and along the West boundary of said Northwest Quarter (NW ¼) of Southwest Quarter (SW ¼) of Northeast Quarter (NE ¼) of Southeast Quarter (SE ¼) South 00°29'21" West a distance of 330.14 feet to the Center-South-North-Southeast 1/256 corner;  
thence along the West boundary of said Southwest Quarter (SW ¼) of Southwest Quarter (SW ¼) of Northeast Quarter (NE ¼) of Southeast Quarter (SE ¼) South 00°29'21" West a distance of 330.14 feet to the South-East 1/16 corner;  
thence along the South boundary of said Southwest Quarter (SW ¼) of Southwest Quarter (SW ¼) of Northeast Quarter (NE ¼) of Southeast Quarter (SE ¼) South 89°17'48" East a distance of 328.41 feet to the Center-West-East-Southeast 1/256 corner;  
thence along the East boundary of said Southwest Quarter (SW ¼) of Southwest Quarter (SW ¼) of Northeast Quarter (NE ¼) of Southeast Quarter (SE ¼) North 00°30'47" East a distance of 330.18 feet to the Southwest-Northeast-Southeast 1/256 corner;  
thence along the East boundary of said Northwest Quarter (NW ¼) of Southwest Quarter (SW ¼) of Northeast Quarter (NE ¼) of Southeast Quarter (SE ¼) North 00°30'47" East a distance of 330.18 feet to a point on the South boundary of said Parcel D, also being the Center-West-Northeast-Southeast 1/256 corner;  
thence along the South boundary of said Parcel D South 89°18'48" East a distance of 986.05 feet to the Southeast corner of said Parcel D, also being the North-South 1/64 corner of said Section 18;



thence along the East boundary of said Section 18 North 00°35'06" East a distance of 660.65 feet to the Point of Beginning.

Said parcel contains an area of approximately 64.87 acres.

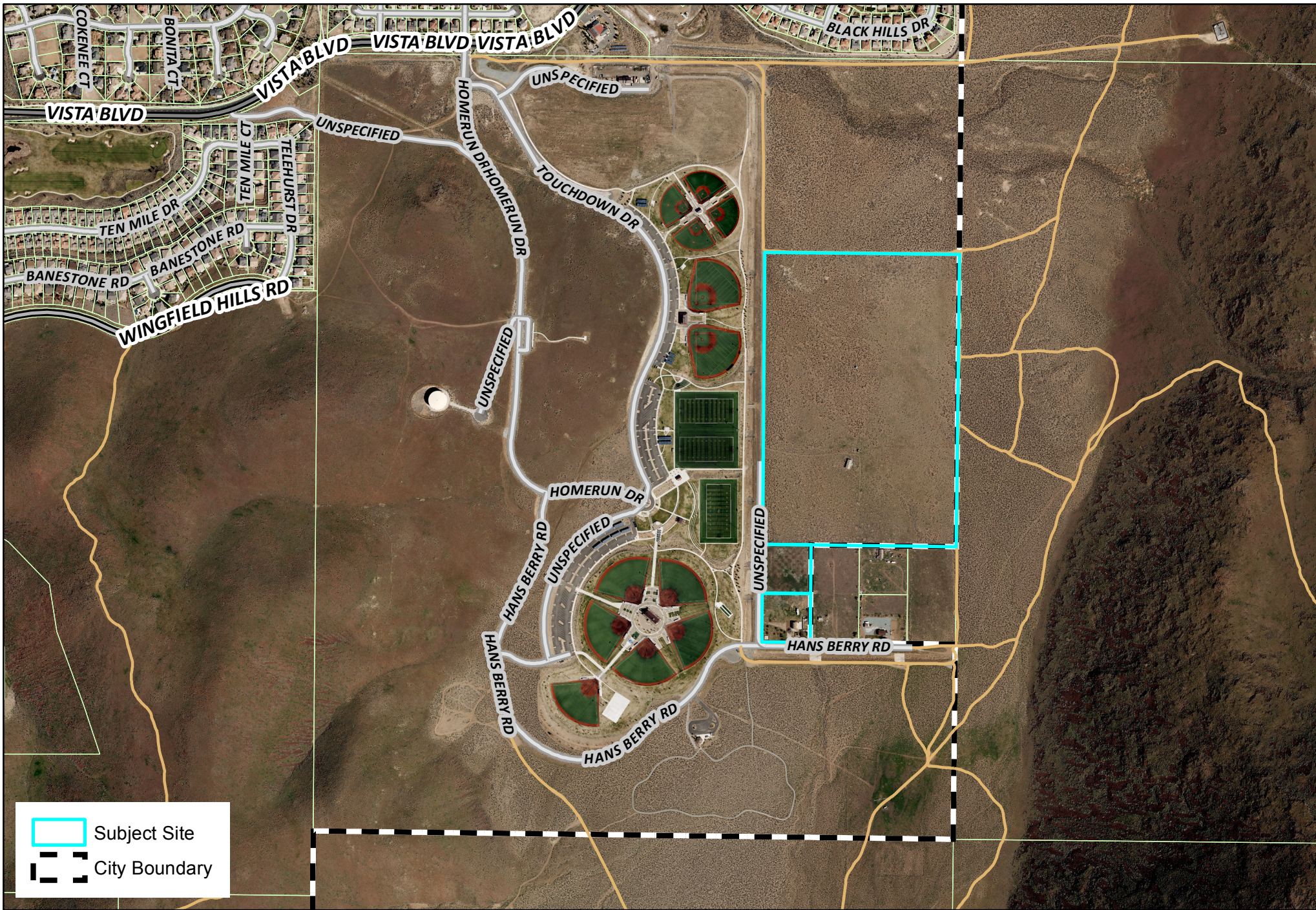
Basis of Bearings: Identical to those shown on Record of Survey Map 4319, File Number 2964693, recorded December 9, 2003, in the Official Records of Washoe County, Nevada, being Nevada State Plane Coordinate System, West Zone (NAD 93/94).

*Description Prepared By:*  
*Ryan G. Cook, PLS 15224*  
*Summit Engineering Corp.*  
*5405 Mae Anne Avenue*  
*Reno, Nevada 89523*  
*(775) 747-8550*  
*ryan@summitnv.com*



2-20-2018





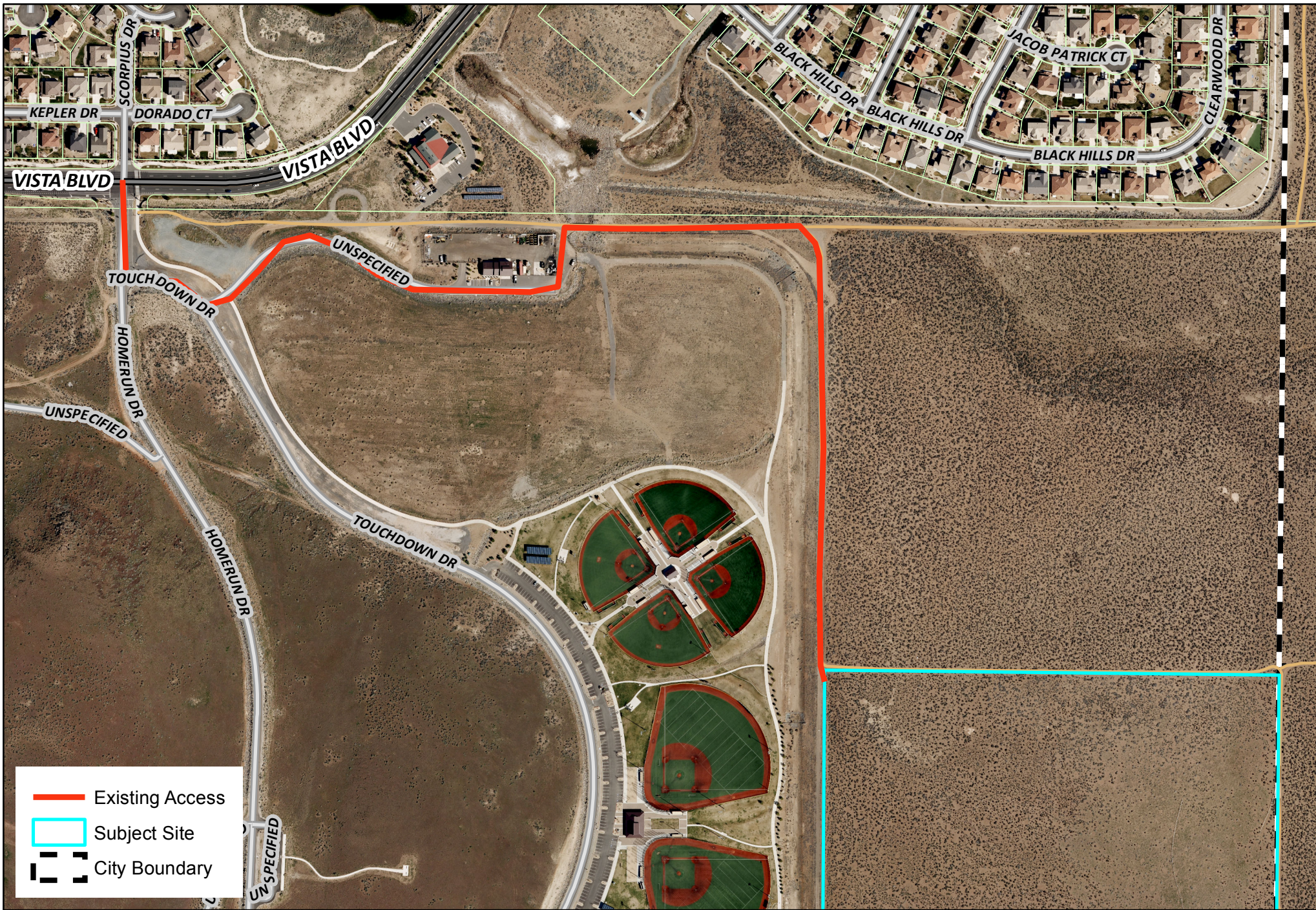
Subject Site  
 City Boundary



# PCN18-0005 Vicinity Map

Exhibit 1





- Existing Access
- Subject Site
- City Boundary

# Preliminary Sewer Report

For:

**Wingfield Commons  
Sparks, Nevada**

Prepared for:

**Foothills at Wingfield, LLC**

Prepared by:



20 Vine Street  
Reno, NV 89503

March 6, 2018



3-6-18

RECEIVED-CITY OF SPARKS

MAR 08 2018

COMMUNITY SERVICES  
ADMINISTRATION

## **1.0 Introduction**

The purpose of this preliminary report is to address the sanitary sewerage impacts that may result from the proposed Wingfield Commons development, in accordance with the City of Sparks development standards and sound engineering practices. This report will quantify the estimated sanitary sewer flows to be generated by the proposed project and will analyze the impacts of this development on the existing downstream facilities. Potential mitigation measures will also be discussed. It is anticipated that a more in-depth sewer report will be provided during the Tentative Map phase of the project.

## **2.0 Location and Background**

The proposed development is located approximately eight miles north of Interstate 80 off of Vista Boulevard, within Section Eighteen (18), Township Twenty (20) North, Range Twenty-One (21) East, Mount Diablo Meridian, City of Sparks, County of Washoe, State of Nevada. The site is southeast of the existing Wingfield Springs Planned Development, south of the existing Foothills Planned Development, and directly east of Golden Eagle Regional Park. The property consists of three parcels identified by the Washoe County Assessor's Office as APN 084-550-02, 084-550-07 and 084-550-08.

The site is located in a broad, relatively flat valley east of Spanish Springs Valley, surrounded by the Pah Rah Range to the east, Spanish Springs Canyon to the south and Canoe Hill to the west. Surface drainage through the site is generally south-to-north, with an eventual connection to the main drainage channel that flows in a southerly direction through Spanish Springs Valley to the Truckee River via the North Truckee Drain along Sparks Boulevard.

The subject property is generally vacant with an unoccupied single-family residence and several outbuildings. The area to the west is developed as Golden Eagle Regional Park (GERP), opened in 2008. The area to the south, east and north is currently undeveloped BLM land. The site also abuts four smaller parcels that are outside of the city's incorporated limits.

The previous 2009 draft planned-development handbook, consisted of a mixed-use project containing residential, commercial and open space components, with an estimated peak sewer flow of approximately 563,000 gallons per day.

## **3.0 Project Description and Assumptions**

The currently-proposed Wingfield Commons development will consist of up to 500 single-family dwelling units. Utilizing an average daily dry weather wastewater flow (ADWF) of 210 gallons per day per dwelling unit, the estimated daily flow for the project is 105,000 gallons per day. This is consistent with the November 2016 Sewer Model Update Report, prepared by Atkins. It is anticipated that the project will be phased over several years, with approximately 100 single-family homes built per phase.

#### **4.0 Existing Sanitary Sewer Infrastructure**

The subject property is not currently connected to the city sewer system. The nearest potential connection point is located approximately 1,800 feet northwest of the site, adjacent to the City of Sparks maintenance facility for GERP. This location currently contains a small lift station that conveys sewer flows from GERP via a force main to a gravity manhole located on the nearby fire station property. The gravity trunk main then flows generally in a northwesterly direction through several residential streets and cross-country easements to Cinnamon Drive, then west to Wingfield Springs Road, then southwest through the Wingfield Springs development to the existing 30-inch interceptor in Vista Boulevard, and eventually to the Truckee Meadows Water Reclamation Facility (TMWRF).

Based on information provided in a preliminary sewer capacity analysis prepared by Atkins on January 12, 2018, there are portions of the existing trunk sewer main that currently do not meet the city's "d/D" dry-weather flow (DWF) capacity criteria. These d/D criteria violations exist without the additional flows that would be generated by the proposed Wingfield Commons project. To address these violations, the November 2016 Sewer Model Update Report, prepared by Atkins proposed Capital Improvement Projects (CIP) #12 and #14 to upsize two existing segments of gravity sewer mains along Cinnamon Drive and Wingfield Springs Road. (Refer to the January 12, 2018 Atkins Report in Appendix A for maps and diagrams of the offsite trunk sewer main).

#### **5.0 Proposed Sanitary Sewer Infrastructure**

The proposed project will consist of a network of 8-inch gravity sewer mains located within the various proposed streets to collect flows from the individual dwelling units. The sewer mains shall be designed to provide a minimum velocity of 2 feet per second flowing half full. Sewer manholes will be provided at junctions and angle points, with spacings of no more than 400 feet for maintenance access. Because of an elevation conflict with the existing trapezoidal drainage channel located west of the site, a gravity connection cannot be provided to the nearest existing sewer manhole located on the fire station property. Therefore, it is anticipated that the existing lift station located east of the city maintenance building will need to be rebuilt, with a deeper wet well to allow a gravity connection from the proposed Wingfield Commons development. This scenario is preferred over having two separate lift stations.

Additionally, based on the January 12, 2018 Atkins Report, there is an existing section of cross-county 8-inch sewer main located southwest of Centaurus Drive that will require upsizing under full buildout conditions of the proposed Wingfield Commons development.

It is anticipated that a more in-depth analysis, based actual sewer flows will be required to establish a timeframe for the required off-site improvements, based on the number of lots constructed during each proposed phase of the project. Foothills at Wingfield, LLC will work with the city through the Tentative Map process to ensure all required offsite sewer improvements are properly planned and conditioned.

## **6.0 Conclusions**

Full buildout of the proposed Wingfield Commons development will require certain off-site improvements to existing sewer infrastructure, including completion of CIP #12 and #14, upgrade of the existing lift station located adjacent to the city maintenance building, and upsizing of a section of 8-inch cross-county gravity sewer main located near Centaurus Drive.

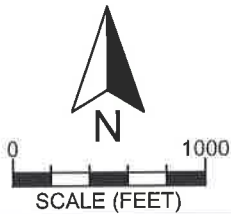
The proposed improvements noted above will ensure there is adequate capacity within the city's sewer network to serve full buildout of the proposed development. The final implementation schedule of all offsite sewer system improvements will be coordinated with the City through the Tentative Map process.

## **Enclosures**

**Exhibit A** – Wingfield Commons Preliminary Land Plan

**Appendix A** – January 12, 2018 Atkins Report prepared for the City of Sparks





## PRELIMINARY LAND PLAN

WINGFIELD COMMONS  
SPARKS, NEVADA

MARCH 2018

EXHIBIT  
"A"

# Memo

**To:** Andy Hummel, P.E., City of Sparks

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**From:** Brian Janes, P.E., Atkins

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**Date:** January 12, 2018

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**Subject:** Golden Eagle Development-Capacity Analysis  
City of Sparks Sewer Model Update

Per the request of the City, Atkins performed a preliminary capacity analysis of the existing sanitary sewer system downstream of the proposed Golden Eagle Development (herein referred to as the "Project"). The purpose of this analysis was to determine the potential impacts to the existing sanitary sewer system resulting from the planned single family housing development proposed at the 59.92 acre parcel (APN: 084-550-02) located east along the Golden Eagle Trail (see attached **Figure 1**). This Project was originally planned to have 330 Single Family Residential dwelling units but per the latest information from the City of Sparks, the Project will now comprise of 500 dwelling units. The Project flows in the *2016 Sewer Model Update Technical Report* entered the hydraulic model at manhole SSN004820 at the intersection of the Spanish Springs Trail and Wingfield Comm Trail. However, as part of this study an 8 inch sewer line from SSN035828 (near Vista Blvd) to SSN004820 was modeled, and now the Project flow from this parcel enters the hydraulic model at SSN035828. This memorandum summarizes the preliminary findings from the analysis of the 8 inch sewer line and the additional number of dwelling units associated with the Project.

**Wastewater Flows and Hydraulic Model**

In modeling the wastewater generated from the proposed development, Atkins used the average daily dry weather wastewater flow (ADWF) unit generation rates recommended in **Table 3-7** of the *2016 Sewer Model Update Technical Report*. **Table 1** below summarizes the estimated wastewater flows generated from the new development.

**Table 1 Wastewater Generation Model Loading**

Proposed Development Land Use <sup>1</sup>	Recommended Unit Wastewater Generation Rate <sup>2</sup>	Average Daily Flow (gpd)
Single Family Residential (500 DU)	210 gpd/DU	105,000
Total ADWF =		105,000

Notes:

<sup>1</sup> Total number of dwelling units (500) provided by City of Sparks in December 2017, is more than the units assumed (330) for this parcel at the time of developing buildout land use model for the *2016 Sewer Model Update Technical Report*

<sup>2</sup> Recommended unit wastewater generation rates referenced from the *2016 Sewer Model Update Technical Report*

• ADWF = average daily dry weather flow

These wastewater flows were loaded into the current version of a City of Sparks InfoSWMM hydraulic model (originally completed by Atkins, November 3, 2016 as part of the *2016 Sewer Model Update Technical Report*). The following models scenarios were simulated to determine the impact of the project: (1) existing condition dry weather flow (DWF) and wet weather flow (WWF) models (including the proposed Project anticipated flows) and (2) buildout condition dry and wet weather flow models (including the proposed Project anticipated flows).

Based on calibrated diurnal patterns for typical single family residential developments, the estimated peak dry weather flow (PDWF) from this development is approximately 0.143 MGD. Additionally, based on calibrated wet weather flow parameters determined in the *2016 Sewer Model Update Technical Report*, the estimated peak wet weather flow (PWWF) for this development is approximately 0.189 MGD.

**Existing Condition Model Results**

**Figure 2** compares the d/D modeling results for the sewer system between the existing condition scenario and the existing condition plus the proposed development scenario to determine the potential downstream capacity impacts from the development. The existing condition plus the proposed development scenario includes the

# Memo

estimated ADWF of 0.105 MGD from the proposed Project in the model simulation. The criteria used to evaluate the sewer system are listed in **Table 4-6** of the *2016 Sewer Model Update Technical Report*.

In the existing condition (without project), there is a d/D violation occurring at SSL015161, and immediately downstream of this conduit, the d/D values are close to 0.5, from Centaurus Dr to Cinnamon Dr. To address these violations, the 2016 Report proposed CIP 12 in Section 5.3.1 of the *2016 Sewer Model Update Technical Report*. The existing condition CIP consists of upsizing the sewer from Centaurus Dr to Cinnamon Dr (SSL015161 to SSL002982) from 10 inch and 12 inch to 15 inches.

As shown in **Figure 2**, the sewer flows from the proposed development results in minor d/D DWF criteria violations at multiple conduits from SSL015161 to SSL002987 (d/D = 0.52 to 0.64) along the Centaurus Dr to Cinnamon Dr sewer. These violations also include a violation (d/D = 0.64) at the end of the newly modeled 8 inch sewer line at SSL015546. In the existing condition model (without project), this line has a d/D of 0.5 which is at the criteria limit.

## Buildout Condition Model Results

**Figure 3** compares the d/D modeling results for the sewer system between the original buildout condition scenario developed in the 2016 Report and the buildout condition with the proposed development scenario to determine the potential future downstream capacity impacts from the 170 dwelling units proposed with the development.

The original buildout scenario in 2016 had assumed a total of 330 dwelling units for the Project which generated an ADWF value of 0.0693 MGD. However, per the latest City of Sparks information, the development will have 500 dwelling units and generates higher wastewater flows as compared to the original buildout condition, with an ADWF value of 0.105 MGD (ADWF increase of 0.0357 MGD).

In the original buildout condition, there are d/D DWF criteria violations occurring at multiple conduits from Centaurus Dr to Cinnamon Dr, from SSL001561 and SSL005781, caused by the proposed developments of Wingfield Springs and The Foothills at Wingfield springs, where the Project is located. To address these violations, the 2016 Report proposed buildout condition CIP 14 in Section 5.3.2 of the *2016 Sewer Model Update Technical Report*. The CIP consists of upsizing the Wingfield Springs Rd sewer (SSL002986 to SSL005755) from a 15 inch size to a 18 inch size pipe. Implementation of CIP 12 and 14 eliminate d/D violations downstream of the newly modeled 8 inch sewer line.

The 8 inch sewer line modeled as part of this study indicates there will be d/D violations towards its junction with Centaurus Dr sewer at SSL015546 and SSL002985. Implementing both CIPs (CIP 12 and CIP 14) reduces the d/D violations to 0.53 at SSL015546 and 0.51 at SSL002985 but does not eliminate the violations. If an additional improvements are constructed to increase these 3 pipe segments to 10 inches, the d/D violations are reduced to less than 0.42.

## Conclusions

The updated higher number of dwelling units results in higher sewage generation from the Project, when compared with the original buildout condition. The higher flows result in d/D DWF criteria violations in the Centaurus Dr to Cinnamon Dr sewer line in the existing condition. There is also a violation in the 8 inch sewer line that has been modelled at its junction with the Centaurus sewer. CIP 12 was proposed in Section 5.3.1 of the *2016 Sewer Model Update Technical Report* and addresses the d/D violations in the Centaurus Dr sewer.

In the buildout condition in the 2016 Sewer Model Update, the Golden Eagle development combined with the other Wingfield Springs developments in the vicinity, and the consequent wastewater flows and d/D DWF criteria violations, triggered the formulation of CIP 14. The latest City information for the higher dwelling units on the Project parcels increases the generation of wastewater flows, and results in marginally higher d/D criteria violations, when compared with original buildout condition. Applying CIP 12 and CIP 14 addresses the d/D violations occurring in the Centaurus Dr to Wingfield Springs sewer, however does not address criteria violations in the newly modeled 8 inch sewer line.

The 8 inch sewer line from SSS035828 to SSS004820 has marginal d/D violations even after implementing CIP 12 and CIP 14 near its junction with the Centaurus Dr sewer. Two pipes on this line, SSL015546 and SSL002985 have d/D values of 0.53 and 0.51 respectively. Increasing the pipe size from SSL002985 to

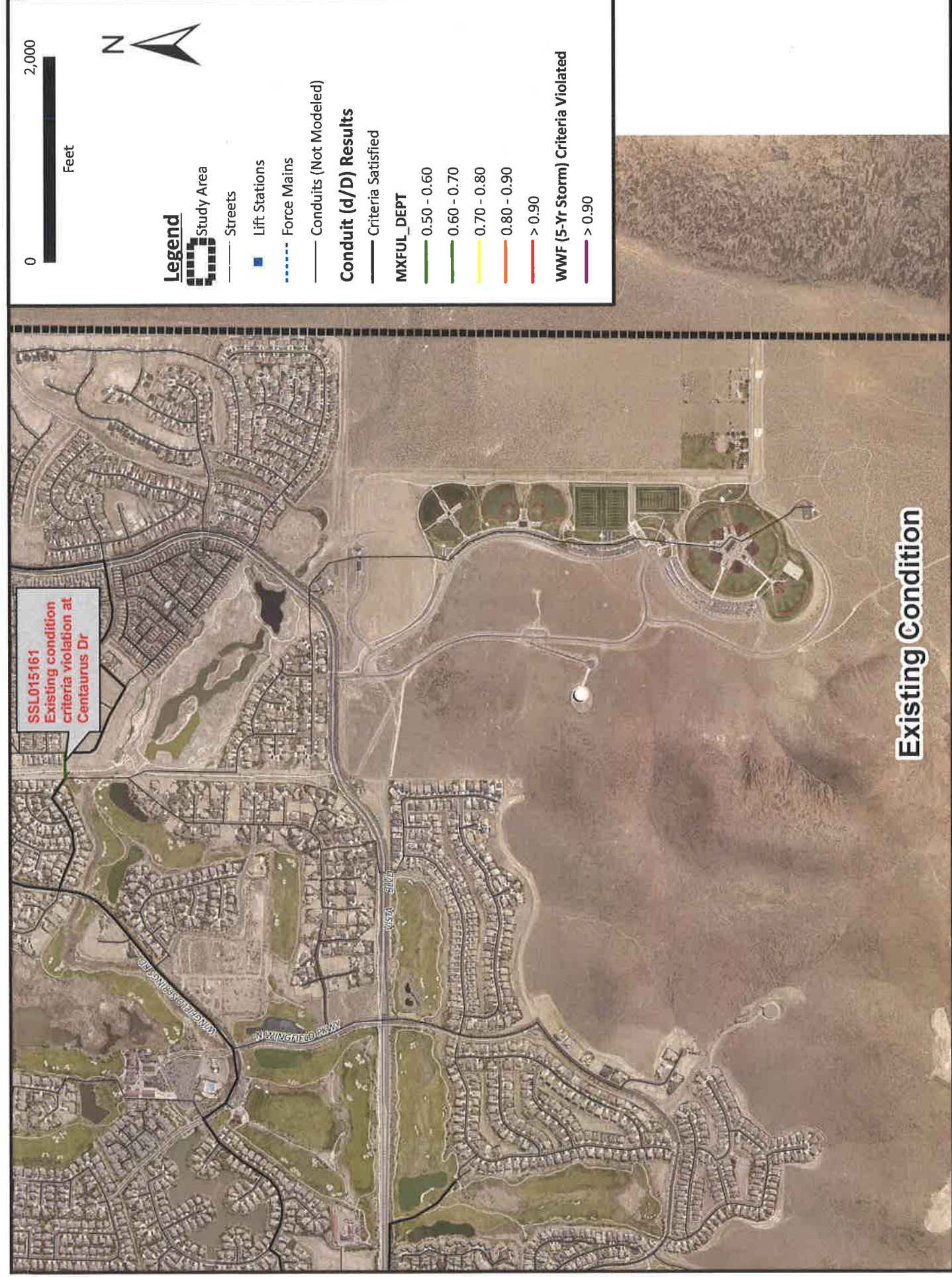
# Memo

SSL015546 from 8 inches to 10 inches (total length 615 ft) removes these violations. However, these 8 inch sewer violations can be approached in different ways.

- Since, the criteria violations in the 8 inch sewer line are marginal, and are localized, with no further violations to the system downstream after the implementation of CIP 12 and CIP 14, the City may want to confirm model criteria violations with actual performance data prior to deciding whether to upsize the 8 inch sewer line.
- Upgrade the 8 inch sewer from SSL002985 to SSL015546 to 10 inches. This completely removes the d/D violations in this line

The existing system does not have adequate capacity to convey the project flows and meet criteria without implementation of CIPs. In the buildout condition without CIPs, the criteria violations increase. Implementing planned CIPs 12 and 14 appear to adequately address sewer lines modeled with the master plan however minor criteria violations remain in the newly modeled 8 inch sewer line to the project. Increasing three sections of the 8 inch sewer line to 10 inches is expected to adequately address these violations in both the existing condition and buildout condition.





**Existing Condition**



**Existing Condition + Proposed Development**

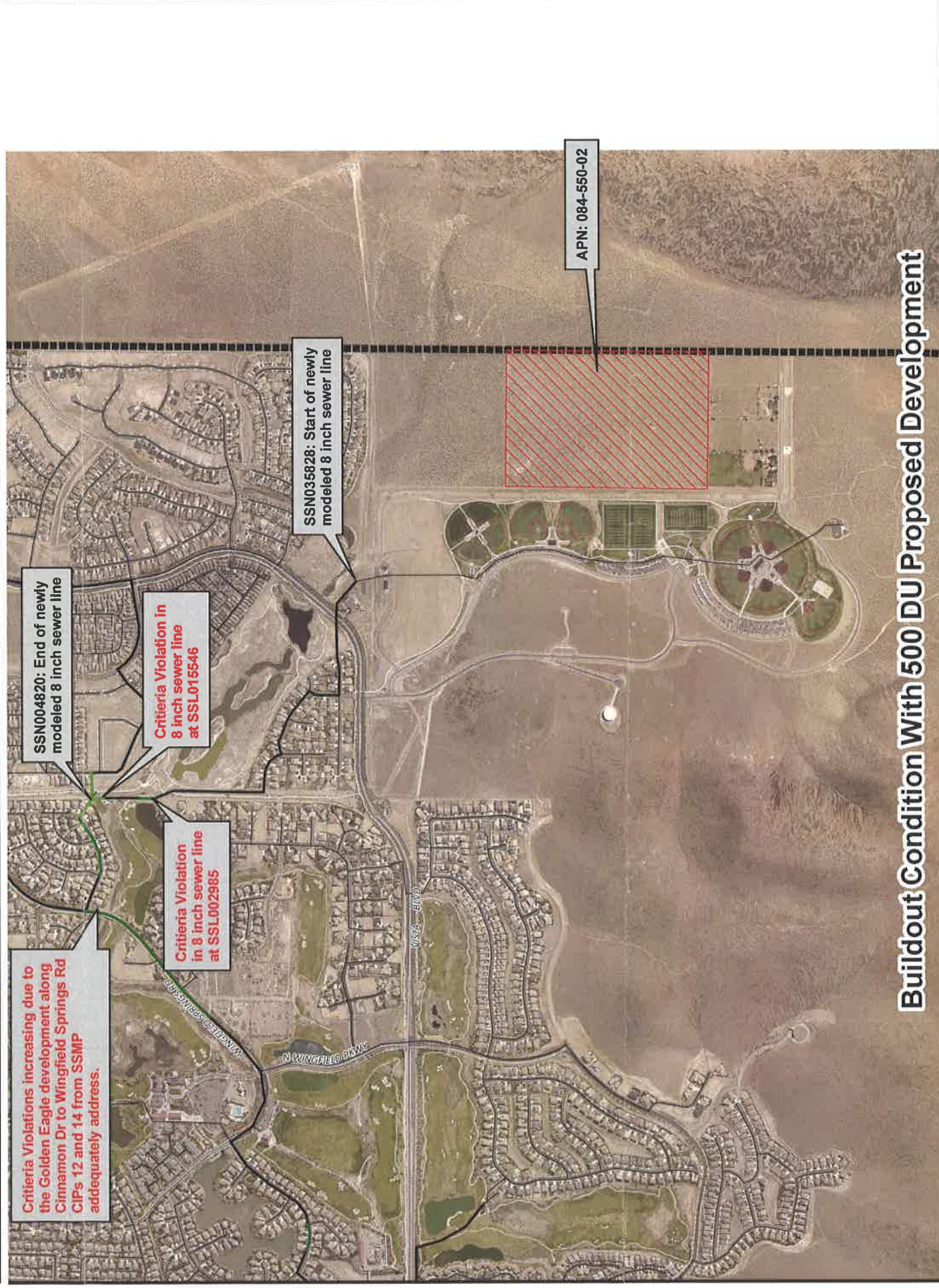
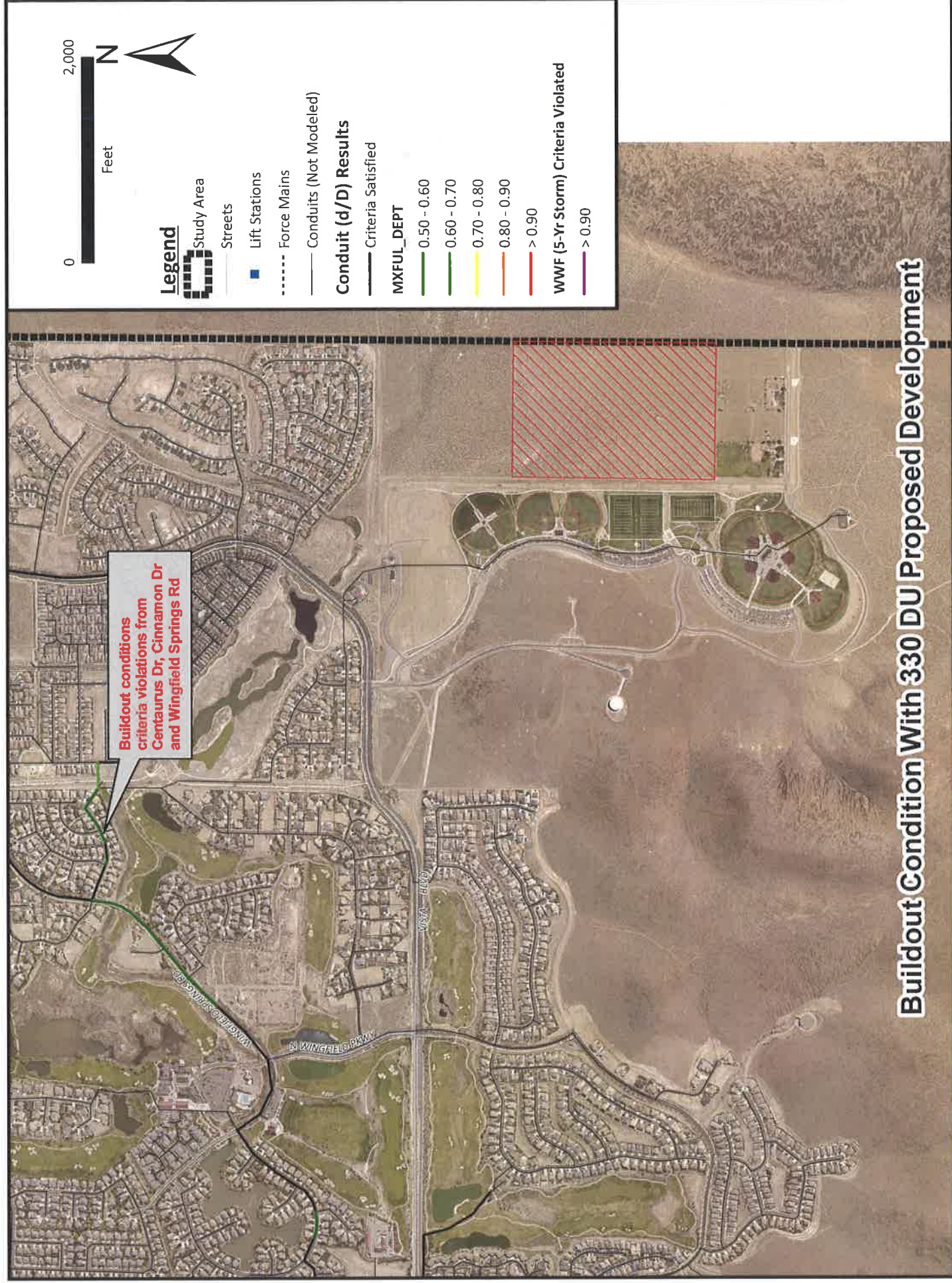


Sewer Model Update

Existing Condition Comparison - Golden Eagle Development



Figure 2



# WINGFIELD COMMONS

## TRAFFIC STUDY

JULY 2018



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# WINGFIELD COMMONS

## TRAFFIC STUDY

### EXECUTIVE SUMMARY

The proposed Wingfield Commons development is located in the City of Sparks, Nevada. The project site is located directly east of the Golden Eagle Regional Park (GERP) generally south of Vista Boulevard and east of Homerun Drive. The project site is currently undeveloped land except for a few dwelling units that will be removed. The purpose of this study is to address the project's impact upon the adjacent street network. The Vista Boulevard/Homerun Drive/Scorpius Drive, Homerun Drive/Touchdown Drive, and Touchdown Drive/Project Access intersections have been identified for weekday and Saturday AM and PM peak hour capacity analysis for the existing (without GERP event), existing (with GERP event), existing plus project (without GERP event), existing plus project (with GERP event), 2040 base (with GERP event), and 2040 base plus project (with GERP event) scenarios.

The proposed Wingfield Commons development will consist of the construction of 450 single family dwelling units. Project access will be provided from a new proposed access roadway intersecting Touchdown Drive. Wingfield Commons is anticipated to generate 4,248 average daily trips, 333 AM peak hour trips, and 446 PM peak hour trips on a typical weekday and 4,293 average daily trips, 170 AM peak hour trips, and 419 PM peak hour trips on a typical Saturday.

Traffic generated by the Wingfield Commons development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping, or traffic control improvements comply with City of Sparks requirements.

It is recommended that the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be improved to include one exclusive left turn lane, one shared left turn-through lane, and one exclusive right turn lane at the south approach.

It is recommended that the existing right turn lane at the west approach of the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be lengthened to provide a minimum of 465 feet of storage/deceleration length with a 180 foot taper in order to serve traffic volumes generated by a major event at the Golden Eagle Regional Park.

It is recommended that the traffic control at the Homerun Drive/Touchdown Drive intersection be modified to include stop sign control at the south and east approaches while the left turn and through movements at the north approach flow free. In addition, it is recommended that an exclusive left turn lane be provided at the north approach.

It is recommended that the Touchdown Drive/Project Access intersection be designed as a three-leg intersection with stop sign control at the east approach and contain an exclusive left turn lane at the north approach.

It is recommended that the project access roadway and the internal residential streets be designed to conform to City of Sparks standards.

It is recommended that connections be made from the proposed subdivision to the existing pedestrian/bicycle network within the Golden Eagle Regional Park.

It is recommended that the project developers provide a traffic circulation plan that discourages or prevents Golden Eagle Regional Park traffic from utilizing the project access road and internal residential streets.

# INTRODUCTION

## STUDY AREA

The proposed Wingfield Commons development is located in the City of Sparks, Nevada. The project site is located directly east of the Golden Eagle Regional Park (GERP) generally south of Vista Boulevard and east of Homerun Drive. Figure 1 shows the approximate location of the site. The purpose of this study is to address the project's impact upon the adjacent street network. The Vista Boulevard/Homerun Drive/Scorpius Drive, Homerun Drive/Touchdown Drive, and Touchdown Drive/Project Access intersections have been identified for weekday and Saturday AM and PM peak hour capacity analysis for the existing (without GERP event), existing (with GERP event), existing plus project (without GERP event), existing plus project (with GERP event), 2040 base (with GERP event), and 2040 base plus project (with GERP event) scenarios.

## EXISTING AND PROPOSED LAND USES

The project site is currently undeveloped land except for a few single family home that will be removed. Adjacent properties generally include the Golden Eagle Regional Park to the west and undeveloped land to the north, south, and east. The proposed Wingfield Commons development will consist of the construction of 450 single family dwelling units. Project access will be provided from a new proposed access road intersecting Touchdown Drive.

## EXISTING AND PROPOSED ROADWAYS AND INTERSECTIONS

Vista Boulevard is a four-lane roadway with two through lanes in each direction in the vicinity of the site. The speed limit is posted for 35 miles per hour. Roadway improvements include curb, gutter, and bike lanes on both sides of the street, a sidewalk on the north side of the street, and a raised center median with openings at major intersections.

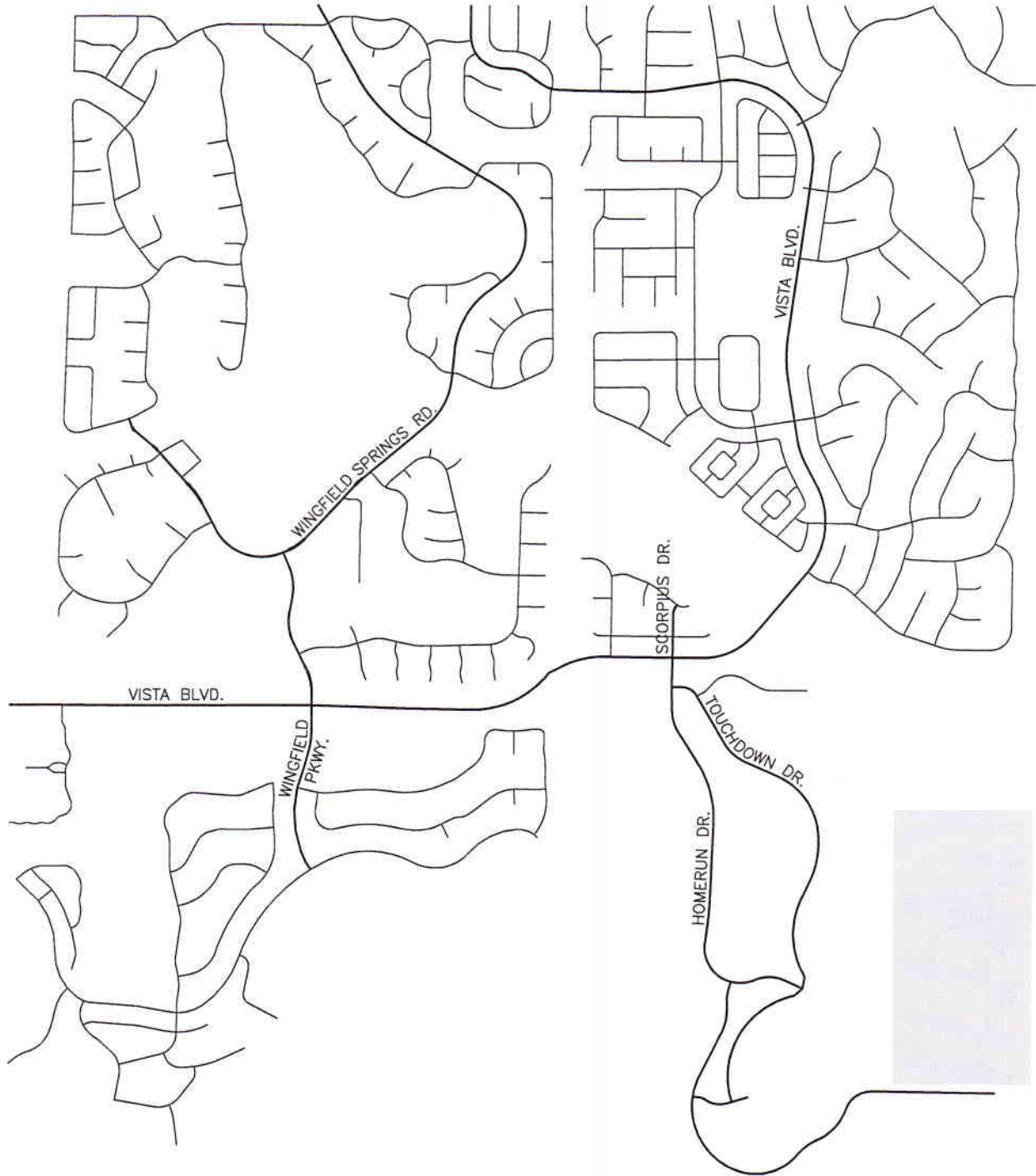
Homerun Drive is a two-lane roadway with one through lane in each direction south of Vista Boulevard. The speed limit is posted for 25 miles per hour. Roadway improvements include paved and graded shoulders with white striped edgelines and a yellow striped centerline. Homerun Drive aligns with Scorpius Drive at the Vista Boulevard intersection.

Scorpius Drive is a two-lane roadway with one through lane in each direction north of Vista Boulevard. The speed limit is not posted but assumed to be 25 miles per hour. Roadway improvements include curb, gutter, and sidewalk on both sides of the street. Scorpius Drive aligns with Homerun Drive at the Vista Boulevard intersection.

Touchdown Drive is a two-lane roadway with one through lane in each direction southeast of Homerun Drive. The speed limit is posted for 15 miles per hour. Roadway improvements include paved and graded shoulders with white striped edgelines and a yellow striped centerline.

LEGEND

PROJECT SITE



WINGFIELD COMMONS  
VICINITY MAP  
FIGURE 1

The Vista Boulevard/Homerun Drive/Scorpius Drive intersection is a signalized four-leg intersection with protected phasing for the eastbound and westbound left turn movements. The north approach contains one shared left turn-through-right turn lane. The south approach contains one left turn lane and one shared through-right turn lane. The east approach contains one left turn lane, one through lane, and one shared through-right turn lane. The west approach contains one left turn lane, two through lanes, and one right turn lane.

The Homerun Drive/Touchdown Drive intersection is an unsignalized three-leg intersections with stop control at the east approach. The intersection contains one shared left turn-through lane at the north approach, one shared through-right turn lane at the south approach, and one shared left turn-right turn lane at the east approach.

The Touchdown Drive/Project Access intersection does not exist but will be constructed as an unsignalized three-leg intersections with stop control at the east approach. At a minimum, the intersection will be analyzed with one shared left turn-through lane at the north approach, one shared through-right turn lane at the south approach, and one shared left turn-right turn lane at the east approach. This new intersection will be located south of an existing access intersection that will be removed.

## TRIP GENERATION

In order to assess the magnitude of traffic impacts of the proposed project on the key intersections, trip generation rates and peak hours had to be determined. Trip generation was calculated based on rates obtained from the *10th Edition of ITE Trip Generation (2017)* for Land Use 210: Single Family Detached Housing. Trips generated by the project were calculated for the weekday peak hours occurring between 7:00 and 9:00 AM and 4:00 and 6:00 PM, which correspond to the peak hours of adjacent street traffic, and the Saturday peak hour of generator which is assumed to correspond to the afternoon peak hour of the Golden Eagle Regional Park. *ITE Trip Generation* does not contain rates for a Saturday AM peak hour. Existing counts on Vista Boulevard indicate that Saturday AM peak hour traffic volumes are approximately 51% of weekday AM peak hour traffic volumes. The AM peak hour trip generation for Saturday was therefore assumed to be 51% of the weekday AM peak hour trip generation. Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour volumes generated by the project for a weekday and Saturday. The trip generation worksheets are included in the Appendix.

LAND USE	ADT	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached Housing (450 D.U.)							
Weekday	4,248	83	250	333	281	165	446
Saturday	4,293	42	128	170	226	193	419

## TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of the project trips to the key intersections was based on existing peak hour traffic patterns and the locations of attractions and productions in the area. The anticipated trip distribution is shown on Figure 2. The peak hour project trips shown in Table 1 were subsequently assigned to the key intersections based on the trip distribution. Figure 3 shows the project trip assignment at the key intersections during the weekday and Saturday AM and PM peak hours.

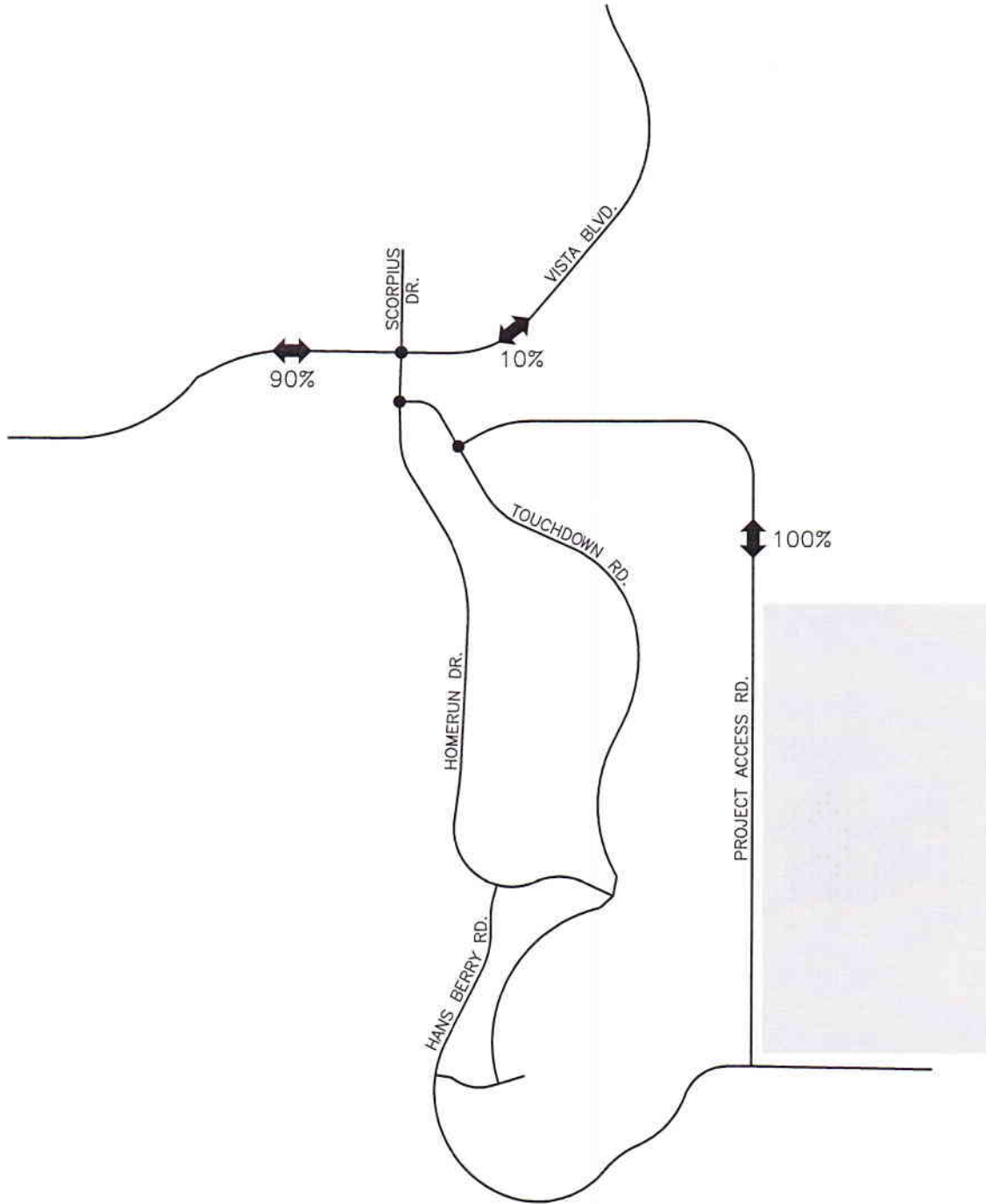
## EXISTING AND PROJECTED TRAFFIC VOLUMES

Figure 4A shows the existing peak hour volumes at the key intersections for the weekday AM, weekday PM, Saturday AM, and Saturday PM peak hour scenarios. The existing volumes were obtained from counts taken in February of 2018. The counts were adjusted to 100% of the annual average based on the requirement of City of Sparks staff. A major sporting event was not being held at the Golden Eagle Regional Park when the counts were conducted. Figure 4B shows the existing peak hour volumes (with GERP event) at the key intersections. The weekday AM and PM peak hour volumes were obtained by supplementing the existing volumes shown on Figure 4A with peak ingress and egress traffic volumes generated by a major event at the Golden Eagle Regional Park. The major event traffic volumes were obtained from City of Sparks Parks and Recreation staff. The Saturday AM and PM peak hour traffic volumes were obtained from counts conducted on April 28, 2018 and May 19, 2018 during GERP events identified by City of Sparks staff that included simultaneous baseball/softball/soccer games with high field utilization.

Figure 5A shows the existing plus project volumes at the key intersections for the weekday and Saturday AM and PM peak hours. The existing plus project volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the existing volumes shown on Figure 4A. Again, these volumes do not include a major event at the Golden Eagle Regional Park. Figure 5B shows the existing plus project peak hour volumes (with GERP event) for the weekday and Saturday AM and PM peak hours. The existing plus project volumes (with GERP event) were obtained by adding the trip assignment volumes shown on Figure 3 to the existing traffic volumes (with GERP event) shown on Figure 4B. These volumes include a major event at the Golden Eagle Regional Park.

Figure 6 shows the 2040 base traffic volumes (with GERP event) for the weekday and Saturday AM and PM peak hours. The 2040 base traffic volumes were obtained by applying a 0.5% average annual growth rate to the existing Vista Boulevard traffic volumes. A 0.2% average annual growth rate was calculated based on 2015 and 2040 average daily traffic volumes obtained from the Regional Transportation Commission's traffic forecasting model. However, the 0.5% average annual growth rate was used in order to ensure conservative results. The 2040 base traffic volumes include a major event at the Golden Eagle Regional Park. Figure 7 shows the 2040 base plus project traffic volumes (with GERP event) for the weekday and Saturday AM and PM peak hours. The 2040 base plus project traffic volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the 2040 base traffic volumes shown on Figure 6. The 2040 base plus project volumes include a major event at the Golden Eagle Regional Park.

LEGEND  
● KEY INTERSECTIONS

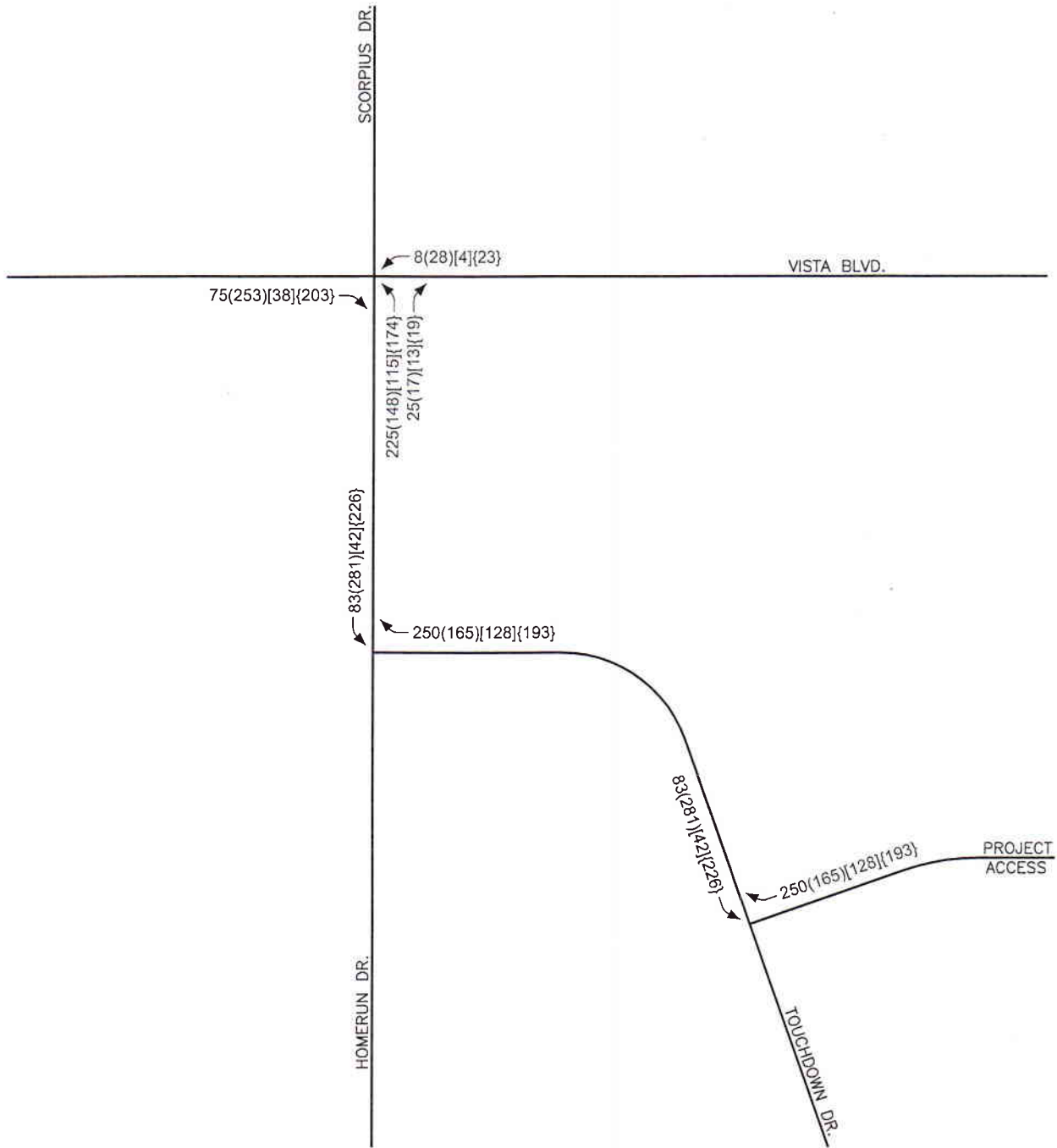


WINGFIELD COMMONS  
TRIP DISTRIBUTION  
FIGURE 2



LEGEND

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [ - ] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR

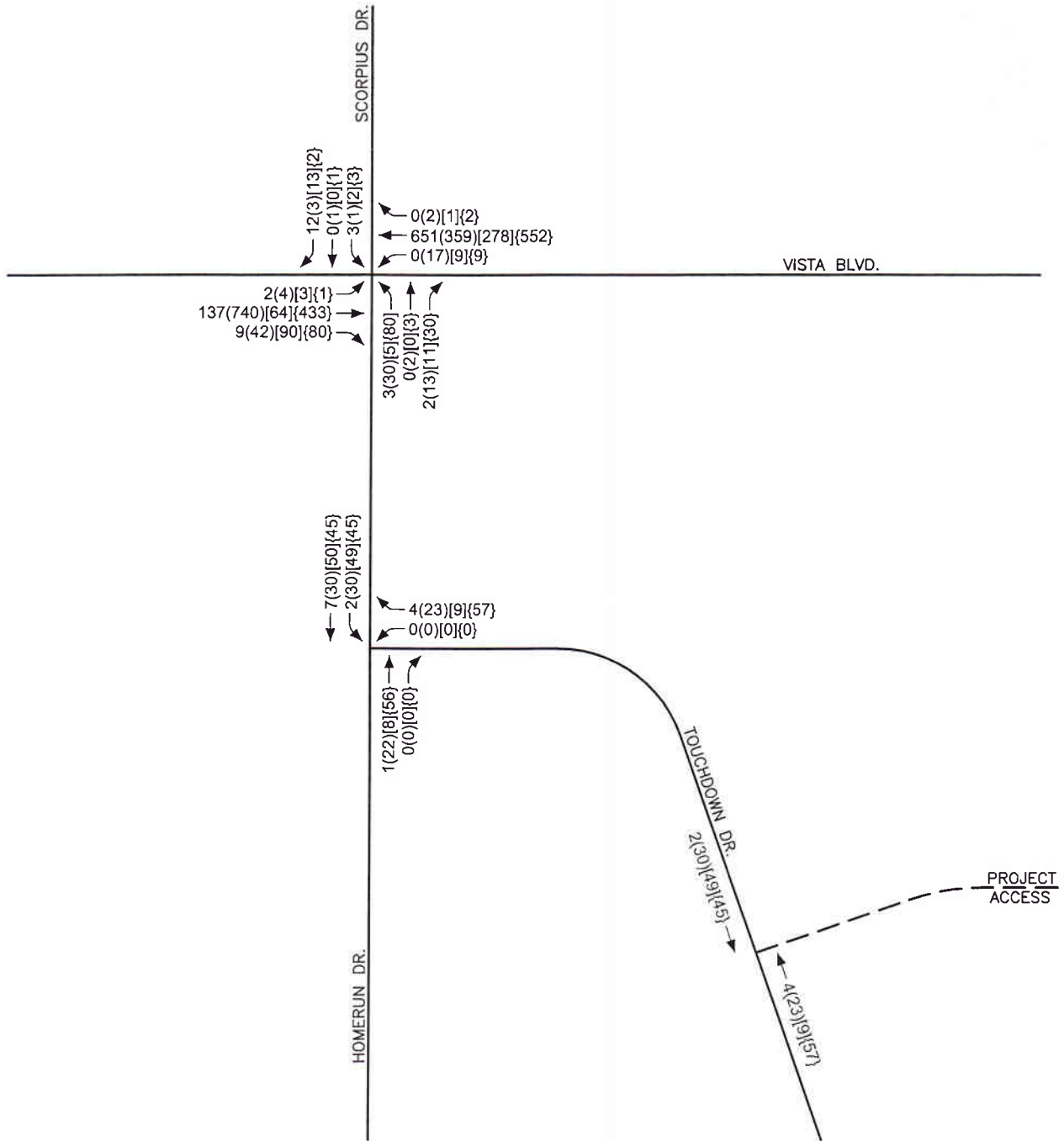


WINGFIELD COMMONS  
TRIP ASSIGNMENT  
FIGURE 3



LEGEND

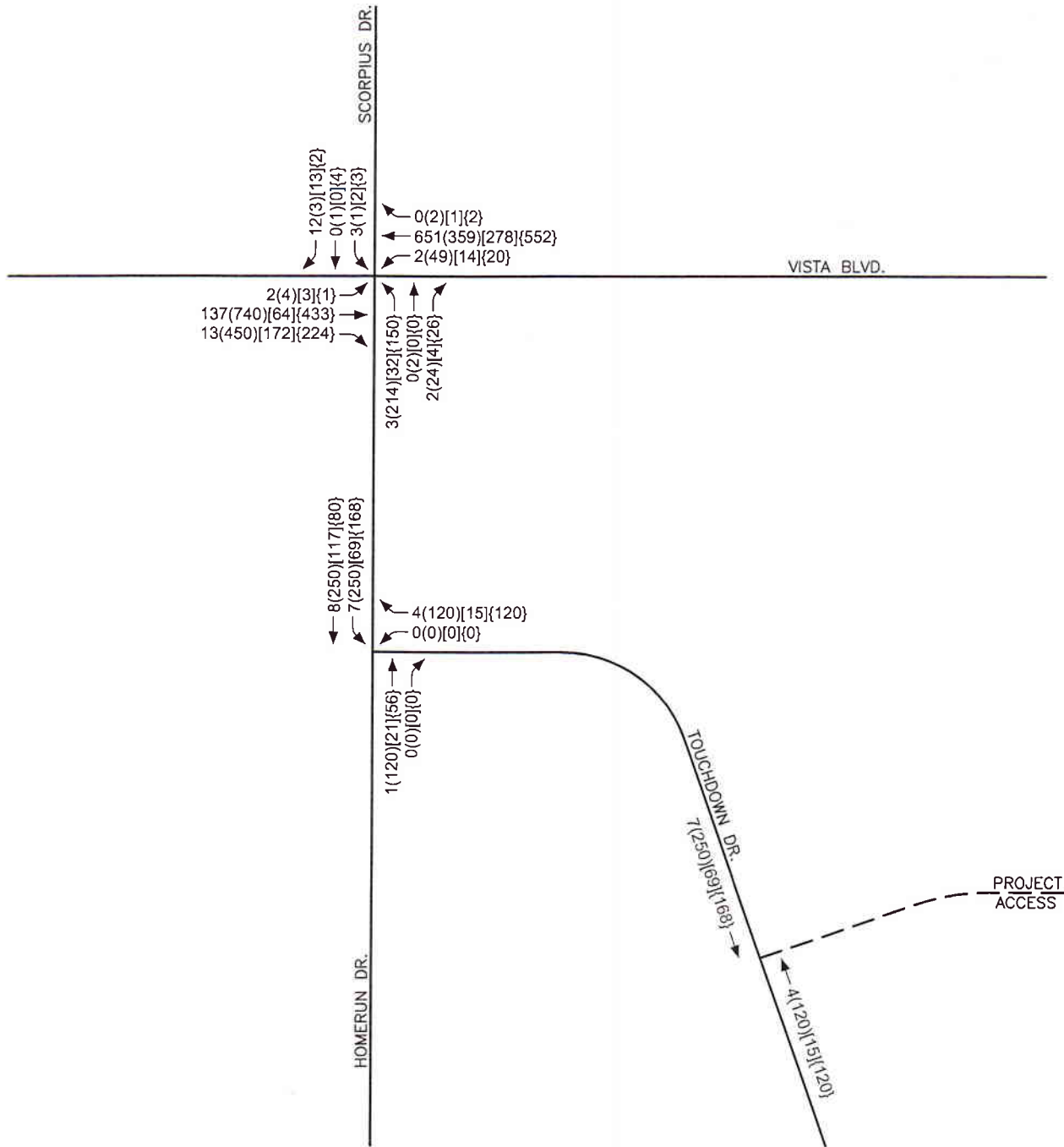
- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [ - ] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



WINGFIELD COMMONS  
EXISTING TRAFFIC VOLUMES  
FIGURE 4A

LEGEND

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [ - ] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR

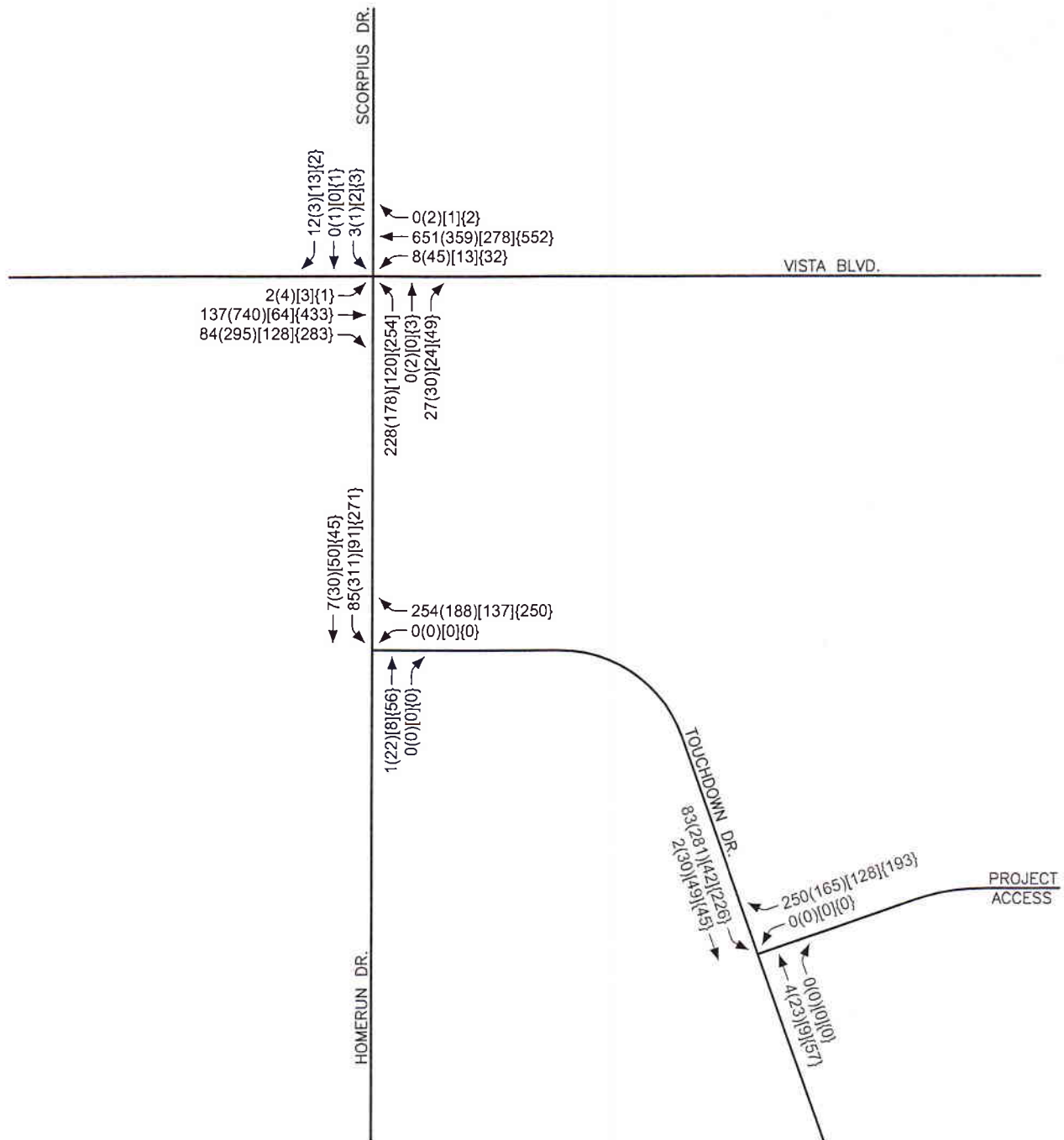


WINGFIELD COMMONS

EXISTING TRAFFIC VOLUMES (W/EVENT)  
FIGURE 4B

**LEGEND**

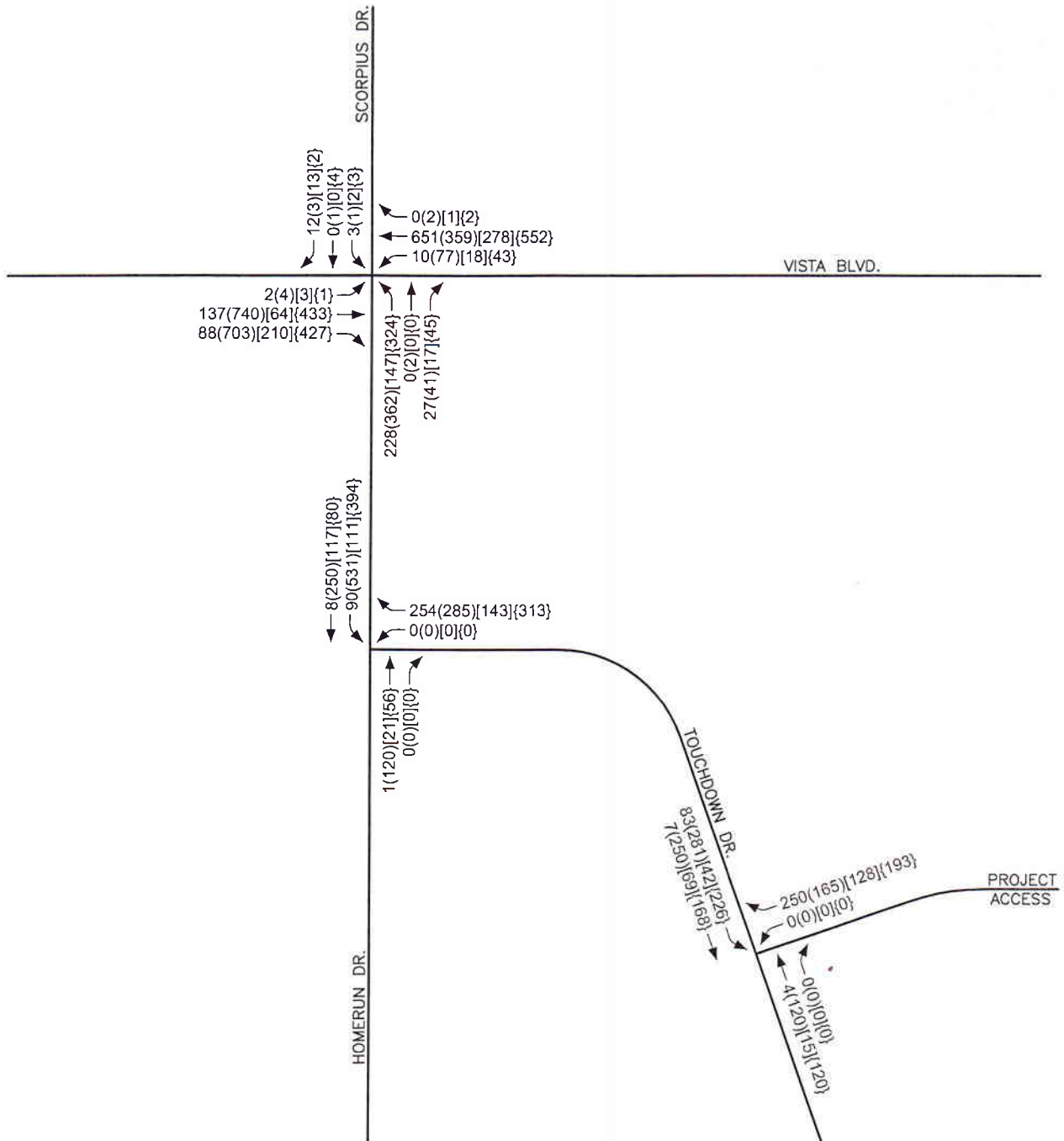
- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [ - ] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



**WINGFIELD COMMONS**  
**EXISTING PLUS PROJECT TRAFFIC VOLUMES**  
**FIGURE 5A**

LEGEND

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [ - ] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR

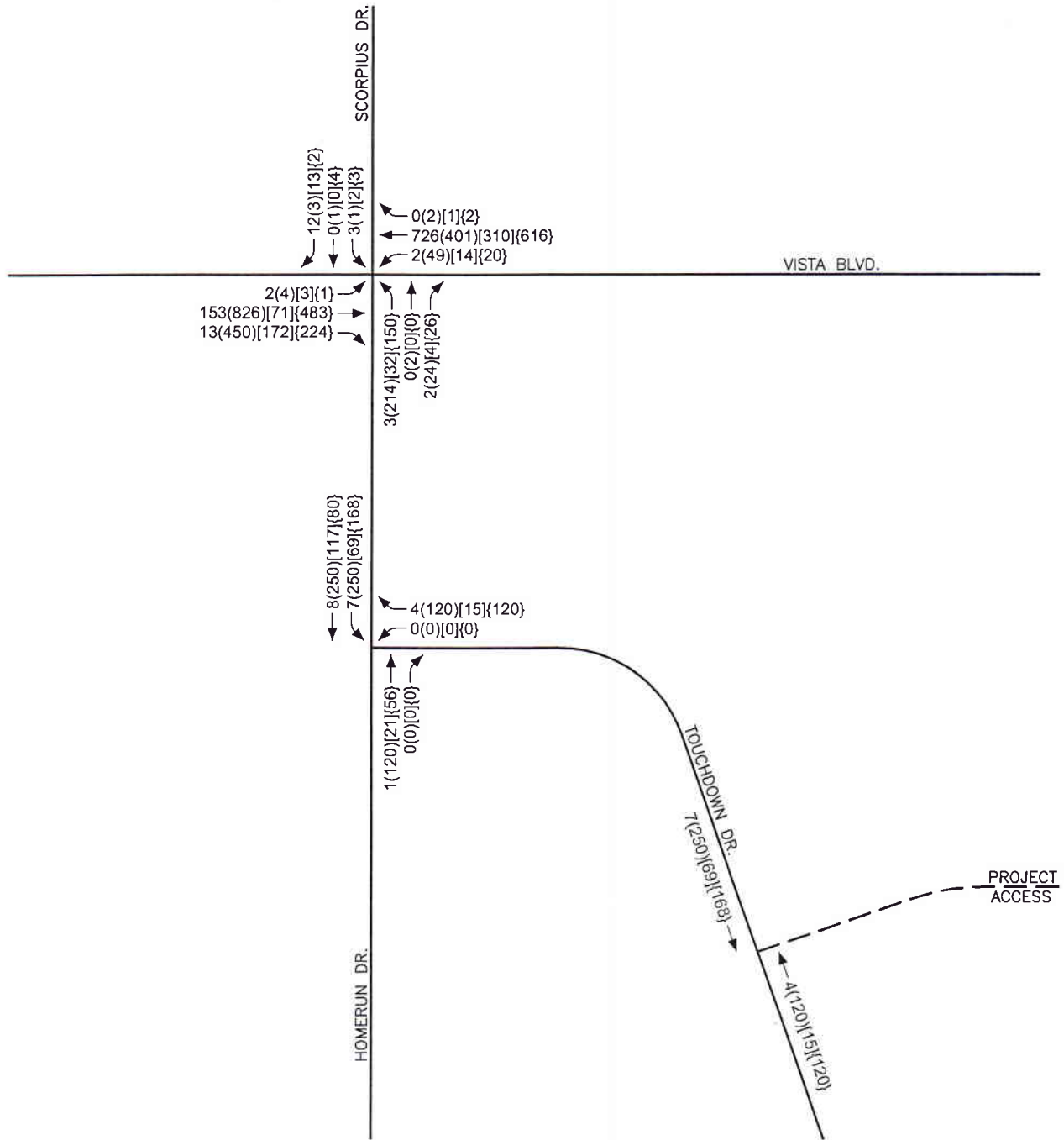


WINGFIELD COMMONS

EXISTING PLUS PROJECT TRAFFIC VOLUMES (W/EVENT)  
FIGURE 5B

**LEGEND**

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [ - ] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



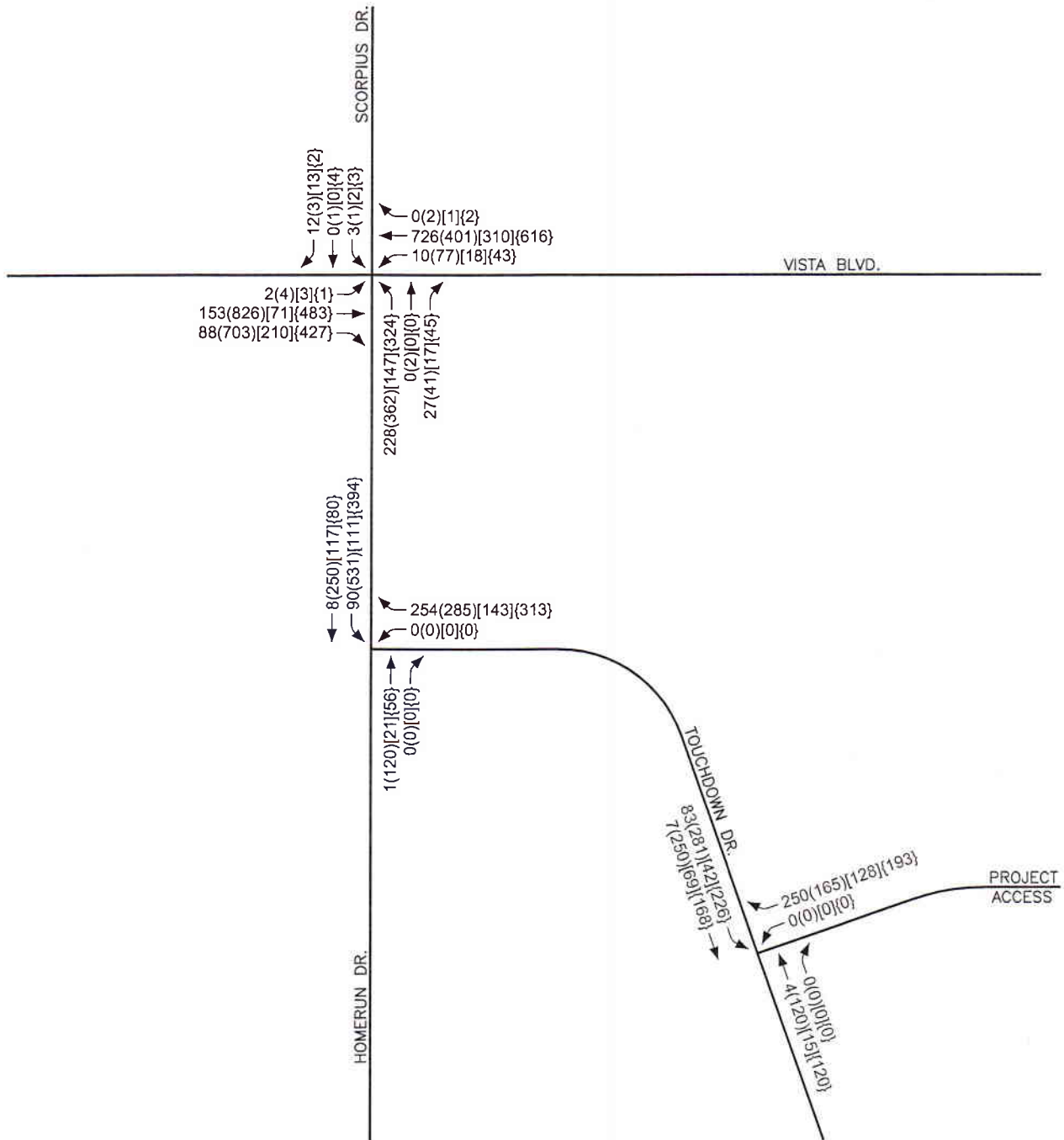
**WINGFIELD COMMONS**

**2040 BASE TRAFFIC VOLUMES (W/EVENT)**

**FIGURE 6**

**LEGEND**

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [ - ] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



**WINGFIELD COMMONS**

**2040 BASE PLUS PROJECT TRAFFIC VOLUMES (W/EVENT)  
FIGURE 7**

## INTERSECTION CAPACITY ANALYSIS

The key intersections were analyzed for capacity based on procedures presented in the *Highway Capacity Manual (6th Edition)*, prepared by the Transportation Research Board, for unsignalized and signalized intersections using the latest version of the Synchro computer software.

The result of capacity analysis is a level of service (LOS) rating for signalized intersections or minor movements at a two-way stop controlled intersection. Level of service is a qualitative measure of traffic operating conditions where a letter grade “A” through “F”, corresponding to progressively worsening traffic operation, is assigned to the intersection or minor movement.

The *Highway Capacity Manual* defines level of service for stop controlled intersections in terms of computed or measured control delay for each minor movement. Level of service is not defined for the intersection as a whole. The level of service criteria for unsignalized intersections is shown in Table 2.

LEVEL OF SERVICE	DELAY RANGE (SEC/VEH)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Level of service for signalized intersections is stated in terms of the average control delay per vehicle for a peak 15 minute analysis period. The level of service criteria for signalized intersections is shown in Table 3.

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80



Table 4A shows a summary of the level of service and delay results at the key intersections for the existing and existing plus project scenarios with no GERP event. The intersection capacity worksheets are included in the Appendix.

TABLE 4A INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS EXISTING AND EXISTING PLUS PROJECT SCENARIOS (NO GERP EVENT)								
INTERSECTION	EXISTING				EXISTING PLUS PROJECT			
	WEEK AM	WEEK PM	SAT. AM	SAT. PM	WEEK AM	WEEK PM	SAT. AM	SAT. PM
Vista/Homerun/Scorpius Signalized w/Existing Lanes	A8.6	B10.1	A8.8	B10.1	B14.4	B13.3	B11.5	B15.1
Homerun/Touchdown Stop at East Leg WB Left-Right SB Left	A8.3 A7.2	A8.5 A7.3	A8.4 A7.3	A8.8 A7.4	A9.5 A7.4	A9.3 A7.9	A8.9 A7.4	B10.0 A7.9
Touchdown/Project Access Stop at East Leg WB Left-Right SB Left	N/A N/A	N/A N/A	N/A N/A	N/A N/A	A9.5 A7.4	A9.8 A7.9	A8.9 A7.3	A9.6 A7.8

Table 4B shows a summary of the level of service and delay results at the key intersections for the existing and existing plus project scenarios with a GERP event. The intersection capacity worksheets are included in the Appendix.

TABLE 4B INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS EXISTING AND EXISTING PLUS PROJECT SCENARIOS (WITH GERP EVENT)								
INTERSECTION	EXISTING				EXISTING PLUS PROJECT			
	WEEK AM	WEEK PM	SAT. AM	SAT. PM	WEEK AM	WEEK PM	SAT. AM	SAT. PM
Vista/Homerun/Scorpius Signalized w/Existing Lanes	A9.5	B15.0	B10.2	B12.2	B14.4	D41.3	B13.4	B18.4
Homerun/Touchdown Stop at East Leg WB Left-Right SB Left	A8.3 A7.2	A9.6 A8.1	A8.5 A7.4	A9.1 A7.7	A9.5 A7.4	B11.0 A9.2	A9.0 A7.5	B10.5 A8.3
Touchdown/Project Access Stop at East Leg WB Left-Right SB Left	N/A N/A	N/A N/A	N/A N/A	N/A N/A	A9.5 A7.4	A9.9 A8.2	A8.9 A7.3	B10.1 A8.0

Table 4C shows a summary of the level of service and delay results at the key intersections for the 2040 base and 2040 base plus project scenarios with a GERP event. The intersection capacity worksheets are included in the Appendix.

TABLE 4C INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS 2040 BASE AND 2040 BASE PLUS PROJECT SCENARIOS (WITH GERP EVENT)								
INTERSECTION	2040 BASE				2040 BASE PLUS PROJECT			
	WEEK AM	WEEK PM	SAT. AM	SAT. PM	WEEK AM	WEEK PM	SAT. AM	SAT. PM
Vista/Homerun/Scorpius Signalized w/Existing Lanes	A9.9	B15.2	A9.9	B12.5	B14.9	D41.1	B13.1	B18.9
Homerun/Touchdown Stop at East Leg WB Left-Right SB Left	A8.3 A7.2	A9.6 A8.1	A8.5 A7.4	A9.1 A7.7	A9.5 A7.4	B11.0 A9.2	A9.0 A7.5	B10.5 A8.3
Touchdown/Project Access Stop at East Leg WB Left-Right SB Left	N/A N/A	N/A N/A	N/A N/A	N/A N/A	A9.5 A7.4	A9.9 A8.2	A8.9 A7.3	B10.1 A8.0

Vista Boulevard/Homerun Drive/Scorpius Drive Intersection

The Vista Boulevard/Homerun Drive/Scorpius Drive intersection was analyzed for capacity as a signalized four-leg intersection for all scenarios. The intersection currently operates at LOS B or better during the weekday and Saturday AM and PM peak hours with no GERP event. For the existing plus project traffic volumes (no GERP event) the intersection operates at LOS B during the weekday and Saturday AM and PM peak hours. With a GERP event, the intersection currently operates at LOS B or better during the weekday and Saturday AM and PM peak hours. For the existing plus project traffic volumes (with GERP event) the intersection operates at LOS B during the weekday AM and Saturday AM and PM peak hours and LOS D during the weekday PM peak hour. For the 2040 base traffic volumes (with GERP Event) the intersection operates at LOS B or better during the weekday and Saturday AM and PM peak hours. For the 2040 base plus project traffic volumes (with GERP event) the intersection operates at LOS B during the weekday AM and Saturday AM and PM peak hours and LOS D during the weekday PM peak hour. The intersection was analyzed with the existing approach lanes and signal phasing for all scenarios. The existing intersection meets policy LOS D or better operation for all scenarios.

### Homerun Drive/Touchdown Drive Intersection

The Homerun Drive/Touchdown Drive intersection was analyzed as an unsignalized three-leg intersection with stop control at the east approach for all scenarios. The intersection minor movements currently operate at LOS A during the weekday and Saturday AM and PM peak hours with no GERP event. For the existing plus project traffic volumes (no GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. With a GERP event, the intersection minor movements currently operate at LOS A during the weekday and Saturday AM and PM peak hours. For the existing plus project traffic volumes (with GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. For the 2040 base traffic volumes (with GERP Event) the intersection minor movements operate at LOS A during the weekday and Saturday AM and PM peak hours. For the 2040 base plus project traffic volumes (with GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. The intersection was analyzed with the existing approach lanes and traffic control for all scenarios. In summary, the existing intersection minor movements operate at acceptable LOS B or better for all scenarios and peak hours.

### Touchdown Drive/Project Access Intersection

The Touchdown Drive/Project Access intersection was analyzed as an unsignalized three-leg intersection with stop control at the east approach for the “with project” scenarios. For the existing plus project traffic volumes (no GERP event) the intersection minor movements operate at LOS A during the weekday and Saturday AM and PM peak hours. For the existing plus project traffic volumes (with GERP event) the minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. For the 2040 base plus project traffic volumes (with GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. The intersection was analyzed with single lanes at all approaches. However, it is recommended that an exclusive left turn lane be provided at the north approach. The left turn lane should be designed to maximize storage length. The proposed intersection minor movements operate at acceptable LOS B or better for all scenarios and peak hours.

## QUEUING ANALYSIS

As previously discussed, the existing Vista Boulevard/Homerun Drive/Scorpius Drive intersection, the existing Homerun Drive/Touchdown Drive intersection, and the proposed Touchdown Drive/Project Access intersection are anticipated to operate at acceptable levels of service for all study scenarios and peak hours. However, the spacing of the Vista Boulevard/Homerun Drive and Homerun Drive/Touchdown Drive intersections could potentially result in queuing and storage conflicts on Homerun Drive. Approximately 210 feet of storage length is currently available from the stop bar at the south approach of the Vista Boulevard/Homerun Drive intersection to the north side of the Homerun Drive/Touchdown Drive intersection.

Queue lengths were subsequently reviewed at the south approach of the signalized Vista Boulevard/Homerun Drive intersection. The capacity analysis results show 95th percentile queue lengths of less than 125 feet for the weekday and Saturday AM peak hours for the existing plus project (with and with GERP event) and 2040 base plus project (with GERP event) scenarios. These queue lengths can easily be accommodated within the  $\pm 210$  feet available storage area on Homerun Drive with no impacts anticipated at the Homerun Drive/Touchdown Drive intersection. However, 95th percentile queue lengths of approximately 225 feet for the weekday PM peak hour and 200 feet for the Saturday PM peak hour are anticipated for the existing plus project (with GERP event) and the 2040 base plus project (with GERP event) scenarios. These weekday and Saturday PM peak hour queue lengths could exceed the  $\pm 210$  feet available storage length on Homerun Drive resulting in potential impacts at the Homerun Drive/Touchdown Drive intersection. If the queue length extends south past Touchdown Drive then the southbound left turn movement at the Homerun Drive/Touchdown Drive intersection could potentially be blocked which in turn could result in the left turn queue extending northward onto Vista Boulevard.

In order to prevent potential blockage of the Homerun Drive/Touchdown Drive intersection it is recommended that the Vista Boulevard/Homerun Drive intersection be improved to include an additional left turn lane at the south approach and the Homerun Drive/Touchdown Drive intersection be modified to include stop sign control at both the east and south approaches. "Do Not Block Intersection" pavement markings and appropriate signage are also suggested to inform motorists of the modified intersection operation. The south approach of the Homerun Drive/Touchdown Drive intersection is projected to serve the lowest volume of the three approaches based on the project buildout traffic volumes. In addition, it is recommended that the Homerun Drive/Touchdown Drive intersection be improved to include an exclusive left turn lane at the north approach. This left turn lane should be designed to maximize storage length.

Queuing was also reviewed for the existing right turn lane at the west approach of the Vista Boulevard/Homerun Drive intersection. The right turn lane currently contains approximately 125 feet of combined storage/deceleration length with a 180 foot taper. The capacity analysis results indicate 95th percentile queue lengths of approximately 100 feet or less for the eastbound right turn movement based on the existing plus project traffic volumes on a weekend and Saturday that do not include a GERP event. In addition to queue length, a desirable deceleration length of 115 feet is also needed based on the 35 mile per hour speed limit on Vista Boulevard for a total lane length of 215 feet. In summary, the right turn lane should contain a minimum of 215 feet of storage and deceleration length with a 180 foot taper in order to serve existing plus project traffic volumes during non-GERP events.

For GERP events, the Highway Capacity, Synchro, and SimTraffic results indicate an average 95th percentile queue length of  $\pm 350$  feet for the weekday PM peak hour. Again, a desirable deceleration length of 115 feet is also needed based on the 35 mile per hour speed limit on Vista Boulevard which results in a total length of 465 feet. The right turn lane should therefore be modified to contain a minimum of 465 feet of storage/deceleration length with a 180 foot taper in order to serve existing plus project and 2040 base plus project traffic volumes during a GERP event.

It is suggested that the modification of the Homerun Drive/Touchdown Drive intersection to include stop sign control at the south approach occur prior to construction of the first dwelling unit. It is suggested that the additional left turn lane at the south approach and the modified right turn lane at the west approach of the Vista Boulevard/Homerun Drive intersection and the additional left turn lane at the north approach of the Homerun Drive/Touchdown Drive intersection be installed prior to the construction of the 75th dwelling unit.

## TRAFFIC CRASH REVIEW

Traffic crash data at the Vista Boulevard/Homerun Drive/Scorpius Drive and Homerun Drive/Touchdown Drive intersections was requested from NDOT Traffic Safety Engineering. Crash data was available for the Vista Boulevard/Homerun Drive/Scorpius Drive intersection for the study period from September 1, 2014 to September 1, 2017. A total of 6 crashes occurred at the Vista Boulevard/Homerun Drive/Scorpius Drive intersection during the three-year period with no fatalities reported. The crash type was 3 non-collisions, 2 rear-end collisions, and 1 sideswipe meeting collision. NDOT Traffic Safety Engineering reported that no crash data exists for the Homerun Drive/Touchdown Drive intersection.

## SITE PLAN REVIEW

A copy of the preliminary site plan for the proposed Wingfield Commons development is included with this submittal. The site plan indicates that project access will be provided from a proposed access roadway that intersects Touchdown Drive. The access roadway will start at Touchdown Drive, extend easterly and then southerly along the east boundary of the Golden Eagle Regional Park, before terminating at Hans Berry Road. Various residential streets intersecting the project access road will provide access to the individual lots. The site plan indicates that an emergency access gate will be constructed at the north approach of the Hans Berry Road/Project Access intersection. It is recommended that the project access roadway and the internal residential streets be designed to conform to City of Sparks standards.

A shared pedestrian/bicycle path exists within the Golden Eagle Regional Park. This path connects with the existing sidewalk infrastructure at the signalized Vista Boulevard/Homerun Drive/Scorpius Drive intersection. It is recommended that the proposed subdivision provide a connection to the existing pedestrian/bicycle path within the Golden Eagle Regional Park. In addition, it is recommended that the project developers provide a traffic circulation plan that discourages or prevents Golden Eagle Regional Park traffic from utilizing the project access road and internal residential streets.

## RECOMMENDATIONS

Traffic generated by the Wingfield Commons development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping, or traffic control improvements comply with City of Sparks requirements.

It is recommended that the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be improved to include one exclusive left turn lane, one shared left turn-through lane, and one exclusive right turn lane at the south approach.

It is recommended that the existing right turn lane at the west approach of the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be lengthened to provide a minimum of 465 feet of storage/deceleration length with a 180 foot taper in order to serve traffic volumes generated by a major event at the Golden Eagle Regional Park.

It is recommended that the traffic control at the Homerun Drive/Touchdown Drive intersection be modified to include stop sign control at the south and east approaches while the left turn and through movements at the north approach flow free. In addition, it is recommended that an exclusive left turn lane be provided at the north approach.

It is recommended that the Touchdown Drive/Project Access intersection be designed as a three-leg intersection with stop sign control at the east approach and contain an exclusive left turn lane at the north approach.

It is recommended that the project access roadway and the internal residential streets be designed to conform to City of Sparks standards.

It is recommended that connections be made from the proposed subdivision to the existing pedestrian/bicycle network within the Golden Eagle Regional Park.

It is recommended that the project developers provide a traffic circulation plan that discourages or prevents Golden Eagle Regional Park traffic from utilizing the project access road and internal residential streets.

# APPENDIX

# Single-Family Detached Housing (210)

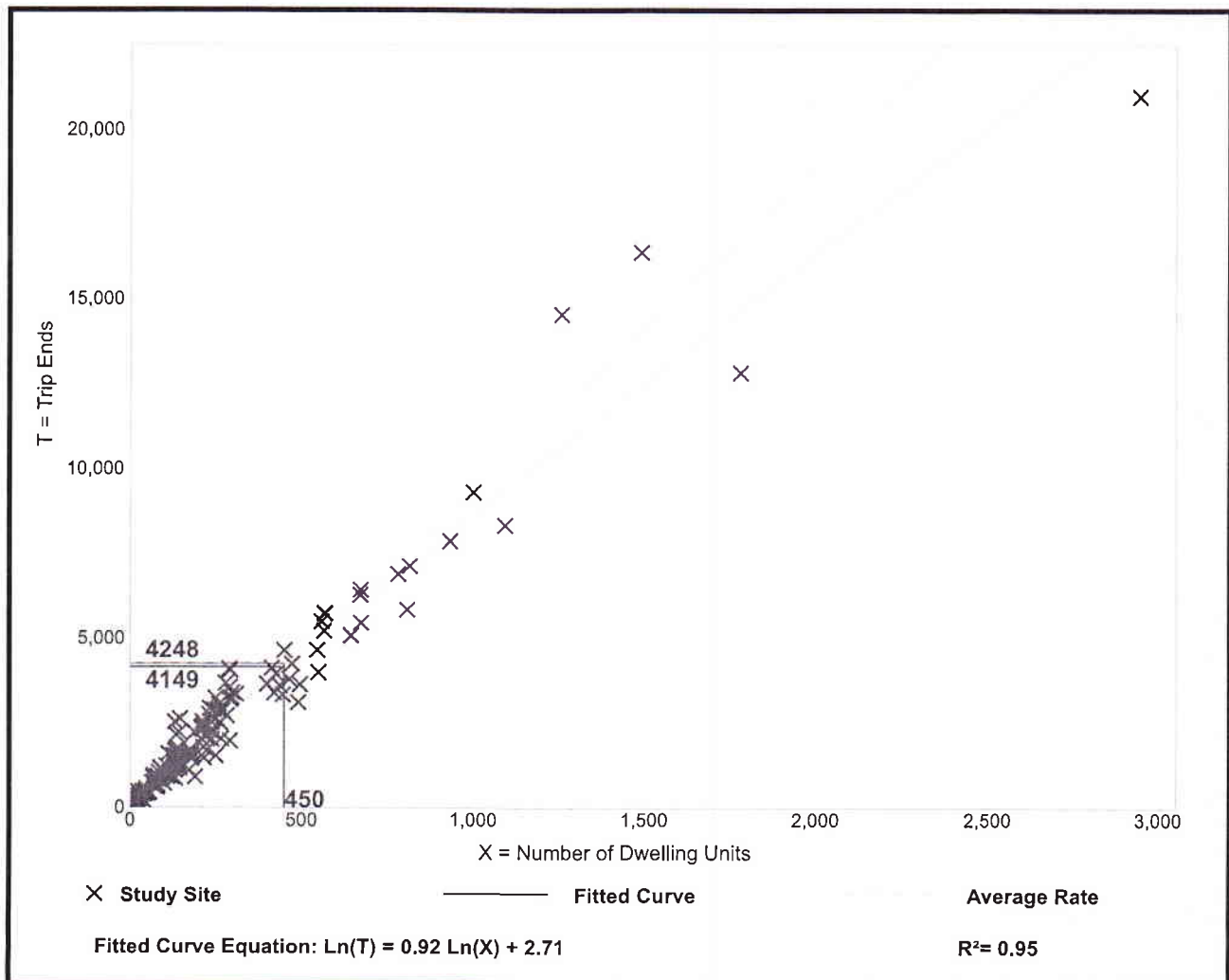
Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday

Setting/Location: General Urban/Suburban  
Number of Studies: 159  
Avg. Num. of Dwelling Units: 264  
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

## Data Plot and Equation





# Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units  
 On a: Weekday,  
 Peak Hour of Adjacent Street Traffic,  
 One Hour Between 7 and 9 a.m.

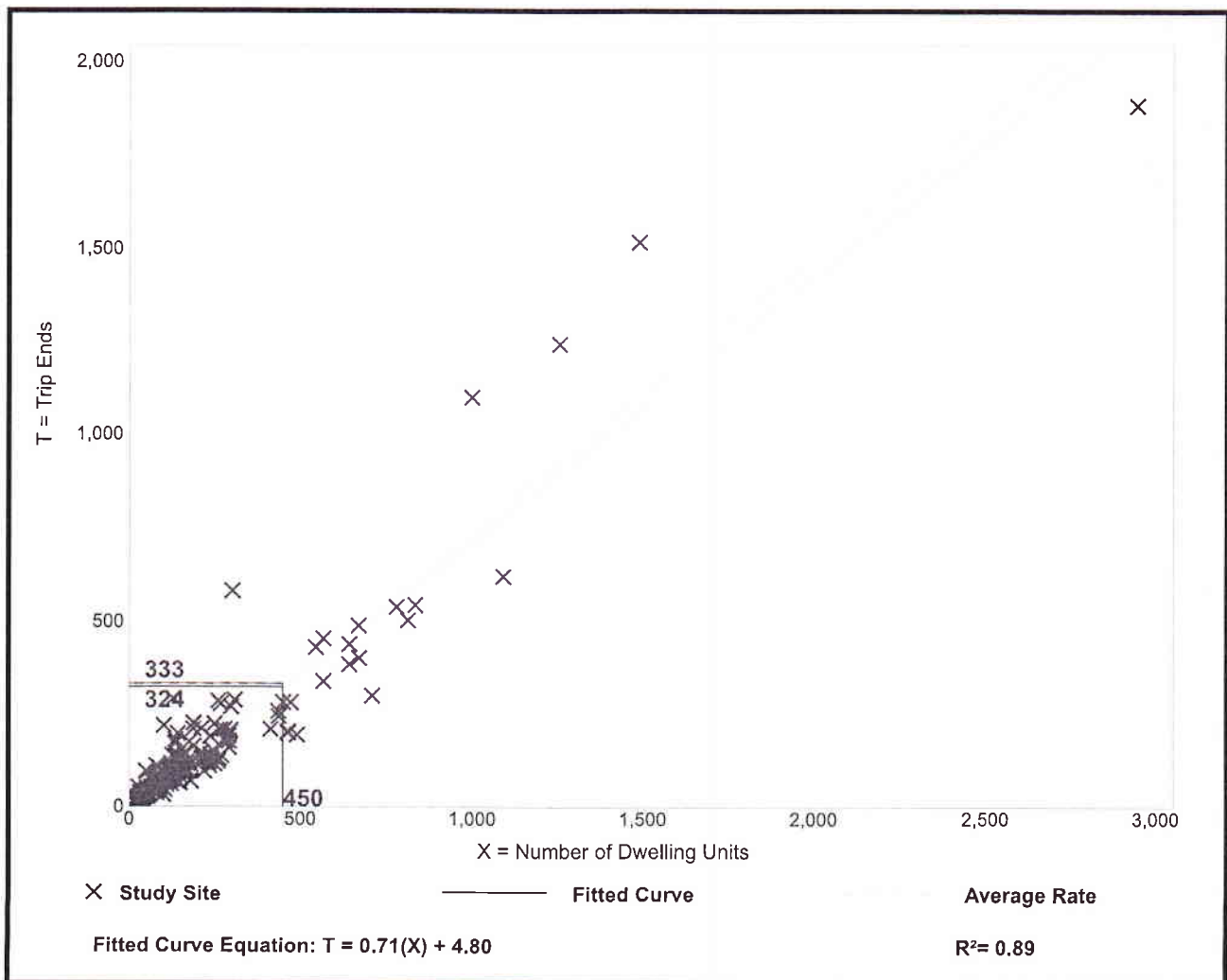
Setting/Location: General Urban/Suburban

Number of Studies: 173  
 Avg. Num. of Dwelling Units: 219  
 Directional Distribution: 25% entering, 75% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

## Data Plot and Equation



# Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units  
 On a: Weekday,  
 Peak Hour of Adjacent Street Traffic,  
 One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 190

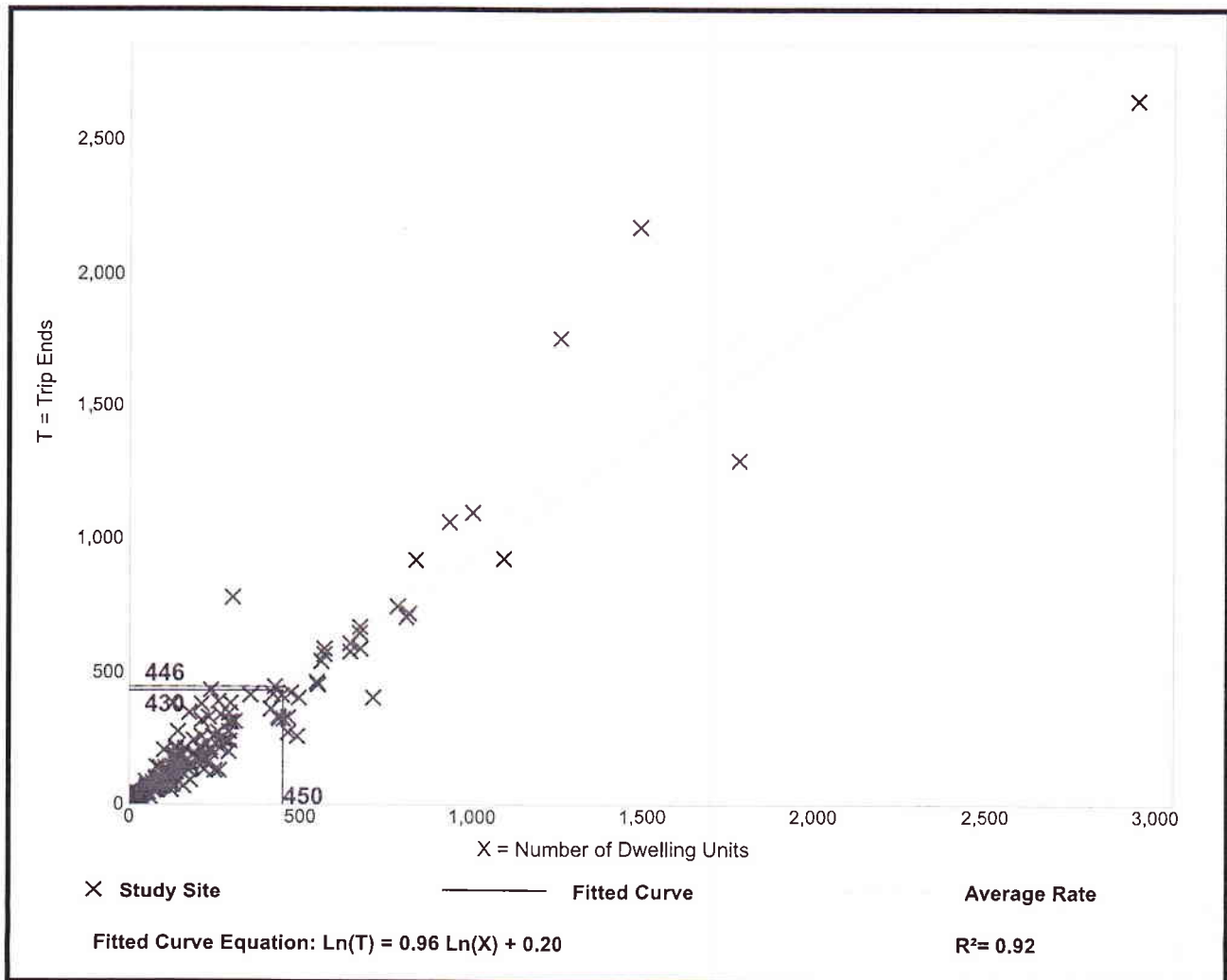
Avg. Num. of Dwelling Units: 242

Directional Distribution: 63% entering, 37% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

## Data Plot and Equation



# Single-Family Detached Housing (210)

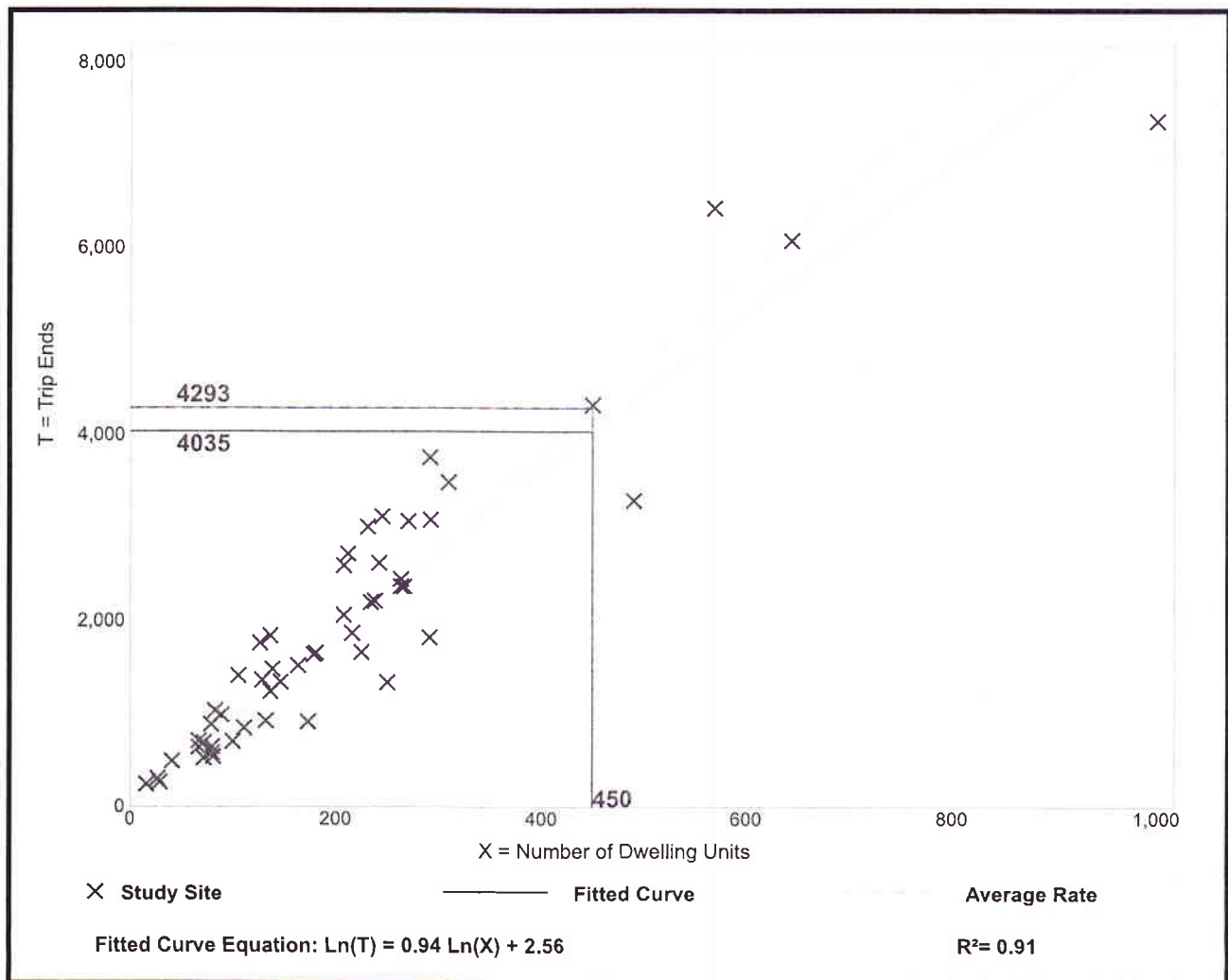
Vehicle Trip Ends vs: Dwelling Units  
On a: Saturday

Setting/Location: General Urban/Suburban  
Number of Studies: 52  
Avg. Num. of Dwelling Units: 207  
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.54	5.32 - 15.25	2.17

## Data Plot and Equation



# Single-Family Detached Housing (210)

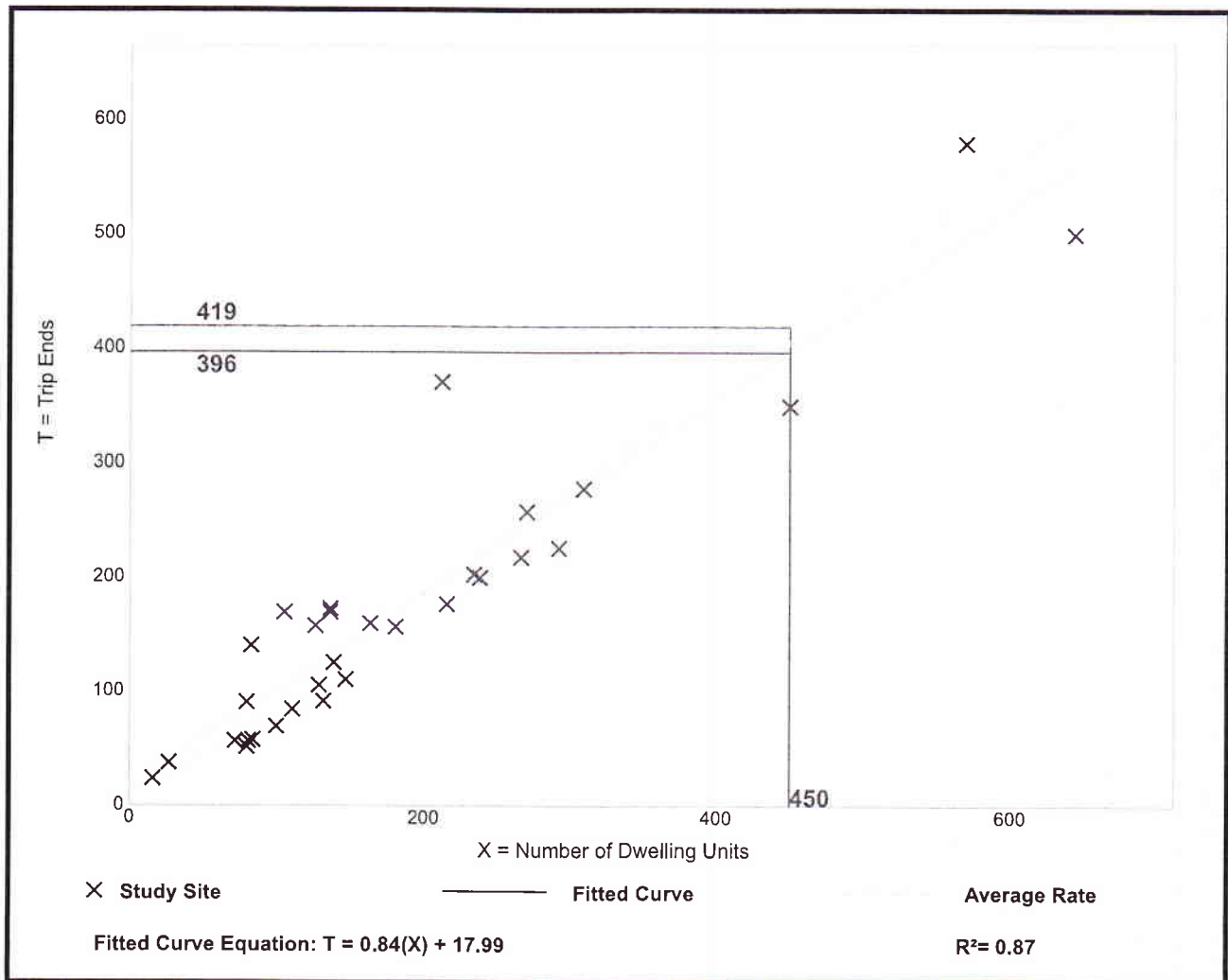
Vehicle Trip Ends vs: Dwelling Units  
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban  
Number of Studies: 31  
Avg. Num. of Dwelling Units: 188  
Directional Distribution: 54% entering, 46% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.64 - 1.75	0.26





















## Data Plot and Equation



# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	9	0	651	0	3	0	2	3	0	12
Future Volume (veh/h)	2	137	9	0	651	0	3	0	2	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	10	0	723	0	3	0	2	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	2369	1057	4	1579	0	319	0	176	111	17	144
Arrive On Green	0.11	0.67	0.67	0.00	0.44	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	146	152	1292
Grp Volume(v), veh/h	2	152	10	0	723	0	3	0	2	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1591	0	0
Q Serve(g_s), s	0.0	0.7	0.1	0.0	6.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.7	0.1	0.0	6.4	0.0	0.1	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	198	2369	1057	4	1579	0	319	0	176	272	0	0
V/C Ratio(X)	0.01	0.06	0.01	0.00	0.46	0.00	0.01	0.00	0.01	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	2369	1057	198	1579	0	786	0	704	788	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	2.6	2.5	0.0	8.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.2	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	2.7	2.5	0.0	9.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	B	A	B	B	A	A
Approach Vol, veh/h		164			723			5			16	
Approach Delay, s/veh		2.8			9.7			17.8			18.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	0.0	35.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.1	0.0	2.7		2.4	2.0	8.4				
Green Ext Time (p_c), s		0.0	0.0	0.8		0.0	0.0	3.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/23/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	42	17	359	2	30	2	13	1	1	3
Future Volume (veh/h)	4	740	42	17	359	2	30	2	13	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	47	19	399	2	33	2	14	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1611	8	318	22	157	112	57	110
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.44	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	202	1414	144	513	986
Grp Volume(v), veh/h	4	822	47	19	195	206	33	0	16	5	0	0
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1616	1644	0	0
Q Serve(g_s), s	0.1	7.5	0.8	0.4	3.1	3.1	0.8	0.0	0.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	7.5	0.8	0.4	3.1	3.1	0.9	0.0	0.4	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.88	0.20		0.60
Lane Grp Cap(c), veh/h	198	1579	704	198	790	830	318	0	180	279	0	0
V/C Ratio(X)	0.02	0.52	0.07	0.10	0.25	0.25	0.10	0.00	0.09	0.02	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	790	830	789	0	718	809	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	9.0	7.2	18.0	7.8	7.8	18.2	0.0	18.0	17.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.2	0.2	0.7	0.7	0.1	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	4.2	0.4	0.3	1.8	1.9	0.5	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	10.3	7.3	18.2	8.6	8.5	18.3	0.0	18.2	17.9	0.0	0.0
LnGrp LOS	B	B	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		873			420			49				5
Approach Delay, s/veh		10.1			9.0			18.3				17.9
Approach LOS		B			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.9	2.4	9.5		2.1	2.1	5.1				
Green Ext Time (p_c), s		0.1	0.0	4.1		0.0	0.0	1.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			10.1									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista






















07/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	60	90	9	278	1	5	0	11	2	0	13
Future Volume (veh/h)	3	60	90	9	278	1	5	0	11	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	67	100	10	309	1	6	0	12	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1615	5	319	0	176	100	12	154
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.44	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	94	105	1390
Grp Volume(v), veh/h	3	67	100	10	151	159	6	0	12	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1589	0	0
Q Serve(g_s), s	0.1	0.5	1.7	0.2	2.3	2.3	0.0	0.0	0.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.5	1.7	0.2	2.3	2.3	0.1	0.0	0.3	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	198	1579	704	198	790	830	319	0	176	267	0	0
V/C Ratio(X)	0.02	0.04	0.14	0.05	0.19	0.19	0.02	0.00	0.07	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	790	830	785	0	704	786	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	7.1	7.4	17.9	7.6	7.6	17.8	0.0	17.9	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.4	0.1	0.5	0.5	0.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.9	0.2	1.3	1.4	0.1	0.0	0.2	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	7.1	7.8	18.0	8.1	8.1	17.9	0.0	18.1	18.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		170			320			18			16	
Approach Delay, s/veh		7.7			8.4			18.0			18.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.3	2.2	3.7		2.4	2.1	4.3				
Green Ext Time (p_c), s		0.0	0.0	0.6		0.0	0.0	1.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			8.8									
HCM 6th LOS			A									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/20/2018





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	80	9	552	2	80	3	30	3	1	2
Future Volume (veh/h)	1	433	80	9	552	2	80	3	30	3	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	89	10	613	2	89	3	33	3	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1615	5	318	15	164	176	62	59
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.44	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1414	134	1472	505	556	530
Grp Volume(v), veh/h	1	481	89	10	300	315	89	0	36	6	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1414	0	1605	1591	0	0
Q Serve(g_s), s	0.0	3.9	1.5	0.2	5.1	5.1	2.5	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.9	1.5	0.2	5.1	5.1	2.6	0.0	0.9	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.92	0.50		0.33
Lane Grp Cap(c), veh/h	198	1579	704	198	790	830	318	0	178	297	0	0
V/C Ratio(X)	0.01	0.30	0.13	0.05	0.38	0.38	0.28	0.00	0.20	0.02	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	790	830	789	0	714	799	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	8.0	7.4	17.9	8.4	8.4	18.9	0.0	18.2	17.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.4	0.1	1.4	1.3	0.5	0.0	0.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.1	0.8	0.2	3.0	3.2	1.5	0.0	0.6	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	8.5	7.7	18.0	9.7	9.7	19.4	0.0	18.7	17.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		571			625			125			6	
Approach Delay, s/veh		8.4			9.8			19.2			17.9	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		4.6	2.2	5.9		2.1	2.0	7.1				
Green Ext Time (p_c), s		0.3	0.0	2.9		0.0	0.0	2.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			10.1									
HCM 6th LOS			B									



# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

























07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	84	8	651	0	228	0	27	3	0	12
Future Volume (veh/h)	2	137	84	8	651	0	228	0	27	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	93	9	723	0	253	0	30	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1306	583	182	1306	0	464	0	355	117	37	289
Arrive On Green	0.10	0.37	0.37	0.10	0.37	0.00	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	134	164	1292
Grp Volume(v), veh/h	2	152	93	9	723	0	253	0	30	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1590	0	0
Q Serve(g_s), s	0.0	1.4	1.9	0.2	7.9	0.0	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.4	1.9	0.2	7.9	0.0	8.2	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	182	1306	583	182	1306	0	464	0	355	444	0	0
V/C Ratio(X)	0.01	0.12	0.16	0.05	0.55	0.00	0.55	0.00	0.08	0.04	0.00	0.00
Avail Cap(c_a), veh/h	182	1306	583	182	1306	0	779	0	712	791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	10.2	10.4	19.8	12.3	0.0	17.9	0.0	15.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.6	0.1	1.7	0.0	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.8	1.1	0.2	5.0	0.0	4.6	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	10.4	11.0	20.0	14.0	0.0	18.9	0.0	15.1	14.9	0.0	0.0
LnGrp LOS	B	B	B	B	B	A	B	A	B	B	A	A
Approach Vol, veh/h		247			732			283				16
Approach Delay, s/veh		10.7			14.1			18.5				14.9
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	23.0		16.0	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		10.2	2.2	3.9		2.4	2.0	9.9				
Green Ext Time (p_c), s		0.7	0.0	0.9		0.0	0.0	3.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

























07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	295	45	359	2	178	2	30	1	1	3
Future Volume (veh/h)	4	740	295	45	359	2	178	2	30	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	245	50	399	2	198	2	33	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1449	646	182	1478	7	408	17	278	114	96	182
Arrive On Green	0.10	0.41	0.41	0.10	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	91	1508	139	518	986
Grp Volume(v), veh/h	4	822	245	50	195	206	198	0	35	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1599	1643	0	0
Q Serve(g_s), s	0.1	8.7	5.3	1.3	3.6	3.6	6.4	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	8.7	5.3	1.3	3.6	3.6	6.5	0.0	0.9	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.94	0.20		0.60
Lane Grp Cap(c), veh/h	182	1449	646	182	724	761	408	0	295	391	0	0
V/C Ratio(X)	0.02	0.57	0.38	0.28	0.27	0.27	0.48	0.00	0.12	0.01	0.00	0.00
Avail Cap(c_a), veh/h	182	1449	646	218	724	761	723	0	652	745	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	11.2	10.2	20.4	9.7	9.7	18.9	0.0	16.7	16.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	1.7	0.8	0.9	0.9	0.9	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	5.4	3.1	0.9	2.3	2.4	3.7	0.0	0.6	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	12.8	11.9	21.2	10.6	10.5	19.8	0.0	16.8	16.4	0.0	0.0
LnGrp LOS	B	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1071			451			233			5	
Approach Delay, s/veh		12.6			11.7			19.4			16.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.1	10.0	25.0		14.1	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	6.0	19.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+11), s		8.5	3.3	10.7		2.1	2.1	5.6				
Green Ext Time (p_c), s		0.6	0.0	4.0		0.0	0.0	1.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			13.3									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary





















## 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	64	128	13	278	1	120	0	24	2	0	13
Future Volume (veh/h)	3	64	128	13	278	1	120	0	24	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	71	114	14	309	1	133	0	27	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	1487	663	196	1521	5	359	0	223	100	17	196
Arrive On Green	0.11	0.42	0.42	0.11	0.42	0.42	0.14	0.00	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	77	122	1393
Grp Volume(v), veh/h	3	71	114	14	151	159	133	0	27	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1593	0	0
Q Serve(g_s), s	0.1	0.5	2.0	0.3	2.5	2.5	3.6	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.5	2.0	0.3	2.5	2.5	4.0	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	196	1487	663	196	744	782	359	0	223	314	0	0
V/C Ratio(X)	0.02	0.05	0.17	0.07	0.20	0.20	0.37	0.00	0.12	0.05	0.00	0.00
Avail Cap(c_a), veh/h	196	1487	663	196	744	782	809	0	733	814	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	7.8	8.3	18.1	8.4	8.4	18.4	0.0	17.0	16.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.6	0.2	0.6	0.6	0.6	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	1.1	0.2	1.5	1.5	2.3	0.0	0.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	7.9	8.8	18.3	9.0	9.0	19.1	0.0	17.3	17.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		188			324			160			16	
Approach Delay, s/veh		8.6			9.4			18.8			17.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.4	10.0	24.0		11.4	10.0	24.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		21.0	5.0	19.0		21.0	5.0	19.0				
Max Q Clear Time (g_c+I1), s		6.0	2.3	4.0		2.4	2.1	4.5				
Green Ext Time (p_c), s		0.4	0.0	0.6		0.0	0.0	1.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			11.5									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary  
 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	283	32	552	2	254	3	49	3	1	2
Future Volume (veh/h)	1	433	283	32	552	2	254	3	49	3	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	247	36	613	2	282	3	54	3	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	1271	567	177	1300	4	490	21	371	261	97	125
Arrive On Green	0.10	0.36	0.36	0.10	0.36	0.36	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1414	84	1514	626	397	512
Grp Volume(v), veh/h	1	481	247	36	300	315	282	0	57	6	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1414	0	1598	1535	0	0
Q Serve(g_s), s	0.0	5.1	6.0	0.9	6.6	6.6	9.3	0.0	1.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.1	6.0	0.9	6.6	6.6	9.4	0.0	1.4	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.50		0.33
Lane Grp Cap(c), veh/h	177	1271	567	177	636	668	490	0	391	483	0	0
V/C Ratio(X)	0.01	0.38	0.44	0.20	0.47	0.47	0.58	0.00	0.15	0.01	0.00	0.00
Avail Cap(c_a), veh/h	177	1271	567	177	636	668	762	0	699	770	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.4	12.0	12.3	20.8	12.5	12.5	17.9	0.0	14.9	14.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	2.4	0.6	2.5	2.4	1.1	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.2	3.8	0.7	4.6	4.8	5.3	0.0	0.9	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	12.9	14.7	21.4	15.0	14.9	19.0	0.0	15.0	14.4	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		729			651			339			6	
Approach Delay, s/veh		13.5			15.3			18.3			14.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.3	10.0	23.0		17.3	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		11.4	2.9	8.0		2.1	2.0	8.6				
Green Ext Time (p_c), s		0.9	0.0	2.9		0.0	0.0	2.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			15.1									
HCM 6th LOS			B									

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	4	1	0	2	7
Future Vol, veh/h	0	4	1	0	2	7
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	1	0	2	8

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	13	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	12	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	1006	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	1011	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1005	1084	-	-	1622
Mov Cap-2 Maneuver	1005	-	-	-	-
Stage 1	1021	-	-	-	-
Stage 2	1011	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.3	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.004	0.001
HCM Control Delay (s)	-	-	8.3	7.2
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	23	22	0	30	30
Future Vol, veh/h	0	23	22	0	30	30
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	26	24	0	33	33

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	123	24	0	0	24
Stage 1	24	-	-	-	-
Stage 2	99	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	872	1052	-	-	1591
Stage 1	999	-	-	-	-
Stage 2	925	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	854	1052	-	-	1591
Mov Cap-2 Maneuver	854	-	-	-	-
Stage 1	978	-	-	-	-
Stage 2	925	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1052	1591
HCM Lane V/C Ratio	-	-	0.024	0.021
HCM Control Delay (s)	-	-	8.5	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	9	8	0	49	50
Future Vol, veh/h	0	9	8	0	49	50
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	9	0	54	56

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	173	9	0	0	9
Stage 1	9	-	-	-	-
Stage 2	164	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	817	1073	-	-	1611
Stage 1	1014	-	-	-	-
Stage 2	865	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	788	1073	-	-	1611
Mov Cap-2 Maneuver	788	-	-	-	-
Stage 1	979	-	-	-	-
Stage 2	865	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.4	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1073	1611
HCM Lane V/C Ratio	-	-	0.009	0.034
HCM Control Delay (s)	-	-	8.4	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	57	56	0	45	45
Future Vol, veh/h	0	57	56	0	45	45
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	63	62	0	50	50

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	212	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	150	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	776	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	878	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	750	1003	-	-	1541
Mov Cap-2 Maneuver	750	-	-	-	-
Stage 1	929	-	-	-	-
Stage 2	878	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.063	0.032
HCM Control Delay (s)	-	-	8.8	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1



HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	8.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	254	1	0	85	7
Future Vol, veh/h	0	254	1	0	85	7
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	282	1	0	94	8

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	197	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	196	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	792	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	837	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	746	1084	-	-	1622
Mov Cap-2 Maneuver	746	-	-	-	-
Stage 1	963	-	-	-	-
Stage 2	837	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.26	0.058
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	7.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	188	22	0	311	30
Future Vol, veh/h	0	188	22	0	311	30
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	209	24	0	346	33

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	749	24	0	0	24
Stage 1	24	-	-	-	-
Stage 2	725	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	379	1052	-	-	1591
Stage 1	999	-	-	-	-
Stage 2	479	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	295	1052	-	-	1591
Mov Cap-2 Maneuver	295	-	-	-	-
Stage 1	777	-	-	-	-
Stage 2	479	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1052	1591
HCM Lane V/C Ratio	-	-	0.199	0.217
HCM Control Delay (s)	-	-	9.3	7.9
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.8

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	6.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	137	8	0	91	50
Future Vol, veh/h	0	137	8	0	91	50
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	152	9	0	101	56

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	267	9	0	0	9
Stage 1	9	-	-	-	-
Stage 2	258	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	722	1073	-	-	1611
Stage 1	1014	-	-	-	-
Stage 2	785	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	675	1073	-	-	1611
Mov Cap-2 Maneuver	675	-	-	-	-
Stage 1	948	-	-	-	-
Stage 2	785	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	4.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1073	1611
HCM Lane V/C Ratio	-	-	0.142	0.063
HCM Control Delay (s)	-	-	8.9	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

HCM 6th TWSC  
 6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	7.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	250	56	0	271	45
Future Vol, veh/h	0	250	56	0	271	45
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	62	0	301	50

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	714	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	652	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	398	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	518	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	318	1003	-	-	1541
Mov Cap-2 Maneuver	318	-	-	-	-
Stage 1	768	-	-	-	-
Stage 2	518	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	6.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.277	0.195
HCM Control Delay (s)	-	-	10	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.7

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 8.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	250	4	0	83	2
Future Vol, veh/h	0	250	4	0	83	2
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	4	0	92	2

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	190	4	0	0	4
Stage 1	4	-	-	-	-
Stage 2	186	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	799	1080	-	-	1618
Stage 1	1019	-	-	-	-
Stage 2	846	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	753	1080	-	-	1618
Mov Cap-2 Maneuver	753	-	-	-	-
Stage 1	961	-	-	-	-
Stage 2	846	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1080	1618
HCM Lane V/C Ratio	-	-	0.257	0.057
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	8.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	281	21	0	315	28
Future Vol, veh/h	0	281	21	0	315	28
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	312	23	0	350	31

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	754	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	731	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	377	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	476	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	293	1054	-	-	1592
Mov Cap-2 Maneuver	293	-	-	-	-
Stage 1	776	-	-	-	-
Stage 2	476	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	7.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.296	0.22
HCM Control Delay (s)	-	-	9.8	7.9
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0.8

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 6.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	128	9	0	42	49
Future Vol, veh/h	0	128	9	0	42	49
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	10	0	47	54

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	158	10	0	0	10
Stage 1	10	-	-	-	-
Stage 2	148	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	833	1071	-	-	1610
Stage 1	1013	-	-	-	-
Stage 2	880	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	808	1071	-	-	1610
Mov Cap-2 Maneuver	808	-	-	-	-
Stage 1	983	-	-	-	-
Stage 2	880	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1071	1610
HCM Lane V/C Ratio	-	-	0.133	0.029
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	6.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	193	57	0	226	45
Future Vol, veh/h	0	193	57	0	226	45
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	63	0	251	50

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	615	63	0	0	63
Stage 1	63	-	-	-	-
Stage 2	552	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	455	1002	-	-	1540
Stage 1	960	-	-	-	-
Stage 2	577	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	379	1002	-	-	1540
Mov Cap-2 Maneuver	379	-	-	-	-
Stage 1	799	-	-	-	-
Stage 2	577	-	-	-	-





















Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	6.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1002	1540
HCM Lane V/C Ratio	-	-	0.214	0.163
HCM Control Delay (s)	-	-	9.6	7.8
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.6























HCM 6th Signalized Intersection Summary  
 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	13	2	651	0	3	0	2	3	0	12
Future Volume (veh/h)	2	137	13	2	651	0	3	0	2	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	14	2	723	0	3	0	2	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1579	0	319	0	176	111	17	144
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	146	152	1292
Grp Volume(v), veh/h	2	152	14	2	723	0	3	0	2	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1591	0	0
Q Serve(g_s), s	0.0	1.1	0.2	0.0	6.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.1	0.2	0.0	6.4	0.0	0.1	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	198	1579	704	198	1579	0	319	0	176	272	0	0
V/C Ratio(X)	0.01	0.10	0.02	0.01	0.46	0.00	0.01	0.00	0.01	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	1579	0	786	0	704	788	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	7.3	7.0	17.8	8.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.6	0.1	0.0	3.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	7.4	7.1	17.8	9.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		168			725			5			16	
Approach Delay, s/veh		7.5			9.7			17.8			18.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.1	2.0	3.1		2.4	2.0	8.4				
Green Ext Time (p_c), s		0.0	0.0	0.8		0.0	0.0	3.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			9.5									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary  
 3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	450	49	359	2	214	2	24	1	1	3
Future Volume (veh/h)	4	740	450	49	359	2	214	2	24	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	389	54	399	2	238	2	27	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	1402	626	176	1431	7	441	23	314	117	106	207
Arrive On Green	0.10	0.39	0.39	0.10	0.39	0.39	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	110	1491	152	504	984
Grp Volume(v), veh/h	4	822	389	54	195	206	238	0	29	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1602	1639	0	0
Q Serve(g_s), s	0.1	9.2	10.0	1.4	3.8	3.8	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	9.2	10.0	1.4	3.8	3.8	8.1	0.0	0.7	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.93	0.20		0.60
Lane Grp Cap(c), veh/h	176	1402	626	176	701	737	441	0	338	431	0	0
V/C Ratio(X)	0.02	0.59	0.62	0.31	0.28	0.28	0.54	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	176	1402	626	211	701	737	700	0	632	723	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.6	12.1	12.3	21.2	10.4	10.4	19.0	0.0	16.1	15.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.8	4.6	1.0	1.0	0.9	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	5.8	6.5	1.0	2.5	2.6	4.6	0.0	0.5	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	13.9	16.9	22.2	11.4	11.4	20.0	0.0	16.2	15.8	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1215			455			267			5	
Approach Delay, s/veh		14.9			12.7			19.6			15.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.7	10.0	25.0		15.7	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	6.0	19.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		10.1	3.4	12.0		2.1	2.1	5.8				
Green Ext Time (p_c), s		0.6	0.0	3.8		0.0	0.0	1.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	64	172	14	278	1	32	0	4	2	0	13
Future Volume (veh/h)	3	64	172	14	278	1	32	0	4	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	71	-31	16	309	1	36	0	4	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	1663	742	189	1701	6	306	0	169	96	11	148
Arrive On Green	0.11	0.47	0.00	0.11	0.47	0.47	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	94	104	1391
Grp Volume(v), veh/h	3	71	-31	16	151	159	36	0	4	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1589	0	0
Q Serve(g_s), s	0.1	0.5	0.0	0.4	2.3	2.3	0.6	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.5	0.0	0.4	2.3	2.3	1.0	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	189	1663	742	189	832	874	306	0	169	255	0	0
V/C Ratio(X)	0.02	0.04	-0.04	0.08	0.18	0.18	0.12	0.00	0.02	0.06	0.00	0.00
Avail Cap(c_a), veh/h	189	1663	742	189	832	874	693	0	607	687	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.8	6.8	0.0	18.9	7.3	7.3	19.2	0.0	18.8	19.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.5	0.5	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.0	0.3	1.3	1.4	0.6	0.0	0.1	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	6.8	0.0	19.1	7.7	7.7	19.4	0.0	18.9	19.1	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		43			326			40			16	
Approach Delay, s/veh		12.6			8.3			19.3			19.1	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	27.0		10.0	10.0	27.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		18.0	5.0	22.0		18.0	5.0	22.0				
Max Q Clear Time (g_c+I1), s		3.0	2.4	2.5		2.4	2.1	4.3				
Green Ext Time (p_c), s		0.1	0.0	0.3		0.0	0.0	1.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			10.2									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista





















07/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	224	20	552	2	150	0	26	3	4	2
Future Volume (veh/h)	1	433	224	20	552	2	150	0	26	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	166	22	613	2	167	0	29	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	1404	626	195	1435	5	394	0	263	158	166	62
Arrive On Green	0.11	0.39	0.39	0.11	0.39	0.39	0.17	0.00	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1410	0	1585	315	1000	376
Grp Volume(v), veh/h	1	481	166	22	300	315	167	0	29	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1691	0	0
Q Serve(g_s), s	0.0	4.3	3.2	0.5	5.6	5.6	4.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.3	3.2	0.5	5.6	5.6	5.0	0.0	0.7	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	195	1404	626	195	702	738	394	0	263	386	0	0
V/C Ratio(X)	0.01	0.34	0.27	0.11	0.43	0.43	0.42	0.00	0.11	0.02	0.00	0.00
Avail Cap(c_a), veh/h	195	1404	626	195	702	738	840	0	765	898	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.1	9.6	9.3	18.3	10.0	10.0	17.9	0.0	16.1	15.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	1.0	0.3	1.9	1.8	0.7	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.5	1.8	0.4	3.6	3.8	2.8	0.0	0.4	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	10.3	10.4	18.5	11.9	11.8	18.7	0.0	16.3	15.9	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		648			637			196			9	
Approach Delay, s/veh		10.3			12.1			18.3			15.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.6	10.0	23.0		12.6	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		7.0	2.5	6.3		2.2	2.0	7.6				
Green Ext Time (p_c), s		0.5	0.0	2.9		0.0	0.0	2.6				
<b>Intersection Summary</b>												
HCM 6th Ctri Delay			12.2									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	88	10	651	0	228	0	27	3	0	12
Future Volume (veh/h)	2	137	88	10	651	0	228	0	27	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	87	11	723	0	253	0	30	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1306	583	182	1306	0	464	0	355	117	37	289
Arrive On Green	0.10	0.37	0.37	0.10	0.37	0.00	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	134	164	1292
Grp Volume(v), veh/h	2	152	87	11	723	0	253	0	30	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1590	0	0
Q Serve(g_s), s	0.0	1.4	1.8	0.3	7.9	0.0	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.4	1.8	0.3	7.9	0.0	8.2	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	182	1306	583	182	1306	0	464	0	355	444	0	0
V/C Ratio(X)	0.01	0.12	0.15	0.06	0.55	0.00	0.55	0.00	0.08	0.04	0.00	0.00
Avail Cap(c_a), veh/h	182	1306	583	182	1306	0	779	0	712	791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	10.2	10.4	19.9	12.3	0.0	17.9	0.0	15.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.1	1.7	0.0	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.8	1.1	0.2	5.0	0.0	4.6	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	10.4	10.9	20.0	14.0	0.0	18.9	0.0	15.1	14.9	0.0	0.0
LnGrp LOS	B	B	B	C	B	A	B	A	B	B	A	A
Approach Vol, veh/h		241			734			283			16	
Approach Delay, s/veh		10.7			14.1			18.5			14.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	23.0		16.0	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		10.2	2.3	3.8		2.4	2.0	9.9				
Green Ext Time (p_c), s		0.7	0.0	0.9		0.0	0.0	3.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	703	77	359	2	362	2	41	1	1	3
Future Volume (veh/h)	4	740	703	77	359	2	362	2	41	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	587	86	399	2	402	2	46	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1146	511	160	1169	6	581	21	488	139	145	311
Arrive On Green	0.09	0.32	0.32	0.09	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	66	1529	194	455	973
Grp Volume(v), veh/h	4	822	587	86	195	206	402	0	48	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1595	1622	0	0
Q Serve(g_s), s	0.1	11.4	18.0	2.6	4.7	4.7	15.0	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	11.4	18.0	2.6	4.7	4.7	15.1	0.0	1.2	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.96	0.20		0.60
Lane Grp Cap(c), veh/h	160	1146	511	160	573	602	581	0	510	596	0	0
V/C Ratio(X)	0.03	0.72	1.15	0.54	0.34	0.34	0.69	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	160	1146	511	160	573	602	686	0	628	713	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.2	16.7	18.9	24.3	14.4	14.4	18.0	0.0	13.3	13.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	3.9	87.7	3.6	1.6	1.5	2.4	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	8.1	27.2	2.1	3.4	3.5	8.4	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	20.6	106.7	27.9	16.0	15.9	20.4	0.0	13.4	13.0	0.0	0.0
LnGrp LOS	C	C	F	C	B	B	C	A	B	B	A	A
Approach Vol, veh/h		1413			487			450			5	
Approach Delay, s/veh		56.3			18.1			19.7			13.0	
Approach LOS		E			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.8	10.0	23.0		22.8	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		17.1	4.6	20.0		2.1	2.1	6.7				
Green Ext Time (p_c), s		0.8	0.0	0.0		0.0	0.0	1.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			41.3									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista





















07/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	64	210	18	278	1	147	0	17	2	0	13
Future Volume (veh/h)	3	64	210	18	278	1	147	0	17	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	71	11	20	309	1	163	0	19	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1701	759	164	1739	6	350	0	243	84	21	214
Arrive On Green	0.09	0.48	0.48	0.09	0.48	0.48	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	65	135	1397
Grp Volume(v), veh/h	3	71	11	20	151	159	163	0	19	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1597	0	0
Q Serve(g_s), s	0.1	0.6	0.2	0.6	2.6	2.6	5.5	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.6	0.2	0.6	2.6	2.6	5.9	0.0	0.6	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	164	1701	759	164	851	894	350	0	243	319	0	0
V/C Ratio(X)	0.02	0.04	0.01	0.12	0.18	0.18	0.47	0.00	0.08	0.05	0.00	0.00
Avail Cap(c_a), veh/h	164	1701	759	164	851	894	625	0	554	626	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	7.5	7.4	22.6	8.1	8.1	21.9	0.0	19.7	19.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.5	0.4	1.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.3	0.1	0.4	1.6	1.7	3.5	0.0	0.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	7.6	7.5	23.0	8.5	8.5	22.9	0.0	19.9	19.7	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	C	A	B	B	A	A
Approach Vol, veh/h		85			330			182			16	
Approach Delay, s/veh		8.1			9.4			22.6			19.7	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.3	10.0	31.0		13.3	10.0	31.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		19.0	5.0	26.0		19.0	5.0	26.0				
Max Q Clear Time (g_c+I1), s		7.9	2.6	2.6		2.5	2.1	4.6				
Green Ext Time (p_c), s		0.4	0.0	0.4		0.0	0.0	1.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	427	43	552	2	324	0	45	3	4	2
Future Volume (veh/h)	1	433	427	43	552	2	324	0	45	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	363	48	613	2	360	0	50	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1176	524	164	1202	4	559	0	478	211	264	111
Arrive On Green	0.09	0.33	0.33	0.09	0.33	0.33	0.30	0.00	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1410	0	1585	409	874	366
Grp Volume(v), veh/h	1	481	363	48	300	315	360	0	50	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1649	0	0
Q Serve(g_s), s	0.0	5.7	10.8	1.4	7.4	7.4	12.8	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.7	10.8	1.4	7.4	7.4	13.0	0.0	1.2	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	164	1176	524	164	588	618	559	0	478	586	0	0
V/C Ratio(X)	0.01	0.41	0.69	0.29	0.51	0.51	0.64	0.00	0.10	0.02	0.00	0.00
Avail Cap(c_a), veh/h	164	1176	524	164	588	618	1222	0	1224	1339	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	14.1	15.8	23.1	14.7	14.7	17.8	0.0	13.7	13.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	7.3	1.0	3.1	3.0	1.3	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.8	7.8	1.0	5.5	5.7	7.2	0.0	0.8	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	15.1	23.1	24.0	17.8	17.6	19.0	0.0	13.8	13.3	0.0	0.0
LnGrp LOS	C	B	C	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		845			663			410				9
Approach Delay, s/veh		18.6			18.2			18.4				13.3
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.4	10.0	23.0		21.4	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		42.0	5.0	18.0		42.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		15.0	3.4	12.8		2.2	2.0	9.4				
Green Ext Time (p_c), s		1.4	0.0	2.1		0.0	0.0	2.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			18.4									
HCM 6th LOS			B									



HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh 4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations	↘		↗			↖
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Traffic Vol, veh/h	0	4	1	0	7	8
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Future Vol, veh/h	0	4	1	0	7	8
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	0	-	-	0
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Grade, %	0	-	0	-	-	0
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Peak Hour Factor	90	90	90	90	90	90
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Heavy Vehicles, %	2	2	2	2	2	2
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Mvmt Flow	0	4	1	0	8	9
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Major/Minor	Minor1	Major1	Major2	Major3	Major4	Major5
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Conflicting Flow All	26	1	0	0	1	0
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Stage 1	1	-	-	-	-	-
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Stage 2	25	-	-	-	-	-
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Critical Hdwy	6.42	6.22	-	-	4.12	-
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Critical Hdwy Stg 1	5.42	-	-	-	-	-
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Critical Hdwy Stg 2	5.42	-	-	-	-	-
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Follow-up Hdwy	3.518	3.318	-	-	2.218	-
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Pot Cap-1 Maneuver	989	1084	-	-	1622	-
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Stage 1	1022	-	-	-	-	-
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Stage 2	998	-	-	-	-	-
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Platoon blocked, %			-	-		-
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Mov Cap-1 Maneuver	984	1084	-	-	1622	-
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Mov Cap-2 Maneuver	984	-	-	-	-	-
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Stage 1	1017	-	-	-	-	-
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Stage 2	998	-	-	-	-	-
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Approach	WB	NB	SB
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HCM Control Delay, s	8.3	0	3.4
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HCM LOS	A		
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Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
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Capacity (veh/h)	-	-	1084	1622	-
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HCM Lane V/C Ratio	-	-	0.004	0.005	-
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HCM Control Delay (s)	-	-	8.3	7.2	0
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HCM Lane LOS	-	-	A	A	A
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HCM 95th %tile Q(veh)	-	-	0	0	-
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HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	120	120	0	250	250
Future Vol, veh/h	0	120	120	0	250	250
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	133	0	278	278

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	967	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	834	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	282	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	426	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	218	916	-	-	1452
Mov Cap-2 Maneuver	218	-	-	-	-
Stage 1	691	-	-	-	-
Stage 2	426	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.146	0.191
HCM Control Delay (s)	-	-	9.6	8.1
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.7

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	2.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	15	21	0	69	117
Future Vol, veh/h	0	15	21	0	69	117
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	23	0	77	130

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	307	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	685	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	764	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	649	1054	-	-	1592
Mov Cap-2 Maneuver	649	-	-	-	-
Stage 1	948	-	-	-	-
Stage 2	764	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.016	0.048
HCM Control Delay (s)	-	-	8.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑			↓
Traffic Vol, veh/h	0	120	56	0	168	80
Future Vol, veh/h	0	120	56	0	168	80
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	62	0	187	89

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	525	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	463	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	513	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	634	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	447	1003	-	-	1541
Mov Cap-2 Maneuver	447	-	-	-	-
Stage 1	838	-	-	-	-
Stage 2	634	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	5.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.133	0.121
HCM Control Delay (s)	-	-	9.1	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	8.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	254	1	0	90	8
Future Vol, veh/h	0	254	1	0	90	8
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	282	1	0	100	9

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	210	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	209	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	778	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	826	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	730	1084	-	-	1622
Mov Cap-2 Maneuver	730	-	-	-	-
Stage 1	959	-	-	-	-
Stage 2	826	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.26	0.062
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh 6.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	285	120	0	531	250
Future Vol, veh/h	0	285	120	0	531	250
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	317	133	0	590	278

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1591	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	1458	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	118	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	214	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	61	916	-	-	1452
Mov Cap-2 Maneuver	61	-	-	-	-
Stage 1	464	-	-	-	-
Stage 2	214	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	6.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.346	0.406
HCM Control Delay (s)	-	-	11	9.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.6	2

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	143	21	0	111	117
Future Vol, veh/h	0	143	21	0	111	117
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	159	23	0	123	130

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	399	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	376	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	607	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	694	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	557	1054	-	-	1592
Mov Cap-2 Maneuver	557	-	-	-	-
Stage 1	917	-	-	-	-
Stage 2	694	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.151	0.077
HCM Control Delay (s)	-	-	9	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh 7.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	313	56	0	394	80
Future Vol, veh/h	0	313	56	0	394	80
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	348	62	0	438	89

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	1027	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	965	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	260	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	370	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	182	1003	-	-	1541
Mov Cap-2 Maneuver	182	-	-	-	-
Stage 1	674	-	-	-	-
Stage 2	370	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	6.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.347	0.284
HCM Control Delay (s)	-	-	10.5	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.6	1.2



HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 8.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	0	250	4	0	83	7
Future Vol, veh/h	0	250	4	0	83	7
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	4	0	92	8

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	196	4	0	0	4
Stage 1	4	-	-	-	-
Stage 2	192	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	793	1080	-	-	1618
Stage 1	1019	-	-	-	-
Stage 2	841	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	748	1080	-	-	1618
Mov Cap-2 Maneuver	748	-	-	-	-
Stage 1	961	-	-	-	-
Stage 2	841	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1080	1618
HCM Lane V/C Ratio	-	-	0.257	0.057
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations						
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Traffic Vol, veh/h	0	165	120	0	281	250
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Future Vol, veh/h	0	165	120	0	281	250
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	0	-	-	0
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Grade, %	0	-	0	-	-	0
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Peak Hour Factor	90	90	90	90	90	90
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Heavy Vehicles, %	2	2	2	2	2	2
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Mvmt Flow	0	183	133	0	312	278
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Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	1035	133	0
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Stage 1	133	-	-
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Stage 2	902	-	-
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Critical Hdwy	6.42	6.22	-
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Critical Hdwy Stg 1	5.42	-	-
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Critical Hdwy Stg 2	5.42	-	-
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Follow-up Hdwy	3.518	3.318	-
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Pot Cap-1 Maneuver	257	916	-
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Stage 1	893	-	-
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Stage 2	396	-	-
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Platoon blocked, %			-
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Mov Cap-1 Maneuver	192	916	-
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Mov Cap-2 Maneuver	192	-	-
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Stage 1	666	-	-
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Stage 2	396	-	-
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Approach	WB	NB	SB
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HCM Control Delay, s	9.9	0	4.3
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HCM LOS	A		
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Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
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Capacity (veh/h)	-	-	916	1452
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HCM Lane V/C Ratio	-	-	0.2	0.215
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HCM Control Delay (s)	-	-	9.9	8.2
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HCM Lane LOS	-	-	A	A
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HCM 95th %tile Q(veh)	-	-	0.7	0.8
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HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	128	15	0	42	69
Future Vol, veh/h	0	128	15	0	42	69
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	17	0	47	77

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	188	17	0	0	17
Stage 1	17	-	-	-	-
Stage 2	171	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	801	1062	-	-	1600
Stage 1	1006	-	-	-	-
Stage 2	859	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	776	1062	-	-	1600
Mov Cap-2 Maneuver	776	-	-	-	-
Stage 1	975	-	-	-	-
Stage 2	859	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1062	1600
HCM Lane V/C Ratio	-	-	0.134	0.029
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	193	120	0	226	168
Future Vol, veh/h	0	193	120	0	226	168
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	133	0	251	187

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	822	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	689	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	344	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	498	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	278	916	-	-	1452
Mov Cap-2 Maneuver	278	-	-	-	-
Stage 1	721	-	-	-	-
Stage 2	498	-	-	-	-





















Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	4.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.234	0.173
HCM Control Delay (s)	-	-	10.1	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.6

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	153	13	2	726	0	3	0	2	3	0	12
Future Volume (veh/h)	2	153	13	2	726	0	3	0	2	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	170	14	2	807	0	3	0	2	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1579	0	319	0	176	111	17	144
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	146	152	1292
Grp Volume(v), veh/h	2	170	14	2	807	0	3	0	2	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1591	0	0
Q Serve(g_s), s	0.0	1.3	0.2	0.0	7.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.3	0.2	0.0	7.3	0.0	0.1	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	198	1579	704	198	1579	0	319	0	176	272	0	0
V/C Ratio(X)	0.01	0.11	0.02	0.01	0.51	0.00	0.01	0.00	0.01	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	1579	0	786	0	704	788	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	7.3	7.0	17.8	9.0	0.0	17.8	0.0	17.8	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.7	0.1	0.0	4.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	7.4	7.1	17.8	10.2	0.0	17.8	0.0	17.8	18.0	0.0	0.0
LnGrp LOS	B	A	A	B	B	A	B	A	B	B	A	A
Approach Vol, veh/h		186			809			5			16	
Approach Delay, s/veh		7.5			10.2			17.8			18.0	
Approach LOS		A			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.1	2.0	3.3		2.4	2.0	9.3				
Green Ext Time (p_c), s		0.0	0.0	0.9		0.0	0.0	4.0				
<b>Intersection Summary</b>												
HCM 6th Ctr Delay			9.9									
HCM 6th LOS			A									

# HCM 6th Signalized Intersection Summary





















## 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	826	450	49	401	2	214	2	24	1	1	3
Future Volume (veh/h)	4	826	450	49	401	2	214	2	24	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	918	417	54	446	2	238	2	27	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	1475	658	168	1506	7	430	23	309	113	104	204
Arrive On Green	0.09	0.42	0.42	0.09	0.42	0.42	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3628	16	1412	110	1491	154	501	983
Grp Volume(v), veh/h	4	918	417	54	218	230	238	0	29	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1602	1639	0	0
Q Serve(g_s), s	0.1	10.8	11.1	1.5	4.3	4.3	8.3	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	10.8	11.1	1.5	4.3	4.3	8.5	0.0	0.8	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.93	0.20		0.60
Lane Grp Cap(c), veh/h	168	1475	658	168	738	775	430	0	332	421	0	0
V/C Ratio(X)	0.02	0.62	0.63	0.32	0.30	0.30	0.55	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	168	1475	658	168	738	775	617	0	544	631	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.8	12.2	12.3	22.4	10.3	10.3	20.0	0.0	17.0	16.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.0	4.6	1.1	1.0	1.0	1.1	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	6.8	7.1	1.1	2.8	3.0	4.9	0.0	0.5	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	14.2	16.9	23.5	11.4	11.3	21.1	0.0	17.1	16.7	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	C	A	B	B	A	A
Approach Vol, veh/h		1339			502			267			5	
Approach Delay, s/veh		15.1			12.6			20.7			16.7	
Approach LOS		B			B			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	27.0		16.0	10.0	27.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		18.0	5.0	22.0		18.0	5.0	22.0				
Max Q Clear Time (g_c+I1), s		10.5	3.5	13.1		2.1	2.1	6.3				
Green Ext Time (p_c), s		0.5	0.0	5.0		0.0	0.0	2.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				15.2								
HCM 6th LOS				B								

### HCM 6th Signalized Intersection Summary 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	71	172	14	310	1	32	0	4	2	0	13
Future Volume (veh/h)	3	71	172	14	310	1	32	0	4	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	79	-26	16	344	1	36	0	4	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	1663	742	189	1701	5	306	0	169	96	11	148
Arrive On Green	0.11	0.47	0.00	0.11	0.47	0.47	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1400	0	1585	94	104	1391
Grp Volume(v), veh/h	3	79	-26	16	168	177	36	0	4	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1589	0	0
Q Serve(g_s), s	0.1	0.6	0.0	0.4	2.6	2.6	0.6	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.6	0.0	0.4	2.6	2.6	1.0	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	189	1663	742	189	832	875	306	0	169	255	0	0
V/C Ratio(X)	0.02	0.05	-0.04	0.08	0.20	0.20	0.12	0.00	0.02	0.06	0.00	0.00
Avail Cap(c_a), veh/h	189	1663	742	189	832	875	693	0	607	687	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.8	6.8	0.0	18.9	7.3	7.3	19.2	0.0	18.8	19.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.2	0.5	0.5	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.0	0.3	1.5	1.6	0.6	0.0	0.1	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	6.9	0.0	19.1	7.9	7.9	19.4	0.0	18.9	19.1	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		56			361			40			16	
Approach Delay, s/veh		10.7			8.4			19.3			19.1	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	27.0		10.0	10.0	27.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		18.0	5.0	22.0		18.0	5.0	22.0				
Max Q Clear Time (g_c+I1), s		3.0	2.4	2.6		2.4	2.1	4.6				
Green Ext Time (p_c), s		0.1	0.0	0.3		0.0	0.0	1.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			9.9									
HCM 6th LOS			A									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/20/2018





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	483	224	20	616	2	150	0	26	3	4	2
Future Volume (veh/h)	1	483	224	20	616	2	150	0	26	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	537	166	22	684	2	167	0	29	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	1404	626	195	1436	4	394	0	263	158	166	62
Arrive On Green	0.11	0.39	0.39	0.11	0.39	0.39	0.17	0.00	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1410	0	1585	315	1000	376
Grp Volume(v), veh/h	1	537	166	22	334	352	167	0	29	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1691	0	0
Q Serve(g_s), s	0.0	4.9	3.2	0.5	6.4	6.4	4.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.9	3.2	0.5	6.4	6.4	5.0	0.0	0.7	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	195	1404	626	195	702	738	394	0	263	386	0	0
V/C Ratio(X)	0.01	0.38	0.27	0.11	0.48	0.48	0.42	0.00	0.11	0.02	0.00	0.00
Avail Cap(c_a), veh/h	195	1404	626	195	702	738	840	0	765	898	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.1	9.8	9.3	18.3	10.3	10.3	17.9	0.0	16.1	15.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	1.0	0.3	2.3	2.2	0.7	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.9	1.8	0.4	4.2	4.4	2.8	0.0	0.4	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	10.6	10.4	18.5	12.6	12.5	18.7	0.0	16.3	15.9	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		704			708			196			9	
Approach Delay, s/veh		10.6			12.7			18.3			15.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.6	10.0	23.0		12.6	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		7.0	2.5	6.9		2.2	2.0	8.4				
Green Ext Time (p_c), s		0.5	0.0	3.1		0.0	0.0	2.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									



# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	153	88	10	726	0	228	0	27	3	0	12
Future Volume (veh/h)	2	153	88	10	726	0	228	0	27	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	170	87	11	807	0	253	0	30	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1306	583	182	1306	0	464	0	355	117	37	289
Arrive On Green	0.10	0.37	0.37	0.10	0.37	0.00	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	134	164	1292
Grp Volume(v), veh/h	2	170	87	11	807	0	253	0	30	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1590	0	0
Q Serve(g_s), s	0.0	1.6	1.8	0.3	9.1	0.0	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.6	1.8	0.3	9.1	0.0	8.2	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	182	1306	583	182	1306	0	464	0	355	444	0	0
V/C Ratio(X)	0.01	0.13	0.15	0.06	0.62	0.00	0.55	0.00	0.08	0.04	0.00	0.00
Avail Cap(c_a), veh/h	182	1306	583	182	1306	0	779	0	712	791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	10.3	10.4	19.9	12.7	0.0	17.9	0.0	15.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.1	2.2	0.0	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.9	1.1	0.2	5.9	0.0	4.6	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	10.5	10.9	20.0	14.9	0.0	18.9	0.0	15.1	14.9	0.0	0.0
LnGrp LOS	B	B	B	C	B	A	B	A	B	B	A	A
Approach Vol, veh/h		259			818			283			16	
Approach Delay, s/veh		10.7			14.9			18.5			14.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	23.0		16.0	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		10.2	2.3	3.8		2.4	2.0	11.1				
Green Ext Time (p_c), s		0.7	0.0	1.0		0.0	0.0	3.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	826	703	77	401	2	362	2	41	1	1	3
Future Volume (veh/h)	4	826	703	77	401	2	362	2	41	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	918	587	86	446	2	402	2	46	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1146	511	160	1169	5	581	21	488	139	145	311
Arrive On Green	0.09	0.32	0.32	0.09	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	3628	16	1412	66	1529	194	455	973
Grp Volume(v), veh/h	4	918	587	86	218	230	402	0	48	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1595	1622	0	0
Q Serve(g_s), s	0.1	13.2	18.0	2.6	5.3	5.3	15.0	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	13.2	18.0	2.6	5.3	5.3	15.1	0.0	1.2	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.96	0.20		0.60
Lane Grp Cap(c), veh/h	160	1146	511	160	573	602	581	0	510	596	0	0
V/C Ratio(X)	0.03	0.80	1.15	0.54	0.38	0.38	0.69	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	160	1146	511	160	573	602	686	0	628	713	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.2	17.3	18.9	24.3	14.6	14.6	18.0	0.0	13.3	13.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	5.9	87.7	3.6	1.9	1.8	2.4	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	9.4	27.2	2.1	3.9	4.0	8.4	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	23.2	106.7	27.9	16.5	16.5	20.4	0.0	13.4	13.0	0.0	0.0
LnGrp LOS	C	C	F	C	B	B	C	A	B	B	A	A
Approach Vol, veh/h		1509			534			450			5	
Approach Delay, s/veh		55.7			18.3			19.7			13.0	
Approach LOS		E			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.8	10.0	23.0		22.8	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+11), s		17.1	4.6	20.0		2.1	2.1	7.3				
Green Ext Time (p_c), s		0.8	0.0	0.0		0.0	0.0	1.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			41.1									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista





















07/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	71	210	18	310	1	147	0	17	2	0	13
Future Volume (veh/h)	3	71	210	18	310	1	147	0	17	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	79	16	20	344	1	163	0	19	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1701	759	164	1740	5	350	0	243	84	21	214
Arrive On Green	0.09	0.48	0.48	0.09	0.48	0.48	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1400	0	1585	65	135	1397
Grp Volume(v), veh/h	3	79	16	20	168	177	163	0	19	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1597	0	0
Q Serve(g_s), s	0.1	0.6	0.3	0.6	3.0	3.0	5.5	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.6	0.3	0.6	3.0	3.0	5.9	0.0	0.6	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	164	1701	759	164	851	894	350	0	243	319	0	0
V/C Ratio(X)	0.02	0.05	0.02	0.12	0.20	0.20	0.47	0.00	0.08	0.05	0.00	0.00
Avail Cap(c_a), veh/h	164	1701	759	164	851	894	625	0	554	626	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	7.5	7.5	22.6	8.2	8.2	21.9	0.0	19.7	19.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.3	0.5	0.5	1.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.4	0.2	0.4	1.8	1.9	3.5	0.0	0.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	7.6	7.5	23.0	8.7	8.6	22.9	0.0	19.9	19.7	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	C	A	B	B	A	A
Approach Vol, veh/h		98			365			182			16	
Approach Delay, s/veh		8.0			9.4			22.6			19.7	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.3	10.0	31.0		13.3	10.0	31.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		19.0	5.0	26.0		19.0	5.0	26.0				
Max Q Clear Time (g_c+I1), s		7.9	2.6	2.6		2.5	2.1	5.0				
Green Ext Time (p_c), s		0.4	0.0	0.4		0.0	0.0	1.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			13.1									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	483	427	43	616	2	324	0	45	3	4	2
Future Volume (veh/h)	1	483	427	43	616	2	324	0	45	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	537	368	48	684	2	360	0	50	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1176	524	164	1202	4	559	0	478	211	264	111
Arrive On Green	0.09	0.33	0.33	0.09	0.33	0.33	0.30	0.00	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1410	0	1585	409	874	366
Grp Volume(v), veh/h	1	537	368	48	334	352	360	0	50	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1649	0	0
Q Serve(g_s), s	0.0	6.5	11.0	1.4	8.4	8.4	12.8	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.5	11.0	1.4	8.4	8.4	13.0	0.0	1.2	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	164	1176	524	164	588	618	559	0	478	586	0	0
V/C Ratio(X)	0.01	0.46	0.70	0.29	0.57	0.57	0.64	0.00	0.10	0.02	0.00	0.00
Avail Cap(c_a), veh/h	164	1176	524	164	588	618	1222	0	1224	1339	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	14.4	15.9	23.1	15.0	15.0	17.8	0.0	13.7	13.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	7.6	1.0	4.0	3.8	1.3	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.4	7.9	1.0	6.4	6.6	7.2	0.0	0.8	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	15.6	23.5	24.0	19.0	18.8	19.0	0.0	13.8	13.3	0.0	0.0
LnGrp LOS	C	B	C	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		906			734			410			9	
Approach Delay, s/veh		18.8			19.2			18.4			13.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.4	10.0	23.0		21.4	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		42.0	5.0	18.0		42.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		15.0	3.4	13.0		2.2	2.0	10.4				
Green Ext Time (p_c), s		1.4	0.0	2.2		0.0	0.0	2.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	4	1	0	7	8
Future Vol, veh/h	0	4	1	0	7	8
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	1	0	8	9

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	26	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	25	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	989	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	998	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	984	1084	-	-	1622
Mov Cap-2 Maneuver	984	-	-	-	-
Stage 1	1017	-	-	-	-
Stage 2	998	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.3	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.004	0.005
HCM Control Delay (s)	-	-	8.3	7.2
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	120	120	0	250	250
Future Vol, veh/h	0	120	120	0	250	250
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	133	0	278	278

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	967	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	834	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	282	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	426	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	218	916	-	-	1452
Mov Cap-2 Maneuver	218	-	-	-	-
Stage 1	691	-	-	-	-
Stage 2	426	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.146	0.191
HCM Control Delay (s)	-	-	9.6	8.1
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.7

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	2.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	15	21	0	69	117
Future Vol, veh/h	0	15	21	0	69	117
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	23	0	77	130

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	307	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	685	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	764	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	649	1054	-	-	1592
Mov Cap-2 Maneuver	649	-	-	-	-
Stage 1	948	-	-	-	-
Stage 2	764	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.016	0.048
HCM Control Delay (s)	-	-	8.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	120	56	0	168	80
Future Vol, veh/h	0	120	56	0	168	80
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	62	0	187	89

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	525	62	0
Stage 1	62	-	-
Stage 2	463	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	513	1003	1541
Stage 1	961	-	-
Stage 2	634	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	447	1003	1541
Mov Cap-2 Maneuver	447	-	-
Stage 1	838	-	-
Stage 2	634	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	5.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.133	0.121
HCM Control Delay (s)	-	-	9.1	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4



HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	8.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘		↗			↖
Traffic Vol, veh/h	0	254	1	0	90	8
Future Vol, veh/h	0	254	1	0	90	8
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	282	1	0	100	9

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	210	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	209	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	778	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	826	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	730	1084	-	-	1622
Mov Cap-2 Maneuver	730	-	-	-	-
Stage 1	959	-	-	-	-
Stage 2	826	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.26	0.062
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh	6.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	
Traffic Vol, veh/h	0	285	120	0	531	250
Future Vol, veh/h	0	285	120	0	531	250
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	317	133	0	590	278

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1591	133	0
Stage 1	133	-	-
Stage 2	1458	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	118	916	-
Stage 1	893	-	-
Stage 2	214	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	61	916	-
Mov Cap-2 Maneuver	61	-	-
Stage 1	464	-	-
Stage 2	214	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	6.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.346	0.406
HCM Control Delay (s)	-	-	11	9.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.6	2

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	143	21	0	111	117
Future Vol, veh/h	0	143	21	0	111	117
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	159	23	0	123	130

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	399	23	0	0	23	0
Stage 1	23	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	607	1054	-	-	1592	-
Stage 1	1000	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	557	1054	-	-	1592	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	694	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.151	0.077
HCM Control Delay (s)	-	-	9	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3

HCM 6th TWSC  
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	7.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	313	56	0	394	80
Future Vol, veh/h	0	313	56	0	394	80
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	348	62	0	438	89

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1027	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	965	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	260	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	370	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	182	1003	-	-	1541
Mov Cap-2 Maneuver	182	-	-	-	-
Stage 1	674	-	-	-	-
Stage 2	370	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	6.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.347	0.284
HCM Control Delay (s)	-	-	10.5	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.6	1.2

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	8.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	250	4	0	83	7
Future Vol, veh/h	0	250	4	0	83	7
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	4	0	92	8

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	196	4	0	0	4
Stage 1	4	-	-	-	-
Stage 2	192	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	793	1080	-	-	1618
Stage 1	1019	-	-	-	-
Stage 2	841	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	748	1080	-	-	1618
Mov Cap-2 Maneuver	748	-	-	-	-
Stage 1	961	-	-	-	-
Stage 2	841	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1080	1618
HCM Lane V/C Ratio	-	-	0.257	0.057
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	165	120	0	281	250
Future Vol, veh/h	0	165	120	0	281	250
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	183	133	0	312	278

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1035	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	902	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	257	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	396	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	192	916	-	-	1452
Mov Cap-2 Maneuver	192	-	-	-	-
Stage 1	666	-	-	-	-
Stage 2	396	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	4.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.2	0.215
HCM Control Delay (s)	-	-	9.9	8.2
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.8

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	128	15	0	42	69
Future Vol, veh/h	0	128	15	0	42	69
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	17	0	47	77

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	188	17	0	0	17
Stage 1	17	-	-	-	-
Stage 2	171	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	801	1062	-	-	1600
Stage 1	1006	-	-	-	-
Stage 2	859	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	776	1062	-	-	1600
Mov Cap-2 Maneuver	776	-	-	-	-
Stage 1	975	-	-	-	-
Stage 2	859	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1062	1600
HCM Lane V/C Ratio	-	-	0.134	0.029
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

HCM 6th TWSC  
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	193	120	0	226	168
Future Vol, veh/h	0	193	120	0	226	168
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	133	0	251	187

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	822	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	689	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	344	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	498	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	278	916	-	-	1452
Mov Cap-2 Maneuver	278	-	-	-	-
Stage 1	721	-	-	-	-
Stage 2	498	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	4.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.234	0.173
HCM Control Delay (s)	-	-	10.1	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.6





**CITY OF SPARKS, NV  
COMMUNITY  
SERVICES  
DEPARTMENT**

**To:** Mayor and City Council

**From:** Marilie Smith, Administrative Secretary

**Subject:** Report of Planning Commission Action

**Date:** October 8, 2018

**RE:** PCN18-0005 – Consideration of and possible action, for a site approximately 65 acres in size generally located east of Golden Eagle Regional Park and south of Vista Boulevard, Sparks, NV, of requests for:

- DA18-0004 – A Development Agreement pursuant to NRS 278.0201 between the City of Sparks, Foothills at Wingfield, LLC, and Albert D. Seeno Construction Company;
- MPA18-0001 – An amendment to the Comprehensive Plan to change the land use designation from 6.26 acres of Commercial (C), 15.57 acres of Multi-family Residential (MF24), 18.56 acres of High Density Residential (HDR), 8.12 acres of Open Space (OS), 5 acres of Large Lot Residential (LLR), and 11.4 acres of Mixed Use (MU) to approximately 65 acres of Intermediate Density (IDR), and;
- RZ18-0001 – Rezoning of the site from A5 (Agriculture) to SF6 (Single-Family – 6,000 sq. ft. lots).

Please see the attached excerpt from the August 2, 2018 Planning Commission meeting transcript.

1 I'm going to ask if Commissioner Carey would elaborate  
2 on why he views this use as incompatible with the  
3 surrounding land uses.

4 COMMISSIONER CAREY: I think, I've heard  
5 enough. No, I think, what I'm trying to, trying to get  
6 at, maybe unsuccessfully, is, you know, I don't feel  
7 it's compatible with the existing uses, because it's  
8 going to create a greater impact that cannot be  
9 mitigated with the conditions of approval, in my humble  
10 opinion.

11 MS. MCCORMICK: Thank you.

12 CHAIRMAN VANDERWELL: Any other comments,  
13 questions?

14 Okay. I will -- all in favor?

15 (Commission members said "aye.")

16 CHAIRMAN VANDERWELL: Opposed?

17 COMMISSIONER CAREY: Nay.

18 CHAIRMAN VANDERWELL: Okay. The motion  
19 carries.

20 Next, we'll move along to PCN18-0005,  
21 consideration and possible action for a site 65 acres,  
22 and a development agreement, Comprehensive Plan and a  
23 rezoning.

24 Okay. Commissioner Carey, on our last, you can  
25 say Commissioner Carey nayed this for -- since we're

1 having it recorded.

2 COMMISSIONER CAREY: Oh, the (indistinct)?

3 CHAIRMAN VANDERWELL: No.

4 COMMISSIONER CAREY: Okay. For the record,  
5 this is Commissioner Carey, voting in opposition to the  
6 motion that was on the table.

7 CHAIRMAN VANDERWELL: Thank you.

8 MR. CRITTENDEN: Madam Chairman, members of the  
9 Planning Commission, Ian Crittenden, Senior Planner.

10 This is, as mentioned, a request for a  
11 development agreement, Comprehensive Plan amendment and  
12 a rezoning on a site approximately 65 acres in size.  
13 The development agreement is primarily there as a way to  
14 help make the concurrency findings associated with the  
15 development -- or with the -- not the development  
16 agreement, but with the Comprehensive Plan amendment and  
17 the rezoning, there are concurrency requirements to  
18 those.

19 Some background on this site in general. It is  
20 an approximately 65-acre site composed of a 60-acre  
21 large parcel and then two two-and-a-half-acre smaller  
22 parcels.

23 The existing land use, which can be seen here,  
24 was approved in 2007. And then the two  
25 two-and-a-half-acres to the south, southern part of this

1 were annexed in 2015, and they were rezoned to A-5 at  
2 that time.

3 So the DA was requested by staff in order to  
4 address concurrency issues with the Comprehensive Plan  
5 amendment and the rezoning request.

6 The site does not abut City streets because of  
7 the BLM property that is in between the City's property  
8 here at Vista, and the site here is all BLM, including  
9 the area that is on the City park. It doesn't connect  
10 to our City infrastructure. And so we had to provide a  
11 way to show concurrency that would show how this area is  
12 going to be accessed and how necessary services were  
13 going to be provided in a concurrent manner to  
14 development of this property.

15 So as you can see in this, this plan, it's  
16 showing the existing access to the property here with  
17 the red line. So from the intersection of Homerun and  
18 Vista, it comes south to the intersection of Homerun and  
19 Touchdown and then turns onto an unnamed access road  
20 that goes to a City maintenance yard and then continues  
21 on and then back onto the property.

22 The applicant is proposing -- this is oriented  
23 to the opposite direction. Give me a second. That's  
24 the right orientation. Let's zoom in a little bit.

25 The applicant is proposing to access via the

1 Homerun to Touchdown to a new access road which they  
2 would construct to access into the property. All of  
3 those roads are, essentially, private roads, including  
4 the ones that access the City parks. We don't own the  
5 right-of-way on those streets because it is over BLM in  
6 an easement that we have with BLM.

7           The development agreement helps to allow for  
8 many of the concurrency findings to be made.  
9 Specifically, the development agreement establishes the  
10 nature of the use and the improvements that will be made  
11 and the timing for said improvements mainly. It sets  
12 the number of units in the development to between 420  
13 and 475. It requires documentation from the BLM that  
14 the access easement is for the densities described in  
15 the development agreement.

16           So the new alignment, as kind of indicated in  
17 the blue, will have to be approved by the BLM as well as  
18 the intensity of that access easement for the number of  
19 lots.

20           The development agreement addresses off-site  
21 sewer improvements that will have to be made in order  
22 for this site to be viable.

23           It addresses vehicular access improvements,  
24 which include an all-weather emergency vehicle access  
25 road, which is indicated by this kind of purple thatched

1 line that goes around what will be future programming  
2 for Golden Eagle Regional Park, on this kind of square  
3 property here. And that will provide emergency access  
4 and also provide an evacuation route for this  
5 development with wildfires in the BLM area.

6 Also, there will be required intersection  
7 improvements at the intersection of Vista and Homerun.  
8 There will also be intersection improvements at Homerun  
9 and Touchdown. And then, obviously, the new road  
10 constructed to access the property.

11 All roadways will be, would be required to be  
12 constructed to City of Sparks standards. The  
13 development agreement also indicates that all streets  
14 and sidewalks will be privately owned and maintained.

15 The City may take ownership and maintenance  
16 over of a portion of the primary access road at a time  
17 when this area becomes programmed. We will want to be  
18 able to control and maintain the road that accesses this  
19 part of our programmed park. And so that's also  
20 indicated in the development agreement.

21 And, also, the development agreement also  
22 requires the documentation of estimates for private  
23 street maintenance, estimates for cost of private street  
24 maintenance be submitted, and the funding mechanism that  
25 will be provided to be able to maintain those roads,

1 prior to any tentative maps being submitted by the  
2 applicant.

3 We also require that the developer provide  
4 pedestrian and bicycle access to Golden Eagle Regional  
5 Park, the Golden Eagle Regional Park.

6 Also, there is a requirement that a minimum  
7 25-foot landscape buffer be maintained to help to  
8 mitigate the impacts of Golden Eagle Regional Park,  
9 which is a louder and brighter park than most  
10 neighborhood parks would be. And that may not be able  
11 to be completely mitigated, but what can be used, we are  
12 requiring that that be done in that 25-foot landscape  
13 buffer.

14 Staff views that the DA is, the development  
15 area is consistent with the Comprehensive Plan as the  
16 development agreement obligates that developer to  
17 construct private access infrastructure to a site that  
18 does not abut public right-of-way.

19 The development agreement supports and is  
20 consistent with the following Comprehensive Plan goals  
21 and policies, specifically Policy MG5, that requires  
22 that infrastructure facilities and fiscal impacts be  
23 addressed, and Policy CF1, which requires that City  
24 services be able to be provided at an acceptable level.  
25 The development agreement provides for those goals and

1 policies to be met.

2 Staff does recommend that the Planning  
3 Commission make your recommendation of approval to the  
4 City Council for the development agreement.

5 Moving on to the Comprehensive Plan. Like I  
6 said, there are three, three items associated here.

7 So the existing land use on this property, as I  
8 mentioned, was approved in 2007. There are, in the see  
9 land use of the commercial land use category, there are  
10 6.26 acres. The MF24, which is multi-family with 24  
11 units per acre minimum, or a maximum of 24 units per  
12 acre, is 15.57 units. HDR, which has a minimum density  
13 of 24 units per acre, there's 18.56 acres of that. Open  
14 Space, there's 8.12 acres. Large Lot Residential,  
15 there's five acres. Those are the two lots to the  
16 south. And then there is also 11.4 acres of mixed-use.

17 The applicant is requesting to change all of  
18 those land uses to IDR, which is Intermediate Density  
19 Residential, which allows 6 to less than 10 units per  
20 acre.

21 Findings associated with the Comprehensive Plan  
22 amendment are CP1, which requires conformance with the  
23 Regional Plan.

24 Goal 1.1 of the Regional Plan requires that 99  
25 percent of all residential growth and population growth



1 happen in the TMSAs. This is in the City of Sparks  
2 TMSA.

3 Also, Goal 3.5 of the Regional Plan requires,  
4 essentially, concurrency. And this goal of concurrency  
5 is accomplished through the development agreement,  
6 addresses those concurrency requirements.

7 Finding CP2 requires that the proposed  
8 amendment implementing goals of the Sparks Comprehensive  
9 Plan. Again, we cite policy MG5, which requires us to  
10 look at infrastructure and fiscal impacts; Policy CF1,  
11 which addresses City services; and Goal H2, which  
12 addresses the provision of housing and fiscal  
13 sustainability.

14 Goal MG5 requires a fiscal impact analysis.  
15 The applicant did submit a fiscal impact analysis which  
16 shows a \$2.8 million positive impact over 20 years.

17 The development agreement provides for Policy  
18 CF1 to be able to be supported in that the provided  
19 levels of service can be met.

20 And then Goal H2. This site does propose to  
21 build somewhere between 420 and 475 homes and shows a  
22 positive fiscal impact, which supports Goal H2.

23 Finding CP3 requires compatibility with the  
24 surrounding land use. The surrounding land uses are  
25 Open Space, Parks and Large Lot Residential. All of

1 these land uses are compatible with and complementary to  
2 proposed Intermediate Density Residential land uses.

3 And Finding CP4 requires proper notice. Public  
4 notice was published in the Reno Gazette-Journal on  
5 July 20th. And the applicant held a neighborhood  
6 meeting on April 4th.

7 And staff is recommending that the Planning  
8 Commission approve the Comp Plan amendment request.

9 And then, finally, for rezoning. The site is  
10 currently zoned A-5. The applicant is requesting the  
11 site be rezoned. All three parcels are currently A-5.  
12 The applicant is requesting a rezone to SF6. The SF  
13 zoning had fewer permitted uses than the A-5 zoning  
14 district, however does allow higher density residential.

15 Finding Z1 requires consistency with the Comp  
16 Plan. If the Planning Commission approves the  
17 Comprehensive Plan amendment, then this would be in --  
18 would be consistent. If the Planning Commission does  
19 not approve that, then this would not be consistent and  
20 should be remembered when motions are made.

21 Finding Z2 requires consistency with the  
22 surrounding land uses. As mentioned in the Comp Plan  
23 portion, the surrounding uses are Park, Open Space and  
24 large lot residential. Single-Family Residential would  
25 be a compatible and complementary use of those uses.

1           And Finding Z3 requires proper notice. Public  
2 notice was published in the Reno Gazette-Journal on  
3 July 20th. Notice was mailed to all property owners  
4 within 2,000 feet. Normal rezoning is 750. But to get  
5 to the required minimum of 30 individual property  
6 owners, we had to go out to 2,000 feet since most of  
7 this is owned by the BLM adjacent to this property.

8           Staff is also recommending the Planning  
9 Commission make a recommendation to the City Council of  
10 approval of this request.

11           That is the end of my presentation. I'd be  
12 happy to answer any questions. The applicant is also  
13 here, if you would like to talk to him.

14           CHAIRMAN VANDERWELL: All right. Would the  
15 applicant like to come up.

16           MR. MIKE RALEY: Good evening. For the record,  
17 Mike Raley with Rubicon Design Group, here representing  
18 Discovery Builders. Representatives from Discovery  
19 Builders are here with me tonight, along with our  
20 project engineer.

21           I think, Ian's staff report is very thorough  
22 and he did a very good overview in his presentation.  
23 We're simply here to answer any questions you may have.

24           CHAIRMAN VANDERWELL: Okay. Thank you.

25           Any Commissioners have any questions of the

1 applicant?

2 Commissioner Fewins.

3 COMMISSIONER FEWINS: Yeah. Commissioner  
4 Fewins. I'd like.

5 In the development agreement that's been -- it  
6 was talked about, I was a little bit concerned. Or  
7 maybe it's just a statement. East of Golden Eagle  
8 Regional Park and then west of this, you're going to  
9 have a road. And in the development agreement, there  
10 was some going bicycles and pedestrian access to Golden  
11 Eagle. And in the development agreement, it says that  
12 the master builder shall provide a traffic circulation  
13 plan to discourage a (indistinct) regional park. So it  
14 gets really busy out there, and then people are probably  
15 parking on that road?

16 MR. MIKE RALEY: Right.

17 COMMISSIONER FEWINS: What are you kind of  
18 visioning on that?

19 MR. MIKE RALEY: That's something that we'll  
20 definitely address on the tentative map. But, I think,  
21 we -- you know, there's a variety of ways that we could  
22 do that through a final design on the subdivision.  
23 We're not quite to that stage yet. But, you know, we  
24 can look at ways of incorporating landscaping and  
25 (indistinct). I'm aware that we've discouraged people

1 from parking, making it, essentially, inconvenient for  
2 them to park there.

3 COMMISSIONER FEWINS: Thank you.

4 CHAIRMAN VANDERWELL: Any other Commissioners  
5 have any questions?

6 Okay. Thank you.

7 This is a public hearing. I'll open a public  
8 hearing.

9 Do we have any requests to speak on this item?

10 MS. SMITH: I do not, Madam.

11 CHAIRMAN VANDERWELL: Okay. Sir?

12 MR. DEAN O'CONNOR: I don't know if you need  
13 this or not.

14 MS. MELBY: Yeah, leave it.

15 MR. DEAN O'CONNOR: Okay.

16 MS. SMITH: Thank you.

17 CHAIRMAN VANDERWELL: And if you'll just state  
18 your name and address for the record, please.

19 MR. DEAN O'CONNOR: Sure. It's Dean O'Conner.  
20 I live at 4313 Black Hills Drive.

21 I had a few questions. But with when I  
22 purchased this house, we looked at multiple homes in the  
23 area and chose this house, paid significantly more money  
24 simply due to the area, on the south side that was open  
25 and the views. So one piece that I've had is that when

1 this new buildings, when the buildings go up, that it's  
2 going to significantly reduce the value of my home.

3 And on the other side of that, I'm just really  
4 concerned about safety and all the traffic that's out.  
5 I have young children that actually go from our house  
6 around and over to the park. So I just want to make  
7 sure that they would still have access that's safe.

8 And, again, back to the traffic, it's just a  
9 pretty big concern, given that the way that they  
10 designed it.

11 One question I do have, is this area directly  
12 south between Black Hills and the development, that will  
13 continue to stay open with the BLM?

14 MR. CRITTENDEN: If you could use the map, sir.

15 MR. DEAN O'CONNER: Certainly. Sorry. This  
16 area. That will stay open and it will not be developed?

17 CHAIRMAN VANDERWELL: We'll call staff up.  
18 We'll have staff address that question as soon as you're  
19 done with your testimony.

20 MR. DEAN O'CONNER: Okay. No problem. Just  
21 the point of reduction in value of our home due to the  
22 development and the increased traffic.

23 Thank you.

24 CHAIRMAN VANDERWELL: Thank you.

25 Any other requests to speak?

1           Okay. I'll close the public hearing. I'll  
2 bring it back to the Commission.

3           Ian, if you could please address his question.

4           MR. CRITTENDEN: Yes. The area that the  
5 gentleman requested, that actually is scheduled for  
6 future park improvements. And so it would not be  
7 developed in terms of housing, but potentially a future  
8 flat field is what the -- currently, the Sparks  
9 management plan has anticipated for that area. We don't  
10 have a timeline on that. We don't have funding lined up  
11 for that just yet. But it is the future plan.

12           And that was part of the discussion for the  
13 emergency evacuation, or the emergency vehicle access  
14 road that kind of wraps around the outside edge of that,  
15 is to avoid passing through what would be, hopefully,  
16 future programmed park space.

17           MR. DEAN O'CONNER: Thank you.

18           CHAIRMAN VANDERWELL: Thank you.

19           Any Commissioners have any future questions?

20           Okay. I'll entertain a motion.

21           COMMISSIONER FEWINS: Commissioner Fewins.

22           CHAIRMAN VANDERWELL: Commissioner Fewins.

23 Thank you.

24           COMMISSIONER FEWINS: For the development  
25 agreement, I would propose the development associated

1 with PCN18-005 is consistent with the Sparks  
2 Comprehensive Plan and to forward a recommendation of  
3 approval to the City Council.

4 COMMISSIONER CAREY: I'll second the motion.

5 CHAIRMAN VANDERWELL: Okay. I have a first and  
6 a second. Any discussion?

7 Commissioner Carey.

8 COMMISSIONER CAREY: Thank you. I support  
9 the -- well, I seconded it. I think that I really like  
10 the language in the development agreement with section  
11 B, part 4, about the urban interface. I mean this is  
12 something to take a look at when we get to the tentative  
13 map.

14 The wildfire, obviously, is a huge issue, huge  
15 concern in this area. I think, one of the things we  
16 should maybe take a look at, we're providing the buffer  
17 to Golden Eagle; I think, we should take a look at  
18 providing a buffer to the public lands to the east.

19 Another concern, you know, looking at the  
20 Carson City BLM Field Office Management Plan for the  
21 land, there's some significant uses that are out to the  
22 east. And, I think, when we get to the tentative map, I  
23 would encourage staff to take a look at restricting  
24 access, vehicle and off-road vehicle, to the lands to  
25 the east and enforcing that access to the existing



1 access point to the south near the -- you know, near the  
2 park.

3 Thank you, Madam Chair.

4 CHAIRMAN VANDERWELL: Any other Commissioners  
5 have any comments?

6 Okay. All in favor?

7 (Commission members said "aye.")

8 CHAIRMAN VANDERWELL: Any opposed?

9 Thank you.

10 Yes?

11 COMMISSIONER FEWINS: Madam Chair?

12 CHAIRMAN VANDERWELL: Commissioner Fewins.

13 COMMISSIONER FEWINS: For the Comprehensive  
14 Plan land use --

15 MS. MCCORMICK: Madam Chair, I believe a public  
16 hearing is next.

17 CHAIRMAN VANDERWELL: Oh, I apologize. See,  
18 when you put it all under one, it's hard.

19 This is a public hearing item. I'm going to  
20 open the public hearing?

21 Do we have any requests to speak?

22 Okay. With that, I'll close the public hearing  
23 and bring it back to the Commission.

24 Commissioner Fewins.

25 COMMISSIONER FEWINS: Madam Chair, for the

1 Comprehensive Plan land use amendment request, I move to  
2 approve the Comprehensive Plan land use amendment  
3 MPA18-001, associated with PCN18-0005, based on findings  
4 CP1 through CP4, and the facts supporting these findings  
5 as set forth in the staff report.

6 COMMISSIONER BROCK: Commissioner Brock.  
7 Second.

8 CHAIRMAN VANDERWELL: Okay. I have a first and  
9 a second. Any further discussion?

10 Commissioner Carey.

11 COMMISSIONER CAREY: Thank you. Some comments  
12 for the record on the proposed comprehensive land use  
13 change.

14 I can recall, from being on the Parks and Rec  
15 Commission, when Golden Eagle Park was being designed, I  
16 think, the original intent of the land use that were  
17 proposed to be changed in the motion, was to be  
18 commercial and residential services to provide, to help  
19 with Golden Eagle Regional Park. I think that the  
20 proposed comprehensive land use change is more  
21 consistent with the existing land uses in this area. I  
22 think, single-family is more appropriate considering the  
23 important land uses of the federal lands to the east.

24 I'll be supporting the motion.

25 CHAIRMAN VANDERWELL: Thank you. Any further

1 discussion?

2 All in favor?

3 (Commission members said "aye.")

4 CHAIRMAN VANDERWELL: Any opposed?

5 Okay. Thank you. Motion carries.

6 Next, I'll open the public hearing for the  
7 rezoning.

8 Do we have any requests to speak?

9 MS. SMITH: I don't.

10 CHAIRMAN VANDERWELL: Hearing none, I'll close  
11 the public hearing and bring it back to the Commission.

12 Commissioner Fewins, would you like to? thank  
13 you.

14 COMMISSIONER FEWINS: This is called Turkey, I  
15 think.

16 CHAIRMAN VANDERWELL: Yeah. Just moving it  
17 along.

18 COMMISSIONER FEWINS: Madam Chair, Commissioner  
19 Fewins.

20 For the zoning request, I move to forward a  
21 recommendation of approval to the City Council for the  
22 rezoning request RZ18-0001, associated with PCN18-0005,  
23 based on findings Z1 through Z3 and the facts supporting  
24 these findings as set forth in the staff report.

25 COMMISSIONER BROCK: Commissioner Brock.

1 Second.

2 CHAIRMAN VANDERWELL: Okay. I have a first and  
3 a second. Any further discussion?

4 Okay. Hearing none, all in favor?

5 (Commission members said "aye.")

6 CHAIRMAN VANDERWELL: Anyone opposed?

7 Thank you. Motion carries.

8 Next, we'll move along to General Business,  
9 PCN18-00032, consideration and possible recommendation  
10 of approval of a tentative map.

11 MR. CUMMINS: Thank you, Madam Chair, Planning  
12 Commissioners. I'm Jonathan Cummins, Assistant Planner.

13 PCN18-0032 is a tentative map request for a  
14 39-lot single-family residential subdivision on a site  
15 5.38 acres in size in the SF6, Single-Family  
16 Residential, zoning district.

17 The project's located on the southeast corner  
18 of Wedekind and El Rancho outlined in cyan, the bluish.

19 The main access to the subdivision would be off  
20 of Garfield to the south of the project. There would be  
21 emergency access on the northwest corner, which will be  
22 gated and used only for emergency vehicles.

23 The piece that's on the southernmost part of  
24 the project here is currently an easement on the church  
25 property which sits to the west. The applicant's in

Recording Requested by and  
When Recorded Mail To:

Teresa Gardner, City Clerk  
City of Sparks  
431 Prater Way  
P.O. Box 857  
Sparks, Nevada 89432-0857

The undersigned hereby affirms that this document submitted for recording does not contain the personal information of any person or persons per N.R.S. 239B.030.

\_\_\_\_\_  
Signature of Declarant or Agent

THIS DEVELOPMENT AGREEMENT (“Agreement”) is made and entered into this \_\_\_ day of \_\_\_\_\_, 2018, by and between the CITY OF SPARKS, a municipal corporation of the State of Nevada (“City”); THE FOOTHILLS AT WINGFIELD, LLC, a Nevada Limited Liability Company (“Owner”); ALBERT D. SEENO CONSTRUCTION COMPANY, a California Limited Partnership (“Master Developer”). The City and Owner and Master Developer are sometimes individually referred to as a “Party” and collectively as the “Parties.”

#### RECITALS

- A. The City is authorized, pursuant to Chapter 278 of the Nevada Revised Statutes and Title 20 of the Sparks Municipal Code, to enter into development agreements such as this Agreement with persons having a legal or equitable interest in real property in order to establish long-range plans for the development of such property.
- B. Owner has authorized Master Developer to develop the Property legally described by “Exhibit A” (metes and bounds) attached hereto and incorporated herein by reference (the “Property”).
- C. The Property currently consists of three (3) parcels that total 65 acres, as shown in “Exhibit B” (graphic depiction) attached hereto and incorporated herein by reference.
- D. Master Developer proposes developing the Property with residential uses as allowed by the Code in effect on the date of this Agreement and the land uses identified in the master plan amendment and zone change amendment described in Case No. PCN18-0005 and the Land Plan attached hereto and incorporated herein by reference as “Exhibit C.”
- E. The Parties acknowledge that this Agreement will (i) promote the health, safety and general welfare of the City and its inhabitants, (ii) minimize uncertainty in planning for and

securing orderly development of the Property and surrounding areas, (iii) ensure attainment of the maximum efficient utilization of resources within the City at the least economic cost to its citizens, and (iv) otherwise achieve the goals and purposes for which the laws governing development agreements were enacted.

- F. As a result of the development of the Property, the City will receive needed housing, jobs, sales and other tax revenues and significant increases to its real estate property tax base that meet or exceed the cost of providing public services, facilities and infrastructure to the Property as described in the Fiscal Analysis attached hereto and incorporated herein by reference as "Exhibit D." The City will additionally receive a greater degree of certainty with respect to the timing and orderly development of the Property and City infrastructure by a developer with significant economic resources and experience in the development process.
- G. The Master Developer understands and acknowledges that there are insufficient public facilities and infrastructure available at the Property in order to properly construct, populate, and serve the Property. Subject to the terms and conditions of this Agreement, the Master Developer agrees to provide the necessary improvements to public facilities and infrastructure on the Property and outside the Property as specifically provided for in the Infrastructure Plan attached hereto and incorporated herein by reference as "Exhibit E."
- H. The Master Developer understands and acknowledges that due to the Property's location and characteristics, certain design requirements and development restrictions as stated in this Agreement are appropriate and necessary.
- I. The Owner and Master Developer understand and acknowledge that the Property is located within Impact Fee Service Area Number 1 and that development of the Property is subject to applicable impact fees as determined by the City from time to time.
- J. The Master Developer desires to enter into a development agreement with City pursuant to NRS 278.0201 to obtain reasonable assurances that it may develop the Property in accordance with the terms, conditions and intent of this Agreement. The Master Developer's decision to enter into this Agreement and commence development of the Property is based on expectations of proceeding and the right to proceed with the Property in accordance with this Agreement and any other Applicable Rules.
- K. The Master Developer further acknowledges that this Agreement was made part of the record at the time of its approval by the City Council and that the Master Developer agrees without protest to the requirements, obligations, limitations, and conditions imposed by this Agreement.
- L. The City Council, having determined that the development of the Property in the manner proposed in Exhibits C, D, and E is beneficial to the City, that this Agreement is in conformance with the City's Comprehensive Plan, the Sparks Municipal Code, and state and federal law, and that all other substantive and procedural requirements for approval of this Agreement have been satisfied, and after giving notice as required by relevant law, and

after introducing this agreement by ordinance at a public meeting on \_\_\_\_\_ and after a subsequent public hearing to consider the substance of this Agreement on \_\_\_\_\_, found this Agreement to be in the public interest and lawful in all respects, and approved the execution of this Agreement by the Mayor of the City of Sparks.

NOW, THEREFORE, in consideration of the foregoing recitals, the promises and covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

## **SECTION ONE DEFINITIONS**

For all purposes of this Agreement, except as otherwise expressly provided or unless the context otherwise requires, the following terms shall have the following meanings:

“Administrator” means the person holding the position of City Manager of the City of Sparks at any time or his designee.

“Agreement” means this development agreement and at any given time includes all addenda and exhibits incorporated by reference and all amendments which hereafter are duly entered into in accordance with the terms of this Agreement.

“Applicable Rules” means and refers to:

- (a) The provisions of the Code and all other uniformly-applied City rules, policies, regulations, ordinances, laws, general or specific, which were in effect on the Effective Date, including without limitation City ordinances, resolutions, or regulations governing the permitted uses of land, density and standards for design;
- (b) This Agreement; and
- (c) The term “Applicable Rules” does not include:
  - (i) Any ordinances, laws, policies, regulations or procedures adopted by a governmental entity other than City;
  - (ii) Any fee or monetary payment prescribed by City ordinance which is applied to any development or construction subject to the City’s jurisdiction; or
  - (iii) Any applicable state or federal law or regulation.

“Building Codes” means the Building Codes and Fire Codes in effect at the time of issuance of a permit for a particular development activity.

“City” means the City of Sparks, together with its successors and assigns.

“City Council” means the Sparks City Council.

“Code” means the Sparks Municipal Code, including all ordinances, rules, regulations, standards, criteria, manuals, appendices, and other references adopted therein.

“Development Parcels” means legally subdivided parcels of land within the Project that are intended to be developed or further subdivided.

“Development Area” means the areas of the Property that the Master Developer expects or plans to develop, as shown in Exhibit B and Exhibit C to this Agreement.

“Effective Date” means the date, on or after the adoption by City of an ordinance approving the execution of this Agreement, and the subsequent execution of this Agreement by the Parties, on which this Agreement is recorded in the Office of the County Recorder of Washoe County. Each party agrees to cooperate as requested by the other party to cause the recordation of this Agreement without delay.

“Entitlement” means any land use approval, including without limitation, any master plan or other zoning approval, annexation, Subdivision Map, tentative map, final map, parcel map, special use permit, permitted land use, density of tentative or final mapped Development Parcels, building permit, grading permit, and other land use entitlements or permits, issued for the Project or any portion of the Property or in favor of Master Developer or its successor(s) in connection with the development of the Property.

“Entitlement Request” means a request by Master Developer or its authorized designee for any land use approval for development of the Project in accordance with this Agreement, including, without limitation, parcel map, tentative subdivision map or final subdivision map, and including the annexation, master plan amendment, and zoning amendment contemplated by this Agreement.

“Infrastructure Plan” means a collection of documents that fully describe the public and private infrastructure, on and off the Property, necessary to support the adopted Land Plan and the proposed method(s) of financing construction of the public infrastructure included therein, including, but not limited to, grading plans, drainage studies, sanitary sewer studies, traffic studies, and utility improvement plans.

“Land Plan” means a collection of documents that fully describe the physical characteristics of the Property and the permitted uses of the Property, including, but not limited to, a detailed description and depiction of the permitted uses and associated densities, intensities and locations within the Project; physical characteristics of the Property such as floodplain, slope and soil, Slope Analysis, the availability and accessibility of water that meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the Project, the availability and accessibility of utilities, the availability and accessibility of public services, the availability and accessibility of water and services for fire protection, prevention and containment, and the effect of the Project on existing public streets. attached to this Agreement as Exhibit C.



“Master Developer” means ALBERT D. SEENO CONSTRUCTION COMPANY, a California Limited Partnership, and its successors and assigns as permitted by the terms of this Agreement.

“Nonconforming Entitlement Request” means a request by Master Developer or its authorized designee for any amendment to this Agreement, Land Plan amendment, master plan amendment, or zoning amendment, or an application for a Subdivision Map which, when evaluated in conjunction with all existing Entitlements and potential future development in the Project, proposes a total number of units which will result in the Project having less than the minimum or more than the maximum number of permitted units set forth in Section 3.1 at Project build out.

“Owner” means FOOTHILLS AT WINGFIELD, LLC, a Nevada Limited Liability Company, the entity that holds title to the real property described by Exhibit A, and its successors and assigns as permitted by the terms of this Agreement.

“Party,” when used in the singular form, means either Owner, Master Developer, or City, and in the plural form of “Parties” means Master Developer, Owner, and City.

“Project” means the Property and any and all improvements provided for or constructed thereupon.

“Project Entrance” means the intersection of Touchdown Drive and the street providing primary access to the Project.

“Property” means that certain 65 gross acres of real property that are the subject of this Agreement as described in Exhibit A.

“Subdivision Map” means any instrument under the Nevada Revised Statutes and the Code that legally subdivides property or gives the right to legally subdivide property.

“Term” means the temporal duration of this Agreement.

## **SECTION TWO APPLICABLE RULES AND CONFLICTING LAWS**

### ***2.1 Reliance on the Applicable Rules***

City and Master Developer agree that Master Developer will be permitted to carry out and complete the development of the Project in accordance with the terms of this Agreement, the Land Plan, the Infrastructure Plan, and the Applicable Rules. The terms of this Agreement shall supersede any conflicting provision of the Code except as provided in Section 2.2 below.

### ***2.2 Application of Subsequently Enacted Rules by the City***

The City shall not amend, alter or change any Applicable Rule as applied to the development of the Project, or apply a new fee, rule, regulation, resolution, policy or ordinance to the development of the Project, except as follows:

- (a) The development of the Project shall be subject to the Building Codes and Fire Codes in effect at the time of issuance of the permit for the particular development activity.
- (b) The application of a new uniformly applied rule, regulation, resolution, policy or ordinance to the development of the Project is permitted, provided that such action is necessary to protect the health, safety and welfare of City residents, does not reduce the permitted density or land use types, does not prevent the type of units or number of permitted units in the Project as set forth in this Agreement, and is consistent with the efficient development and preservation of the entire Project.
- (c) Nothing in this Agreement shall preclude the application to the Project of new or changed rules, regulations, policies, resolutions or ordinances specifically mandated and required by changes in state or federal laws or regulations necessary to protect the health, safety and welfare of City residents. In such event, the provisions of Sections 2.4 and 2.5 of this Agreement are applicable.
- (d) Should the City adopt or amend rules, regulations, policies, resolutions or ordinances and apply such rules to the development of the Project, other than pursuant to one of the above Sections 2.2(a), 2.2(b) or 2.2(c), the Master Developer shall have the option, in its sole discretion, of accepting or rejecting such new or amended rules by giving written notice of such acceptance or rejection within 90 days of the application of such new or amended rules to the Project. If accepted, City and the Master Developer shall subsequently execute an amendment to this Agreement evidencing the Master Developer's acceptance of the new or amended ordinance, rule, regulation or policy within a reasonable time. If rejected, the new or amended rules will not apply to the Project. Master Developer's failure to accept or reject new or amended rules within 90 days constitutes acceptance of the new or amended rules for that instance.

### ***2.3 Application of New Fees***

Notwithstanding Section 2.2 above, City may increase existing cost-based processing fees, entitlement processing fees, Entitlement Request fees, inspection fees, plan review fees, facility fees, sewer connection fees, effluent fees, and any other fees that uniformly apply to all or similarly situated development in the City.

### ***2.4 Conflicting Federal or State Rules***

In the event that any federal or state laws or regulations prevent or preclude compliance by City or Master Developer with one or more provisions of this Agreement or require changes to any approval given by City, this Agreement shall remain in full force and effect as to those provisions not affected, and:

- (a) Notice of Conflict. A Party, upon learning of any such matter, will provide the other Parties with written notice of the conflicting laws or regulations and provide a copy of any such law, rule, regulation or policy together with a statement of how any such matter conflicts with the provisions of this Agreement; and
- (b) Modification Conferences. The Parties shall, within thirty (30) calendar days of the notice referred to in the preceding subsection, meet and confer in good faith and attempt to modify this Agreement to bring it into compliance with any such federal or state law, rule, regulation or policy.

### **2.5 City Council Hearings**

In the event a Party believes that an amendment to this Agreement is necessary due to the effect of any federal or state law, rule, regulation or policy, the proposed amendment shall be scheduled for hearing before the City Council. The City Council shall determine the exact nature of the amendment necessitated by such federal or state law or regulation. Master Developer shall have the right to offer oral and written testimony at the hearing and may support or oppose such change. Any amendment ordered by the City Council pursuant to a hearing contemplated by this Section is subject to judicial review, but such review shall be filed within twenty-five (25) calendar days from the date of the hearing.

## **SECTION THREE PLANNING AND DEVELOPMENT OF THE PROJECT**

### **3.1 Permitted Uses and Density**

Subject to all the terms and conditions of this Agreement, Master Developer agrees to build the Project described by Exhibit C subject to the design standards adopted in the Code and as follows:

- (a) Number of Units Permitted: 420 dwelling units minimum; 475 dwelling units maximum
- (b) Permitted Residential Unit Types: Single Family Detached/Attached
- (c) Gross Density: 7.3 du/acre maximum

### **3.2 Legal Right to Access the Property**

Prior to the approval of any tentative map relating to the Project, Master Developer shall provide evidence to the satisfaction of the Administrator, in the Administrator's sole discretion, that Master Developer and/or Owner is authorized by the Bureau of Land Management (BLM) to cross lands owned and/or managed by BLM for the use of the Property, including the proposed land uses and residential densities for the Project described in this Agreement.

### **3.3 Required Infrastructure Improvements**

Subject to all the terms and conditions of this Agreement, Master Developer agrees to construct all infrastructure necessary to support the Project as described in Exhibit E. Master Developer further agrees to install, at Master Developer's expense, off-site infrastructure necessary to provide services to the Project, including without limitation:

- (a) Sanitary sewer conveyance upgrades that are necessary based on the increased flows resulting from the anticipated land use changes and the topography of the site and surrounding areas.
- (b) Improvements to streets, sidewalks, curbs, and gutters that are necessary based on the increased traffic resulting from the anticipated land use changes in the Project. This includes but is not limited to off-site improvements as follows:
  - (i) Prior to the issuance of any certificate of occupancy for and/or final inspection of any dwelling unit in the Project, all streets from the intersection of Vista Boulevard and Homerun Drive to the Project Entrance shall comply with the 2012 Standard Specifications for Public Works Construction Revision 7. Roadways shall be improved to meet the City of Sparks Standard Residential Street Section to the approval of the City Engineer and the Fire Chief. The roadway construction schedule shall be coordinated with the City's Parks and Recreation Department and Community Services Department. To maintain public access to Golden Eagle Regional Park for the duration of all construction of the Project, Master Developer shall be responsible for all damages caused by Master Developer's activities to all streets, sidewalks, curbs, gutters, and other improvements from the intersection of Vista Boulevard and Homerun Drive to the Project Entrance, and shall repair all such damages to the approval of the City Engineer. Any repairs or maintenance made necessary or prudent due in whole or in part to Master Developer's activities concerning the Project shall be made within 24 hours of notice by telephone call to Master Developer or Master Developer's general contractor, as applicable, unless another time for repairs is agreed upon by the City. If repairs or maintenance are not timely completed, City may cause such repairs or maintenance to be completed at Master Developer's cost and expense.
  - (ii) Prior to the issuance of any certificate of occupancy for and/or final inspection of any dwelling unit in excess of seventy-five (75) dwelling units in the Project, the intersection of Vista Boulevard, Homerun Drive, and Scorpius Drive shall be improved to include one exclusive left turn lane, one shared left turn-through lane, and one exclusive right turn lane at the south approach. The existing right turn lane at the west approach of the intersection of Vista Boulevard, Homerun Drive, and Scorpius Drive shall be lengthened to provide a minimum of 465 feet of storage/deceleration length with a 180-foot taper. The intersection improvements shall comply with the 2012 Standard Specifications for Public Works Construction Revision 7. The pavement structural section (asphalt and base) shall be

approved by the City Engineer. The roadway construction schedule shall be coordinated with the City's Parks and Recreation Department and Community Services Department.

- (iii) Prior to the issuance of any certificate of occupancy for and/or final inspection of any dwelling unit in the Project, traffic control at the intersection of Homerun Drive and Touchdown Drive shall be modified to include stop sign control at the south and east approaches while the left turn and through movements at the north approach flow freely. This intersection shall also be improved with an exclusive left turn lane at the north approach. Pavement markings and signage shall be installed to the approval of the City Engineer. The installation schedule shall be coordinated with the City's Parks and Recreation Department and Community Services Department.
- (iv) Prior to the issuance of any certificate of occupancy for and/or final inspection of any dwelling unit in the Project, the intersection of Touchdown Drive and the primary access to the Project shall be a three-leg intersection with stop sign control at the east approach and an exclusive left turn lane at the north approach. The north and south approaches shall flow freely. The installation schedule shall be coordinated with the City's Parks and Recreation Department and Community Services Department.
- (v) The primary access to the Project and all internal streets and sidewalks shall be designed to City of Sparks standards. The primary access to the Project shall be privately maintained until such time as the City, in its sole discretion, accepts ownership and/or maintenance responsibilities for such primary access. The Parties acknowledge and agree that nothing contained in this Agreement constitutes in any way a pre-approval, authorization, or acceptance of dedication or any ownership or maintenance responsibility for any street, sidewalk, or other infrastructure. All internal residential streets and sidewalks shall be privately owned and maintained. Prior to the approval of any tentative map relating to the Project, Master Developer shall provide to the City a copy of a report estimating the costs to maintain, repair, replace, or restore all privately owned streets and sidewalks serving or located within the Project for a period of at least thirty (30) years. The report shall include, without limitation, an estimate of the total annual assessment that may be necessary to cover the cost of maintaining, repairing, replacing, or restoring the privately owned streets and sidewalks and an estimate of the funding plan that may be necessary to provide adequate funding. The City may refuse to approve a tentative map if the report does not comply with Nevada law pertaining to reserve studies. The report must be completed by a person who holds a permit issued pursuant to NRS Chapter 116A.
- (vi) The Master Developer shall provide a traffic circulation plan that discourages or prevents Golden Eagle Regional Park traffic from utilizing

the primary access to the Project and internal residential streets. Access to the City of Sparks maintenance facility must be considered and accommodated within any traffic circulation plan and street design. Master Developer and Owner shall not obstruct ingress or egress to Golden Eagle Regional Park at any time.

- (vii) Master Developer shall provide pedestrian and bicycle access routes from the Project to the existing pedestrian and bicycle network within Golden Eagle Regional Park. The locations and design requirements for such pedestrian and bicycle access routes shall be established with an application for the applicable tentative map.
- (c) Flood control and drainage improvements that are necessary based on the anticipated land use changes in the Project. Master Developer shall design and construct all flood control and drainage improvements, whether onsite or off-site, required to comply with the Truckee Meadows Regional Drainage Manual and the approval of the Administrator. Design rainfall depths shall utilize the 24-hour point precipitation frequency estimates from the National Oceanic and Atmospheric Administration Atlas 14 (NOAA Atlas 14). Master Developer shall obtain and provide to the Administrator a copy of any required Federal Emergency Management Agency (FEMA) Conditional Letter of Map Revision or other documentation prior to the approval of any tentative map for the Project. Master Developer shall obtain and provide to the Administrator a copy of any required FEMA Letter of Map Revision or other documentation prior to the issuance of any certificate of occupancy for and/or final inspection of any dwelling unit in the Project.
- (d) Public safety conditions and improvements that are necessary based on the anticipated land use changes in the Project, including, without limitation:
  - (i) A second fire apparatus access road shall be completed to the approval of the City Engineer and the Fire Chief prior to the storage of any combustible materials on the Property. The second fire apparatus access road shall be an all-weather material with a minimum width of twenty (20) feet, shall be located outside the 100-year flood plain, and shall be private, gated, and secured and posted as a second fire apparatus access road to the approval of the City Engineer and the Fire Chief. The Parties acknowledge and agree that it may be necessary or desirable for Master Developer and/or Owner to acquire an easement or purchase real property from the City to accommodate the second fire apparatus access road. The Parties further acknowledge and agree that in such an event, the City may, in its sole discretion, accept or reject the proposed location of such real property, and the purchase price of such interest in real property will be determined by an appraisal and a review appraisal obtained at Master Developer's sole cost and expense. Master Developer shall repair or replace any improvements that are damaged or removed in the course of constructing the second fire

apparatus access road to the approval of the City Engineer. The Parties further acknowledge and agree that nothing contained in this Agreement constitutes in any way a pre-approval or authorization of any purchase, sale, or other transfer of ownership of or other interest in real property.

- (ii) Prior to storage of any combustible materials on the Property, fire hydrants shall be installed throughout the Property to the approval of the Fire Chief.
  - (iii) Construction of all streets shall comply with design requirements set forth in the City of Sparks Site Development Fire Prevention Policy Guide and shall be to the approval of the City Engineer and the Fire Chief.
  - (iv) Prior to the approval of any tentative map relating to the Project, Master Developer shall create and submit a Fire Protection Plan to the Fire Chief for review and approval in accordance with the then current edition of the International Wildland Urban Interface Code. The Fire Protection Plan must contain provisions for defensible space around the perimeter of the Project, which may include, without limitation, the entity responsible for maintaining defensible space acquiring an easement or other permission to enter upon land north of the Property for the purpose of weed abatement to maintain defensible space on the northern boundary of the Property.
- (e) Master Developer shall establish an open space buffer of no less than twenty-five (25) feet in width to accommodate a combination of evergreen and deciduous trees and shrubs along the western boundary of the Property. Landscaping shall be installed and maintained within this buffer for the screening of the lights and noises generated at Golden Eagle Regional Park to the approval of the Administrator. With the recordation of each final subdivision map, the Master Developer shall convey the lands designated as open space to the entity responsible for maintaining the lands designated as open space.
- (f) All infrastructure, whether onsite or off-site, shall be constructed in substantial conformance with:
- (i) Applicable construction standards;
  - (ii) Design standards required for dedication to the City of Sparks, if applicable; and
  - (iii) Approval of the Administrator.

### **3.4 Fiscal Analysis Revision**

Prior to submitting any Nonconforming Entitlement Request for consideration, Master Developer agrees to update the comprehensive Fiscal Analysis of the Project attached hereto as Exhibit D to include any new or amended elements of the Project contemplated by the associated

Nonconforming Entitlement Request. Upon approval of the respective Nonconforming Entitlement Request, the updated Fiscal Analysis shall be incorporated into this Agreement as an addendum to Exhibit D. So long as the Project is being developed in accordance with the Land Plan, the Infrastructure Plan, and this Agreement, no revisions or update to the Fiscal Analysis shall be required, including in connection with an Entitlement Request.

### 3.5 *Entitlement Requests*

- (a) City shall reasonably cooperate with Master Developer to:
  - (i) Expediently process all Entitlement Requests in connection with the Property that are in compliance with the Applicable Rules, Land Plan, and Infrastructure Plan; and
  - (ii) Promptly consider the approval of Entitlement Requests, subject to reasonable conditions not otherwise in conflict with the Applicable Rules, Land Plan, or the Infrastructure Plan.
- (b) Comprehensive Plan Amendment. The Parties acknowledge and agree that the Property's existing and equivalent land use designation in the City's Comprehensive Plan must be amended to allow for the development of the uses and densities provided for herein. Master Developer has submitted a Comprehensive Plan Amendment in accordance herewith as Case No. MPA18-0001 and the terms and conditions of any approval of such application shall be deemed in conformance with and incorporated by reference as part of the Land Plan and Infrastructure Plan.
- (c) Required Zoning Entitlement for Property. The Parties acknowledge and agree that the proper means to legally entitle the Property for eventual development is by rezoning the Property to allow for the development of the uses and densities provided for herein. Master Developer has submitted a proposed zone change in accordance herewith as Case No. RZ18-0001, and the terms and conditions of any approval of such application shall be deemed in conformance with and incorporated by reference as part of the Land Plan and Infrastructure Plan.
- (d) Concurrent Processing of Initial Entitlement Requests. The Parties agree that the most efficient and expeditious manner in which to process the Entitlement Requests described in Section 3.5(b)-(c) is to consolidate final approval of all of the respective Entitlement Requests at a single meeting of the City Council. The City agrees to process the Entitlement Requests described in Section 3.5(b)-(c) concurrently in order to present them to the Sparks Planning Commission and the City Council as a single set. Master Developer agrees to waive any statutory or Code requirements related to limitations of time for processing individual Entitlement Requests in order to facilitate final action on the entitlements described in Section 3.5(b)-(c) at single meetings of the Planning Commission and City Council.



- (e) Other Entitlement Requests. Except as provided herein, all other Entitlement Request applications shall be processed by City according to the Applicable Rules. The Parties acknowledge that the procedures for processing such Entitlement Request applications are governed by the Code. In addition, any additional application requirements delineated herein shall be supplemental and in addition to such Code requirements. The Parties acknowledge and agree that nothing contained in this Agreement constitutes in any way a pre-approval or authorization of any Entitlement Request.

### ***3.6 Modification or Amendment of the Agreement***

This Agreement may not be modified or amended, except by the mutual written agreement of the Parties.

### ***3.7 Deviation from Design Standards***

Any request for variance or deviation from a particular requirement of the Code for a particular Development Parcel or lot shall be processed and considered according to the requirements of the Code in effect on the Effective Date, unless otherwise agreed to by Master Developer.

### ***3.8 Anti-Moratorium***

The Parties agree that no moratorium or future ordinance, resolution or other land use rule or regulation imposing a limitation on the construction, rate, timing or sequencing of the development of property, including those that affect parcel or subdivision maps, building permits, occupancy permits or other entitlements to use or develop land that are issued or granted by City shall apply to the development of the Project or any portion thereof. Notwithstanding the foregoing, City may adopt ordinances, resolutions or rules or regulations that are necessary to:

- (a) Comply with any state or federal laws or regulations as provided by Section 2.4, above;
- (b) Alleviate or otherwise contain a legitimate, bona fide harmful and/or noxious use of the Property, in which event the ordinance shall contain the most minimal and least intrusive alternative possible, and shall not, in any event, be imposed arbitrarily; or
- (c) Maintain City's compliance with federal and state sewerage, storm water conveyance, storm water discharge, water system, and utility regulations and permits. The Parties acknowledge and agree that nothing contained in this Agreement constitutes in any way a reservation of sanitary sewer capacity.

### ***3.9 Property Dedications to City***

Except as provided herein, any real property (and fixtures thereupon) transferred or dedicated to City or any other public entity shall be free and clear of any mortgages, deeds of trust, liens or other encumbrances.

### ***3.10 Inclusion of Additional Property***

The City Council will consider the inclusion of additional property ("Additional Parcels") in the Project by formal amendment of this Agreement provided that:

- (a) Each Additional Parcel is contiguous to some portion of the Property or immediately across the street;
- (b) Development of each Additional Parcel must conform to this Agreement; and
- (c) Master Developer obtains the necessary annexation, zoning, and land use approvals and approval of all necessary technical studies for each Additional Parcel. In no event shall this Agreement be amended to include Additional Parcels without contemporaneously amending Exhibits A through E to reflect the proposed expansion of the Project.

The Parties agree that nothing contained in this Agreement constitutes in any way a pre-approval or authorization of the inclusion of Additional Parcels in the Project.

### ***3.11 Special Improvement District***

City agrees to consider and, if appropriate, process and facilitate, with due diligence, any applications made by Master Developer for the creation of a special improvement district. The Parties agree that nothing contained in this Agreement constitutes in any way a pre-approval or authorization of any such special improvement district, and any application to create a special improvement district must be processed and approved in accordance with state law and the Applicable Rules.

## **SECTION FOUR REVIEW OF DEVELOPMENT**

### ***4.1 Frequency of Review***

At City's request, Master Developer shall appear before the City Council to review the Master Developer's compliance with the terms of this Agreement pursuant to NRS 278.0205. The Parties agree that the first review shall occur no later than twelve (12) months after the Effective Date of this Agreement, and Master Developer shall provide an updated report every twenty-four (24) months on the anniversary date of that first review thereafter, or as otherwise requested by City upon thirty (30) days' written notice to Master Developer. For any such review, Master Developer shall provide, and City shall review, a report submitted by Master Developer documenting the extent of Master Developer's and City's material compliance with the terms of this Agreement

during the preceding reporting period. The report shall contain information regarding the progress of development within the Project, including, without limitation:

- (a) Data showing the total number of units built and approved on the date of the report;
- (b) Specific densities within each subdivision and within the Project as a whole; and
- (c) The status of development within the Project and the anticipated phases of development for the next calendar year.

In the event Master Developer fails to submit such a report within thirty (30) days following written notice from City that the deadline for such a report has passed, Master Developer shall be in default of this provision and City shall prepare such a report and conduct the required review in such form and manner as City may determine in its sole discretion. City shall charge Master Developer for its reasonable expenses, fees, and costs incurred in conducting such review and preparing such report. If at the time of review an issue not previously identified in writing is required to be addressed, the review may, at the request of either Party, be continued to afford reasonable time for response.

#### ***4.2 Opportunity to be Heard***

The report required by this Section shall be considered solely by the City Council. Master Developer shall be permitted an opportunity to be heard orally and in writing before the City Council regarding performance of the Parties under this Agreement.

#### ***4.3 Action by the City Council***

At the conclusion of the public hearing on the review, the City Council may take any action permitted by NRS 278.0205, NRS 278.02053, and/or this Agreement.

### **SECTION FIVE DEFAULT**

#### ***5.1 Material Default; Opportunity to Cure***

In the event of any material default of any provision of this Agreement, the Party alleging such noncompliance shall deliver to the other by certified mail a ten (10) day notice of default and opportunity to cure. The time of notice shall be measured from the date of receipt of the certified mailing. The notice of noncompliance shall specify the nature of the alleged noncompliance and the manner in which it may be satisfactorily corrected, during which ten (10) day period the party alleged to be in noncompliance shall not be considered in default for the purposes of termination or institution of legal proceedings.

If the material default cannot reasonably be cured within the ten (10) day cure period, the defaulting Party may timely cure the material default for purposes of this Section if it commences

the appropriate remedial action within the ten (10) day cure period and thereafter diligently prosecutes such action to completion within a period of time acceptable to the non-breaching Party. If no agreement between the Parties is reached regarding the appropriate timeframe for remedial action, the cure period shall not be longer than ninety (90) days from the date on which the ten (10) day notice of material default and opportunity to cure was received by the defaulting Party.

If the material default is corrected, then no default shall exist and the noticing Party shall take no further action. If the material default is not corrected within the relevant cure period, the defaulting Party is in default, and the Party alleging material default may elect any one or more of the following courses.

- (a) Amendment or Termination by City. After proper notice and the expiration of the above-referenced period for Master Developer to correct the alleged material default, the City may give notice of intent to amend or terminate this Agreement as authorized by NRS Chapter 278. Following any such notice of intent to amend or terminate, the matter shall be scheduled and noticed as required by law for consideration and review solely by the City Council. Following consideration of the evidence presented before the City Council and a finding that a material default has occurred by Master Developer and remains uncured, City may amend or terminate this Agreement. Termination shall not in any manner rescind, modify, or terminate any Entitlement held in the Project and/or in favor of Master Developer, as determined under the Applicable Rules, existing or received as of the date of the termination. Master Developer shall have twenty-five (25) days after receipt of written notice of termination to institute legal action pursuant to this Section to determine whether a material default existed and whether City was entitled to terminate this Agreement.
- (b) Termination by Master Developer. In the event City materially defaults under this Agreement, Master Developer shall have the right to terminate this Agreement after providing notice and an opportunity to cure as set forth in this Section. Master Developer shall have the option, in its discretion, to maintain this Agreement in effect, and seek to enforce all of City's obligations by pursuing an action for specific performance or other appropriate judicial remedy.

## **5.2 Force Majeure; Unavoidable Delay; Extension of Time**

Neither Party hereunder shall be deemed to be in default, and performance shall be excused, where delays or defaults are caused by war, national disasters, terrorist attacks, insurrection, strikes, walkouts, riots, floods, earthquakes, fires, casualties, third-party lawsuits, or acts of God. If written notice of any such delay is given to one Party or the other within thirty (30) days after the commencement thereof, an automatic extension of time shall be granted coextensive with the period of the enforced delay, or longer as may be required by circumstances or as may be subsequently agreed to between City and Master Developer.

## **5.3 Limitation on Monetary Damages**

The Parties agree that they would not have entered into this Agreement if either were to be liable for monetary damages based upon a breach of this Agreement or any other allegation or cause of action based upon or with respect to this Agreement. Accordingly, the Parties (or their permitted assigns) may pursue any course of action at law or in equity available for breach of contract, except that neither Party shall be liable to the other or to any other person or entity for any monetary damages based upon a breach of this Agreement or any other allegation or cause of action based upon or with respect to this Agreement.

#### **5.4 *Venue***

Jurisdiction for judicial review under this Agreement shall rest exclusively with the Second Judicial District Court, County of Washoe, State of Nevada or the United States District Court, District of Nevada. If a dispute arises out of or relates to this Agreement, or the breach thereof, and if the dispute cannot be settled through negotiation, unless a Party is seeking injunctive relief, the Parties agree first to try in good faith to settle the dispute by mediation administered by the American Arbitration Association under its Commercial Mediation Procedures before resorting to arbitration, litigation, or some other dispute resolution procedure.

#### **5.5 *Waiver***

Failure or delay in giving notice of default shall not constitute a waiver of any default. Except as otherwise expressly provided in this Agreement, any failure or delay by any Party in asserting any of its rights or remedies in respect of any default shall not operate as a waiver of any default or any such rights or remedies, or deprive such Party of its right to institute and maintain any actions or proceedings that it may deem necessary to protect, assert, or enforce any of its rights or remedies.

#### **5.6 *Applicable Laws; Attorney Fees***

This Agreement shall be construed and enforced in accordance with the laws of the State of Nevada. Each Party shall bear its own attorney fees and court costs in connection with any legal proceeding hereunder, and in no event shall any prevailing Party in such a legal proceeding be entitled to an award of attorney fees.

### **SECTION SIX GENERAL PROVISIONS**

#### **6.1 *Duration of Agreement***

The Term of this Agreement shall commence upon the Effective Date and shall expire on the tenth (10) anniversary of the Effective Date, unless terminated earlier pursuant to the terms hereof. Master Developer shall have the right to request one extension of the Term of this Agreement for an additional five (5) years upon the following conditions:

- (a) Master Developer provides written notice of such extension to City at least one hundred eighty (180) days prior to the expiration of the original Term of this Agreement;
- (b) Master Developer is not in default of this Agreement;
- (c) The City Council finds that an extension is in the best interests of the City; and
- (d) Master Developer and City enter into an amendment to this Agreement memorializing the extension of the Term.

### **6.2 Expiration of the Agreement**

Expiration of the Agreement Term pursuant to Section 6.1 shall not in any manner rescind, modify, or terminate any Entitlement in the Project and/or in favor of Master Developer, as determined under the Applicable Rules, existing or received as of the date of the expiration, and future development of any other portion of the Project not holding such Entitlements shall be subject to all applicable Codes in effect at the time of development. The Parties agree that, in the event of such expiration, the Master Developer shall consent to the City reverting the land use and/or zoning designations on any undeveloped portion of the Property back to the respective land use and/or zoning designations applicable to such undeveloped portion of the Property on the Effective Date of this Agreement.

### **6.3 Assignment**

The Parties acknowledge that the intent of this Agreement is that there is a master developer responsible for all of the obligations in this Agreement throughout the Term of this Agreement. At any time during the Term, Master Developer may sell, assign or transfer all or any portion of its rights, title and interests in the Property, Project (including rights to develop such property in accordance with this Agreement), and this Agreement to any person or entity for development, so long as Master Developer remains, or a successor master developer has assumed through a written assignment and assumption agreement provided to the City, and is obligated and responsible as master developer of the Project for:

- (a) Performance under this Agreement;
- (b) Completion of backbone infrastructure for the Project; and
- (c) Completion of common areas through dedication and acceptance by a common interest community or limited purpose association under NRS Chapter 116.

### **6.4 Indemnity; Hold Harmless**

Except as expressly provided in this Agreement, Master Developer and Owner shall hold City, its officers, agents, employees, and representatives harmless from liability for damage or claims for damage for personal injury including death and claims for property damage which may arise from

the direct or indirect operations of Master Developer and/or Owner or those contractors, subcontractors, agents, employees, or other persons acting on Master Developer's and/or Owner's behalf that relate to the development of the Project. Master Developer and Owner agree to and shall defend City and its officers, agents, employees, and representatives from actions for damages caused or alleged to have been caused by reason of Master Developer's and/or Owner's activities in connection with the development of the Project other than any challenges to the validity of this Agreement or City's approval of related Entitlements. The Parties agree to equally pay all costs and attorney fees for a defense in any legal action filed in a court of competent jurisdiction by a third party alleging any such claims or challenging the validity of this Agreement. The provisions of this Section shall not apply to the extent such damage, liability, or claim is proximately caused by the intentional or negligent act of City, its officers, agents, employees, or representatives. This Section shall survive any termination of this Agreement.

#### **6.5 *Binding Effect of Agreement***

Subject to this Agreement, the burdens of this Agreement bind, and the benefits of this Agreement inure to, the Parties' respective assigns and successors-in-interest and the Property that is the subject of this Agreement.

#### **6.6 *Relationship of Parties***

It is understood that the contractual relationship between City and Master Developer is such that Master Developer is not an agent of City for any purpose and City is not an agent of Master Developer for any purpose.

#### **6.7 *Counterparts***

This Agreement may be executed at different times and in multiple counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Any signature page of this Agreement may be detached from any counterpart without impairing the legal effect to any signatures thereon, and may be attached to another counterpart, identical in form thereto, but having attached to it one or more additional signature pages.

Delivery of a counterpart by facsimile or portable document format (pdf) through electronic mail transmission shall be as binding an execution and delivery of this Agreement by such Party as if the Party had delivered an actual physical original of this Agreement with an ink signature from such Party. Any Party delivering by facsimile or electronic mail transmission shall promptly thereafter deliver an executed counterpart original hereof to the other Party.

#### **6.8 *Notices***

All notices, demands and correspondence required or provided for under this Agreement shall be in writing. Delivery may be accomplished in person, by certified mail (postage prepaid return receipt requested), or via electronic mail transmission. Mail notices shall be addressed as follows:

To City: City of Sparks  
Attention: City Manager  
431 Prater Way  
Sparks, Nevada 89431

To Owner: Foothills at Wingfield, LLC  
4021 Port Chicago Hwy  
Concord, CA 94520

To Master Developer: Albert D. Seeno Construction Co.  
4021 Port Chicago Hwy  
Concord, CA 94520

Any Party may change its address by giving notice in writing to the others and thereafter notices, demands and other correspondence shall be addressed and transmitted to the new address. Notices given in the manner described shall be deemed delivered on the day of personal delivery or the date delivery of mail is first attempted.

#### **6.9 *Entire Agreement***

This Agreement constitutes the entire understanding and agreement of the Parties. This Agreement integrates all of the terms and conditions mentioned herein or incidental hereto and supersedes all negotiations or previous agreements between the Parties with respect to all or any part of the subject matter hereof.

#### **6.10 *Waiver***

All waivers of the provisions of this Agreement shall be in writing and signed by the appropriate officers of Master Developer or approved by the City Council, as the case may be.

#### **6.11 *Recording; Amendments***

Promptly after execution hereof, an executed original of this Agreement shall be recorded in the Official Records of Washoe County, Nevada. All amendments hereto must be in writing signed by the appropriate officers of City and Master Developer in a form suitable for recordation in the Official Records of Washoe County, Nevada. Upon completion of the performance of this Agreement, a statement evidencing said completion shall be signed by the appropriate officers of the City and Master Developer and shall be recorded in the Official Records of Washoe County, Nevada. A revocation or termination shall be signed by the appropriate officers of the City or Master Developer and shall be recorded in the Official Records of Washoe County, Nevada.

#### **6.12 *Headings; Exhibits; Cross References***

The recitals, headings and captions used in this Agreement are for convenience and ease of reference only and shall not be used to construe, interpret, expand or limit the terms of this Agreement. All exhibits attached to this Agreement are incorporated herein by the references



contained herein. Any term used in an exhibit hereto shall have the same meaning as in this Agreement unless otherwise defined in such exhibit. All references in this Agreement to sections and exhibits shall be to sections and exhibits to this Agreement, unless otherwise specified.

**6.13 Severability of Terms**

If any term or other provision of this Agreement is held to be invalid, illegal or incapable of being enforced by any rule of law or public policy, all other conditions and provisions of this Agreement shall nevertheless remain in full force and effect, provided that the invalidity, illegality or unenforceability of such terms does not materially impair the Parties' ability to consummate the transactions contemplated hereby. If any term or other provision is invalid, illegal or incapable of being enforced, the Parties hereto shall, if possible, amend this Agreement so as to affect the original intention of the Parties.

**6.14 Exercise of Discretion**

Wherever a Party to this Agreement has discretion to make a decision, it shall be required that such discretion be exercised reasonably unless otherwise explicitly provided in the particular instance that such decision may be made in the Party's "sole" or "absolute" discretion or where otherwise allowed by applicable law.

**6.15 No Third-Party Beneficiary**

This Agreement is intended to be for the exclusive benefit of the Parties hereto and their permitted assignees, if any. No third-party beneficiary to this Agreement is contemplated and none shall be construed or inferred from the terms hereof. In particular, no person purchasing or acquiring title to land within the Project, residing in the Project, or residing outside the Project shall, as a result of such purchase, acquisition or residence, have any right to enforce any obligation of Master Developer or City nor any right or cause of action for any alleged breach of any obligation hereunder by any Party hereto.

**6.16 Gender Neutral**

In this Agreement (unless the context requires otherwise), the masculine, feminine and neutral genders and the singular and the plural include one another.

[Signatures on following page]







EXHIBIT "A"  
LEGAL DESCRIPTION  
APN 084-550-02, 084-550-07, & 084-550-08

Three parcels of land being the same as Parcel D of Parcel Map No. 115, according to the map thereof, filed in the office of the County Recorder of Washoe County, State of Nevada, on November 11, 1974, as File No. 346696, and the Southwest Quarter (SW  $\frac{1}{4}$ ) of Southwest Quarter (SW  $\frac{1}{4}$ ) of Northeast Quarter (NE  $\frac{1}{4}$ ) of Southeast Quarter (SE  $\frac{1}{4}$ ) and the Northwest Quarter (NW  $\frac{1}{4}$ ) of Southwest Quarter (SW  $\frac{1}{4}$ ) of Northeast Quarter (NE  $\frac{1}{4}$ ) of Southeast Quarter (SE  $\frac{1}{4}$ ) of Section 18, Township 20 North, Range 21 East, MDM, being more particularly described as follows:

Beginning at the East Quarter corner of said Section 18;  
thence along the East boundary of said Section 18 North  $00^{\circ}36'37''$  East a distance of 1321.50 feet to the Northeast corner of said Parcel D, also being the North  $\frac{1}{16}$  corner of said Section 18;  
thence departing said East boundary and along the North boundary of said Parcel D North  $89^{\circ}21'52''$  West a distance of 1318.34 feet to the Northwest corner of said Parcel D also being the North-East  $\frac{1}{16}$  corner of said Section 18;  
thence departing said North boundary and along the West boundary of said Parcel D South  $00^{\circ}30'07''$  West a distance of 1320.71 feet to the Center-East  $\frac{1}{16}$  corner;  
thence continuing along said West boundary South  $00^{\circ}29'21''$  West a distance of 660.27 feet to the Southwest corner of said Parcel D also being the Center-North-Southeast  $\frac{1}{64}$  corner of said Section 18;  
thence departing the boundary of said Parcel D and along the West boundary of said Northwest Quarter (NW  $\frac{1}{4}$ ) of Southwest Quarter (SW  $\frac{1}{4}$ ) of Northeast Quarter (NE  $\frac{1}{4}$ ) of Southeast Quarter (SE  $\frac{1}{4}$ ) South  $00^{\circ}29'21''$  West a distance of 330.14 feet to the Center-South-North-Southeast  $\frac{1}{256}$  corner;  
thence along the West boundary of said Southwest Quarter (SW  $\frac{1}{4}$ ) of Southwest Quarter (SW  $\frac{1}{4}$ ) of Northeast Quarter (NE  $\frac{1}{4}$ ) of Southeast Quarter (SE  $\frac{1}{4}$ ) South  $00^{\circ}29'21''$  West a distance of 330.14 feet to the South-East  $\frac{1}{16}$  corner;  
thence along the South boundary of said Southwest Quarter (SW  $\frac{1}{4}$ ) of Southwest Quarter (SW  $\frac{1}{4}$ ) of Northeast Quarter (NE  $\frac{1}{4}$ ) of Southeast Quarter (SE  $\frac{1}{4}$ ) South  $89^{\circ}17'48''$  East a distance of 328.41 feet to the Center-West-East-Southeast  $\frac{1}{256}$  corner;  
thence along the East boundary of said Southwest Quarter (SW  $\frac{1}{4}$ ) of Southwest Quarter (SW  $\frac{1}{4}$ ) of Northeast Quarter (NE  $\frac{1}{4}$ ) of Southeast Quarter (SE  $\frac{1}{4}$ ) North  $00^{\circ}30'47''$  East a distance of 330.18 feet to the Southwest-Northeast-Southeast  $\frac{1}{256}$  corner;  
thence along the East boundary of said Northwest Quarter (NW  $\frac{1}{4}$ ) of Southwest Quarter (SW  $\frac{1}{4}$ ) of Northeast Quarter (NE  $\frac{1}{4}$ ) of Southeast Quarter (SE  $\frac{1}{4}$ ) North  $00^{\circ}30'47''$  East a distance of 330.18 feet to a point on the South boundary of said Parcel D, also being the Center-West-Northeast-Southeast  $\frac{1}{256}$  corner;  
thence along the South boundary of said Parcel D South  $89^{\circ}18'48''$  East a distance of 986.05 feet to the Southeast corner of said Parcel D, also being the North-South  $\frac{1}{64}$  corner of said Section 18;

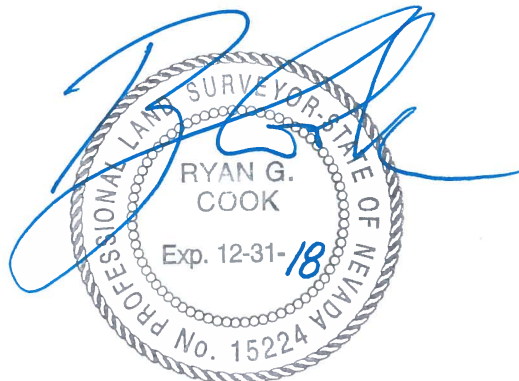
EXHIBIT "A"

thence along the East boundary of said Section 18 North 00°35'06" East a distance of 660.65 feet to the Point of Beginning.

Said parcel contains an area of approximately 64.87 acres.

Basis of Bearings: Identical to those shown on Record of Survey Map 4319, File Number 2964693, recorded December 9, 2003, in the Official Records of Washoe County, Nevada, being Nevada State Plane Coordinate System, West Zone (NAD 93/94).

*Description Prepared By:*  
*Ryan G. Cook, PLS 15224*  
*Summit Engineering Corp.*  
*5405 Mae Anne Avenue*  
*Reno, Nevada 89523*  
*(775) 747-8550*  
*ryan@summitnv.com*



2-20-2018

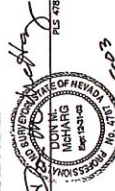
# EXHIBIT "B"

## BASIS OF BEARINGS AND COORDINATES:

NEVADA STATE PLANS COMMISSION SPECIAL NOTICE: THIS SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE NEVADA SURVEYING ACT AND THE NEVADA ADMINISTRATIVE CODE. THE MONUMENTS SHOWN ON THIS MAP ARE BEING CREATED BY THE SURVEYOR AND ARE NOT TO BE CONSIDERED AS EVIDENCE OF ANY PREVIOUS SURVEY OR RECORD. THE SURVEYOR HAS CONDUCTED A VISUAL INSPECTION OF THE LANDS SURVEYED AND HAS FOUND NO OTHER SURVEYS OR RECORDS THAT AFFECT THE ACCURACY OF THIS SURVEY. THE MONUMENTS SHOWN ON THIS MAP ARE BEING CREATED BY THE SURVEYOR AND ARE NOT TO BE CONSIDERED AS EVIDENCE OF ANY PREVIOUS SURVEY OR RECORD.

## SURVEYOR'S CERTIFICATE

- I, DON W. MOHARR, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF NEVADA, CERTIFY THAT:
1. THIS IS AN ACCURATE REPRESENTATION OF THE LANDS SURVEYED BY ME AT THE REQUEST OF THE CITY OF SPARKS.
  2. THE LANDS SURVEYED ARE WITHIN A PORTION OF SECTION 18, T20N, R21E, W04E, WASHOE COUNTY, NEVADA.
  3. THIS PLAT COMPLIES WITH THE APPLICABLE STATE STATUTES AND REGULATIONS GOVERNING SURVEYING AND THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH CHAPTER 203 OF THE NEVADA ADMINISTRATIVE CODE. THE MONUMENTS SHOWN ON THE PLAT ARE OF THE CHARACTER SHOWN, OCCUPY THE POSITIONS INDICATED, AND ARE OF SUFFICIENT DURABILITY.
  4. THIS RECORD OF SURVEY IS NOT IN CONFLICT WITH NRS 623.40 AND NO NEW LOTS ARE BEING CREATED.



## LEGEND:

- F&L MONUMENT AS NOTED
  - F&L SECTION CORNER AS NOTED
  - F&L 1/4 SECTION CORNER AS NOTED
- 1817 7 F&L 1/4 SECTION CORNER AS NOTED  
(GLO 1320) DATA PER OLD PLAT  
[38.48] RECORD DATA PER PARCEL MAP 115 FILE NO. 346698

TOTAL AREA = 448.16± AC.



FILE NO. 2964413  
 FILED FOR RECORD AT THE REQUEST OF Summit Engineering on the 9 day of December 2003, AT 44 MINUTES PAST 4 O'CLOCK P.M. OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.  
 ANDREW L. BURDE  
 COUNTY CLERK  
 COUNTY OFFICE  
 200 N. MAIN STREET, SUITE 100  
 SPARKS, NEVADA 89401

RECORD OF SURVEY FOR THE CITY OF SPARKS SECTION 18, T20N, R21E, W04E, WASHOE COUNTY, NEVADA.  
 SUMMIT ENGINEERING CORPORATION  
 200 N. MAIN STREET, SUITE 100, SPARKS, NEVADA 89401  
 SHEET 1 OF 1

Record of Survey Map 4319



# EXHIBIT "B"

CUMULATIVE INDEXES SHOULD BE EXAMINED FOR ANY SUBSEQUENT CHANGES TO THIS MAP

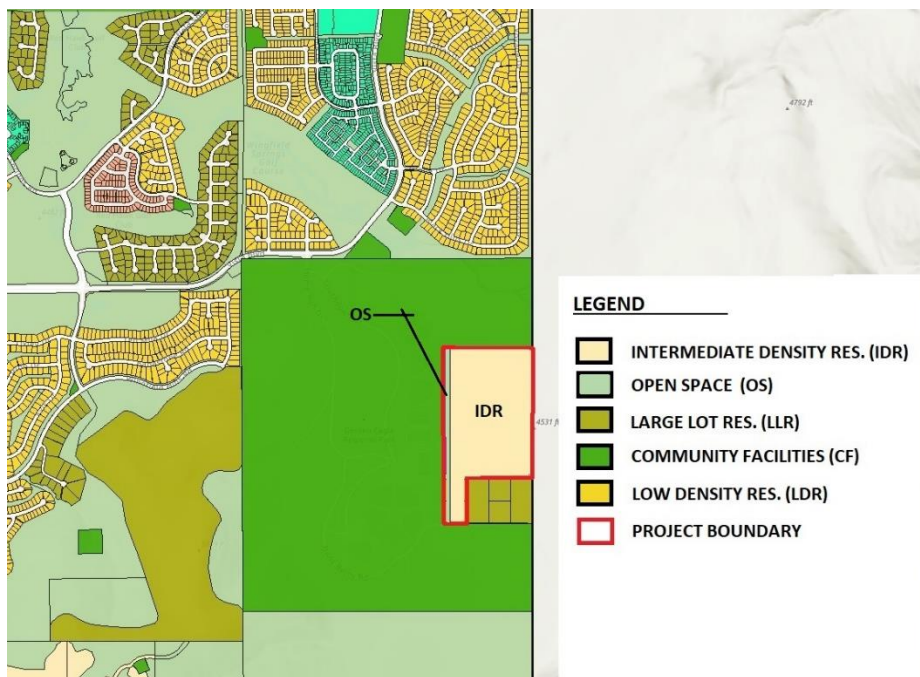
6754

CUMULATIVE INDEXES SHOULD BE EXAMINED FOR ANY SUBSEQUENT CHANGES TO THIS MAP

2964413

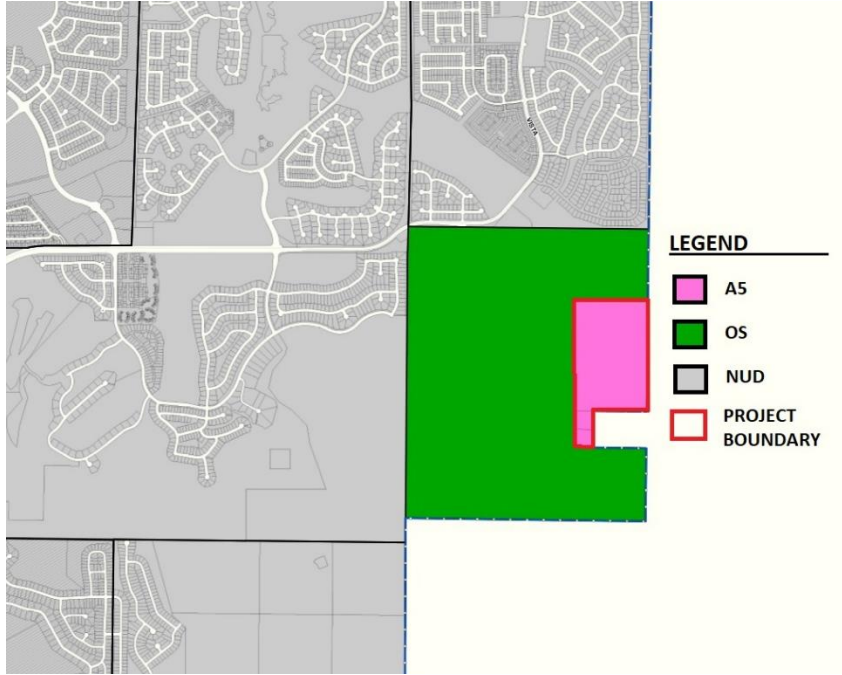


**EXISTING COMPREHENSIVE PLAN DESIGNATIONS**

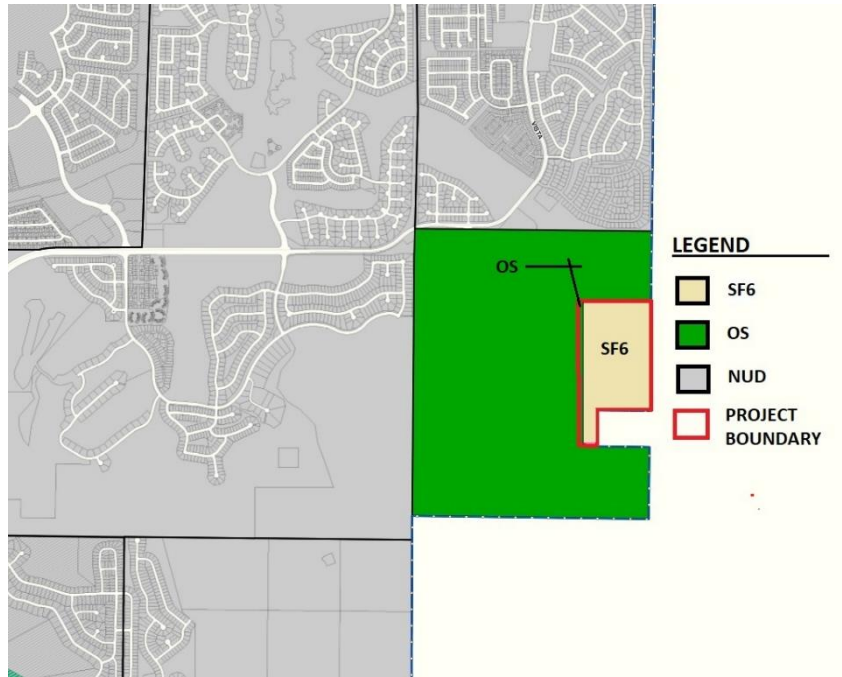


**PROPOSED COMPREHENSIVE PLAN DESIGNATIONS**





**EXISTING ZONING**



**PROPOSED ZONING**

June 26, 2018

Mr. Michael Railey  
Rubicon Design Group, LLC  
1610 Montclair Avenue, Suite B  
Reno, Nevada 89509

**Re: Update of Fiscal Impact Analysis of Proposed Wingfield Commons Development**

Dear Mr. Railey:

Per your request, I updated the fiscal impact analysis of the proposed Wingfield Commons project originally conducted in February 2018. The update includes the following changes:

1. Reduction of single-family residential units from 530 units to 450 units.
2. Shortening of development period from 12 years (2018-2029) to seven years (2019-2025) and starting the analysis in 2019 instead of 2018.
3. Reduction of length of roads dedicated by the project to the City of Sparks for maintenance from 18,200 linear feet to 5,300 linear feet.

These updates impact both the General and Road Funds considered in the fiscal impact analysis. Table 1 below shows a summary of estimated impacts of Wingfield Commons project on the City of Sparks General Fund from the original February 2018 report and the June 2018 update. The table shows General Fund surplus, over the 20-year analysis period, is expected to increase from \$0.85 million in the original report to \$1.45 million in the June 2018.

This is due to the changes in inflation and buildout periods between the two reports, as well as reduction in the number of residential units. Additionally, the original analysis included a 3% contingency amount estimate, whereas the June 2018 report does not include a contingency cost estimate as this is not an actual cost to the City.

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Reno, NV 89509  
(775) 232-7203  
[www.ekayconsultants.com](http://www.ekayconsultants.com)

**EXHIBIT "D"**

**Table 1. Comparison of General Fund Impacts**

										June 2018 Update			
										February 2018 Report			
Year	Total Project		Total Project Costs	Annual		Cumulative		Year	Total Project		Annual	Cumulative	
	Revenue	Surplus		Revenue	Surplus	Revenue	Surplus		Revenue	Surplus		Revenue	Surplus
2018	\$ 2,048	\$ -	\$ -	2,048	\$ 2,048	\$ 2,048	\$ 2,048	2019	\$ 2,048	\$ -	2,048	\$ 2,048	\$ 2,048
2019	16,044	5,683	5,683	10,362	12,410	12,410	22,928	2020	22,928	5,683	17,245	19,293	19,293
2020	60,907	50,150	50,150	10,757	23,166	23,166	85,338	2021	85,338	58,918	26,420	45,713	45,713
2021	135,274	119,173	119,173	16,101	39,267	39,267	211,341	2022	211,341	172,648	38,693	84,405	84,405
2022	213,398	187,953	187,953	25,445	64,712	64,712	343,731	2023	343,731	286,666	57,065	141,471	141,471
2023	295,430	265,163	265,163	30,267	94,978	94,978	478,263	2024	478,263	407,316	70,947	212,418	212,418
2024	381,528	342,233	342,233	39,295	134,273	134,273	600,139	2025	600,139	528,303	71,836	284,254	284,254
2025	471,855	428,369	428,369	43,486	177,759	177,759	684,466	2026	684,466	612,467	72,000	356,254	356,254
2026	566,579	514,479	514,479	52,100	229,859	229,859	705,000	2027	705,000	630,384	74,616	430,870	430,870
2027	665,875	610,335	610,335	55,541	285,400	285,400	726,150	2028	726,150	648,834	77,317	508,187	508,187
2028	763,543	706,295	706,295	57,248	342,647	342,647	747,935	2029	747,935	667,831	80,103	588,290	588,290
2029	851,405	801,912	801,912	49,493	392,140	392,140	770,373	2030	770,373	687,394	82,979	671,269	671,269
2030	899,216	849,580	849,580	49,636	441,776	441,776	793,484	2031	793,484	707,538	85,946	757,215	757,215
2031	926,192	874,548	874,548	51,644	493,420	493,420	817,289	2032	817,289	728,281	89,008	846,223	846,223
2032	953,978	900,259	900,259	53,719	547,139	547,139	841,807	2033	841,807	749,639	92,168	938,391	938,391
2033	982,597	926,733	926,733	55,864	603,003	603,003	867,061	2034	867,061	771,633	95,428	1,033,819	1,033,819
2034	1,012,075	953,995	953,995	58,080	661,083	661,083	893,073	2035	893,073	794,281	98,793	1,132,612	1,132,612
2035	1,042,437	982,067	982,067	60,370	721,453	721,453	919,865	2036	919,865	817,601	102,264	1,234,876	1,234,876
2036	1,073,710	1,010,974	1,010,974	62,737	784,190	784,190	947,461	2037	947,461	841,614	105,847	1,340,723	1,340,723
2037	1,105,922	1,040,739	1,040,739	65,183	849,373	849,373	975,885	2038	975,885	866,341	109,544	1,450,267	1,450,267
<b>Total</b>	<b>\$ 12,420,013</b>	<b>\$ 11,570,641</b>	<b>\$ 11,570,641</b>	<b>\$ 849,373</b>	<b>\$ 849,373</b>	<b>\$ 849,373</b>	<b>\$ 12,433,639</b>	<b>Total</b>	<b>\$ 12,433,639</b>	<b>\$ 10,983,372</b>	<b>\$ 1,450,267</b>	<b>\$ 1,450,267</b>	<b>\$ 1,450,267</b>

**Table 2. Comparison of Road Fund Impacts**

February 2018 Report										June 2018 Update			
Year	Total Project		Annual		Cumulative		Year	Total Project		Annual		Cumulative	
	Revenue	Costs	Revenue	Surplus	Revenue	Surplus		Revenue	Costs	Revenue	Surplus	Revenue	Surplus
2018	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	2019	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2019	-	-	-	-	-	-	2020	-	-	-	-	-	-
2020	3,516	-	3,516	3,516	3,516	3,516	2021	3,622	-	3,622	3,622	3,622	3,622
2021	11,771	493,665	(481,895)	(478,378)	(478,378)	(478,378)	2022	17,719	163,145	(145,426)	(145,426)	(141,804)	(141,804)
2022	20,517	494,346	(473,828)	(952,207)	(952,207)	(952,207)	2023	32,659	164,156	(131,496)	(131,496)	(273,300)	(273,300)
2023	29,778	494,660	(464,882)	(1,417,089)	(1,417,089)	(1,417,089)	2024	48,480	164,184	(115,704)	(115,704)	(389,004)	(389,004)
2024	39,576	495,387	(455,812)	(1,872,901)	(1,872,901)	(1,872,901)	2025	65,221	164,213	(98,993)	(98,993)	(487,997)	(487,997)
2025	49,935	495,735	(445,800)	(2,318,701)	(2,318,701)	(2,318,701)	2026	78,723	164,243	(85,520)	(85,520)	(573,517)	(573,517)
2026	60,879	496,512	(435,633)	(2,754,333)	(2,754,333)	(2,754,333)	2027	81,085	164,274	(83,189)	(83,189)	(656,706)	(656,706)
2027	72,436	496,894	(424,458)	(3,178,791)	(3,178,791)	(3,178,791)	2028	83,518	164,305	(80,787)	(80,787)	(737,493)	(737,493)
2028	84,631	497,724	(413,093)	(3,591,884)	(3,591,884)	(3,591,884)	2029	86,023	164,336	(78,313)	(78,313)	(815,806)	(815,806)
2029	97,493	498,143	(400,650)	(3,992,534)	(3,992,534)	(3,992,534)	2030	88,604	164,369	(75,765)	(75,765)	(891,571)	(891,571)
2030	104,356	499,029	(394,673)	(4,387,207)	(4,387,207)	(4,387,207)	2031	91,262	164,401	(73,139)	(73,139)	(964,710)	(964,710)
2031	107,486	499,142	(391,656)	(4,778,863)	(4,778,863)	(4,778,863)	2032	94,000	164,435	(70,435)	(70,435)	(1,035,145)	(1,035,145)
2032	110,711	499,257	(388,546)	(5,167,409)	(5,167,409)	(5,167,409)	2033	96,820	164,469	(67,649)	(67,649)	(1,102,795)	(1,102,795)
2033	114,032	499,375	(385,342)	(5,552,751)	(5,552,751)	(5,552,751)	2034	99,724	164,504	(64,780)	(64,780)	(1,167,574)	(1,167,574)
2034	117,453	499,494	(382,041)	(5,934,793)	(5,934,793)	(5,934,793)	2035	102,716	164,540	(61,824)	(61,824)	(1,229,398)	(1,229,398)
2035	120,977	499,617	(378,640)	(6,313,433)	(6,313,433)	(6,313,433)	2036	105,798	164,576	(58,778)	(58,778)	(1,288,176)	(1,288,176)
2036	124,606	499,741	(375,135)	(6,688,568)	(6,688,568)	(6,688,568)	2037	108,972	164,613	(55,642)	(55,642)	(1,343,818)	(1,343,818)
2037	128,344	499,869	(371,524)	(7,060,092)	(7,060,092)	(7,060,092)	2038	112,241	164,651	(52,410)	(52,410)	(1,396,228)	(1,396,228)
<b>Total</b>	<b>\$ 1,398,496</b>	<b>\$ 8,458,589</b>	<b>\$ (7,060,092)</b>				<b>Total</b>	<b>\$ 1,397,186</b>	<b>\$ 2,793,414</b>	<b>\$ (1,396,228)</b>			

Mr. Michael Railey

June 26, 2018

Page 4

Table 2 shows the comparison of the impacts of Wingfield Commons project on the City's Road Fund over the 20-year analysis period. The February 2018 report found a deficit for the Road Fund of \$7.1 million over the 20-year analysis period. Reducing the number of length of streets dedicated to the City for maintenance (June 2018 update) decreases the deficit for the Fund to \$1.4 million.

The developer proposes to dedicate only approximately 5,300 linear feet of streets to the City for maintenance, with the remaining streets proposed to be privately maintained. If all project-related streets are privately maintained, the Road Fund will not incur any additional costs associated with the project, resulting in a Road Fund surplus over the 20-year analysis period of \$1.4 million. This is also expected to reduce some General Fund costs, though the exact reduction is difficult to estimate.

The above analysis shows that the Wingfield Commons project is expected to have a **positive fiscal impact** on the City of Sparks, as the projected General Fund surplus is expected to exceed the estimated deficit in the Road Fund.

Updated Appendices 1-9 of the fiscal impact analysis are attached. No changes to methodology or other inputs (other than discussed above) were made in the June 2018 update. Please see the original February 2018 report for methodology, assumptions, and other information.

Please contact me with any questions or concerns.

Sincerely,



Eugenia Larmore, PhD, MBA, CMA, CVA, MAFF

APPENDIX 1 BUILDOUT ASSUMPTIONS						
YEAR	USE TYPE	SQUARE FEET BUILT	# OF UNITS BUILT	ADDED LAND VALUE	ADDED IMPROVEMENTS VALUE	CONSTRUCTION MATERIALS COST
2019	Single Story SF	-	-	\$ 669,180	\$ -	\$ -
	Two Story SF	-	-	669,180	-	-
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>1,338,360</b>	<b>-</b>	<b>-</b>
2020	Single Story SF	21,600	12	2,509,425	1,927,653	963,827
	Two Story SF	31,200	12	2,509,425	2,526,924	1,263,462
<b>Subtotal</b>		<b>52,800</b>	<b>24</b>	<b>5,018,850</b>	<b>4,454,577</b>	<b>2,227,288</b>
2021	Single Story SF	81,000	45	2,509,425	7,373,273	3,686,637
	Two Story SF	117,000	45	2,509,425	9,665,482	4,832,741
<b>Subtotal</b>		<b>198,000</b>	<b>90</b>	<b>5,018,850</b>	<b>17,038,756</b>	<b>8,519,378</b>
2022	Single Story SF	81,000	45	2,509,425	7,520,739	3,760,369
	Two Story SF	117,000	45	2,509,425	9,858,792	4,929,396
<b>Subtotal</b>		<b>198,000</b>	<b>90</b>	<b>5,018,850</b>	<b>17,379,531</b>	<b>8,689,765</b>
2023	Single Story SF	81,000	45	2,509,425	7,671,153	3,835,577
	Two Story SF	117,000	45	2,509,425	10,055,968	5,027,984
<b>Subtotal</b>		<b>198,000</b>	<b>90</b>	<b>5,018,850</b>	<b>17,727,121</b>	<b>8,863,561</b>
2024	Single Story SF	81,000	45	1,840,245	7,824,576	3,912,288
	Two Story SF	117,000	45	1,840,245	10,257,087	5,128,544
<b>Subtotal</b>		<b>198,000</b>	<b>90</b>	<b>3,680,490</b>	<b>18,081,664</b>	<b>9,040,832</b>
2025	Single Story SF	59,400	33	-	5,852,783	2,926,392
	Two Story SF	85,800	33	-	7,672,301	3,836,151
<b>Subtotal</b>		<b>145,200</b>	<b>66</b>	<b>-</b>	<b>13,525,085</b>	<b>6,762,542</b>
<b>TOTAL</b>		<b>990,000</b>	<b>450</b>	<b>\$ 25,094,250</b>	<b>\$ 88,206,733</b>	<b>\$ 44,103,366</b>

APPENDIX 1, ASSUMPTIONS:

1. The following land and building costs represent the Developer's best estimate in 2018. Analysis adds land value in the year before construction and improvement value in the year of construction.

	# of Units	Total Square Feet	Projected Sales Price/Unit	Land Value/Unit	Improv. Value/Unit
Single Story SF	225	405,000	\$ 340,000	\$ 55,765	\$ 154,400
Two Story SF	225	585,000	400,000	55,765	202,400
	<b>450</b>	<b>990,000</b>			

Source: Number of units, square footage, improvement value per unit, and projected sales price from Developer. Land value based on data for homes in nearby developments. Source: Washoe County Assessor's website. Improvement values are inflated 2% annually.

2. Construction Materials Cost is estimated at **50%** of Building Cost. Source: Discussions with contractors.

**APPENDIX 2  
CITY OF SPARKS  
ESTIMATED NUMBER OF RESIDENTS**

<u>YEAR</u>	<u>USE TYPE</u>	<u># OF UNITS BUILT</u>	<u>CUMUL. # OF OCCUPIED UNITS</u>	<u>CUMUL. NO. OF RESIDENTS</u>	<u>% OF SPARKS POPULATION</u>
2019	Single Story SF	-	-	-	0.00%
	Two Story SF	-	-	-	0.00%
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>0.00%</b>
2020	Single Story SF	12	-	-	0.00%
	Two Story SF	12	-	-	0.00%
<b>Subtotal</b>		<b>24</b>	<b>-</b>	<b>-</b>	<b>0.00%</b>
2021	Single Story SF	45	12	31	0.03%
	Two Story SF	45	12	31	0.03%
<b>Subtotal</b>		<b>90</b>	<b>23</b>	<b>61</b>	<b>0.07%</b>
2022	Single Story SF	45	55	145	0.15%
	Two Story SF	45	55	145	0.15%
<b>Subtotal</b>		<b>90</b>	<b>110</b>	<b>290</b>	<b>0.31%</b>
2023	Single Story SF	45	98	259	0.28%
	Two Story SF	45	98	259	0.28%
<b>Subtotal</b>		<b>90</b>	<b>197</b>	<b>519</b>	<b>0.55%</b>
2024	Single Story SF	45	142	374	0.40%
	Two Story SF	45	142	374	0.40%
<b>Subtotal</b>		<b>90</b>	<b>284</b>	<b>747</b>	<b>0.80%</b>
2025	Single Story SF	33	185	488	0.52%
	Two Story SF	33	185	488	0.52%
<b>Subtotal</b>		<b>66</b>	<b>371</b>	<b>976</b>	<b>1.04%</b>
2026	Single Story SF	-	217	572	0.61%
	Two Story SF	-	217	572	0.61%
<b>Subtotal</b>		<b>-</b>	<b>434</b>	<b>1,144</b>	<b>1.22%</b>
<b>TOTAL</b>		<b>450</b>			

**APPENDIX 2, ASSUMPTIONS:**

- Number of residential units and square feet of buildings from Appendix 1.
- Occupied single-family units are estimated using a vacancy rate of 3.5% to account for household movement and other timing issues. Households are assumed to be occupied a year after construction. Source: Center for Regional Studies, University of Nevada, Reno, based on data from the American Community Survey.
- Residents are estimated using a ratio of **2.63** residents per occupied household/unit.  
Source: "Comparative Housing Characteristics." 2016 American Community Survey 1-Year Estimates, US Census Bureau. Data for Sparks, NV.
- City of Sparks FY 2016-17 population is estimated at **93,581** Source: City of Sparks Budget, FY 2017-18.  
This is used to estimate the percent of existing population generated by the project.

**APPENDIX 3  
CITY OF SPARKS  
ESTIMATED REAL PROPERTY TAX REVENUE**

<b>YEAR</b>	<b>USE TYPE</b>	<b>ADDED TAX. LAND VALUE (\$)</b>	<b>ADDED TAX. IMPROVEMENT VALUE (\$)</b>	<b>CUMULATIVE TOTAL TAX. VALUE (\$)</b>	<b>CUMULATIVE ASSESSED VALUE (\$)</b>	<b>GENERAL FUND REVENUE</b>	<b>AB 104 REVENUE</b>
2019	Single Story SF	\$ 304,180	\$ -	\$ 304,180	\$ 106,463	\$ 1,022	\$ 2
	Two Story SF	304,180	-	304,180	106,463	1,022	2
<b>Subtotal</b>		<b>608,360</b>	<b>-</b>	<b>608,360</b>	<b>212,926</b>	<b>2,044</b>	<b>4</b>
2020	Single Story SF	2,144,425	1,811,695	2,457,730	860,206	8,256	18
	Two Story SF	2,144,425	2,410,965	2,457,730	860,206	8,256	18
<b>Subtotal</b>		<b>4,288,850</b>	<b>4,222,660</b>	<b>4,915,461</b>	<b>1,720,411</b>	<b>16,513</b>	<b>35</b>
2021	Single Story SF	2,509,425	7,373,273	6,906,933	2,417,426	23,202	49
	Two Story SF	2,509,425	9,665,482	7,524,181	2,633,463	25,276	54
<b>Subtotal</b>		<b>5,018,850</b>	<b>17,038,756</b>	<b>14,431,114</b>	<b>5,050,890</b>	<b>48,478</b>	<b>103</b>
2022	Single Story SF	2,509,425	7,520,739	17,218,037	6,026,313	57,841	123
	Two Story SF	2,509,425	9,858,792	20,214,779	7,075,173	67,908	144
<b>Subtotal</b>		<b>5,018,850</b>	<b>17,379,531</b>	<b>37,432,816</b>	<b>13,101,486</b>	<b>125,748</b>	<b>267</b>
2023	Single Story SF	2,509,425	7,671,153	27,990,364	9,796,627	94,028	200
	Two Story SF	2,509,425	10,055,968	33,485,203	11,719,821	112,487	239
<b>Subtotal</b>		<b>5,018,850</b>	<b>17,727,121</b>	<b>61,475,567</b>	<b>21,516,448</b>	<b>206,515</b>	<b>438</b>
2024	Single Story SF	1,840,245	7,824,576	38,571,608	13,500,063	129,574	275
	Two Story SF	1,840,245	10,257,087	46,687,651	16,340,678	156,838	333
<b>Subtotal</b>		<b>3,680,490</b>	<b>18,081,664</b>	<b>85,259,259</b>	<b>29,840,741</b>	<b>286,411</b>	<b>608</b>
2025	Single Story SF	-	5,852,783	47,788,070	16,725,825	160,534	341
	Two Story SF	-	7,672,301	58,653,080	20,528,578	197,033	418
<b>Subtotal</b>		<b>-</b>	<b>13,525,085</b>	<b>106,441,150</b>	<b>37,254,403</b>	<b>357,568</b>	<b>759</b>
2026	Single Story SF	-	-	55,250,079	19,337,528	185,602	394
	Two Story SF	-	-	68,315,143	23,910,300	229,491	487
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>123,565,222</b>	<b>43,247,828</b>	<b>415,093</b>	<b>881</b>
2027	Single Story SF	-	-	56,907,581	19,917,653	191,170	406
	Two Story SF	-	-	70,364,597	24,627,609	236,376	502
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>127,272,179</b>	<b>44,545,263</b>	<b>427,545</b>	<b>908</b>
2028	Single Story SF	-	-	58,614,809	20,515,183	196,905	418
	Two Story SF	-	-	72,475,535	25,366,437	243,467	517
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>131,090,344</b>	<b>45,881,620</b>	<b>440,372</b>	<b>935</b>
2029	Single Story SF	-	-	60,373,253	21,130,639	202,812	431
	Two Story SF	-	-	74,649,801	26,127,431	250,771	532
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>135,023,054</b>	<b>47,258,069</b>	<b>453,583</b>	<b>963</b>
2030	Single Story SF	-	-	62,184,450	21,764,558	208,896	443
	Two Story SF	-	-	76,889,296	26,911,253	258,294	548
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>139,073,746</b>	<b>48,675,811</b>	<b>467,190</b>	<b>992</b>
2031	Single Story SF	-	-	64,049,984	22,417,494	215,163	457
	Two Story SF	-	-	79,195,974	27,718,591	266,043	565
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>143,245,958</b>	<b>50,136,085</b>	<b>481,206</b>	<b>1,021</b>
2032	Single Story SF	-	-	65,971,484	23,090,019	221,618	470
	Two Story SF	-	-	81,571,854	28,550,149	274,024	582
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>147,543,337</b>	<b>51,640,168</b>	<b>495,642</b>	<b>1,052</b>
2033	Single Story SF	-	-	67,950,628	23,782,720	228,267	485
	Two Story SF	-	-	84,019,009	29,406,653	282,245	599
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>151,969,637</b>	<b>53,189,373</b>	<b>510,512</b>	<b>1,084</b>
2034	Single Story SF	-	-	69,989,147	24,496,201	235,115	499
	Two Story SF	-	-	86,539,580	30,288,853	290,712	617
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>156,528,726</b>	<b>54,785,054</b>	<b>525,827</b>	<b>1,116</b>

**EXHIBIT "D"**



APPENDIX 3 CITY OF SPARKS ESTIMATED REAL PROPERTY TAX REVENUE							
YEAR	USE TYPE	ADDED TAX. LAND VALUE (\$)	ADDED TAX. IMPROVEMENT VALUE (\$)	CUMULATIVE TOTAL TAX. VALUE (\$)	CUMULATIVE ASSESSED VALUE (\$)	GENERAL FUND REVENUE	AB 104 REVENUE
2035	Single Story SF	-	-	72,088,821	25,231,087	242,168	514
	Two Story SF	-	-	89,135,767	31,197,518	299,434	636
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>161,224,588</b>	<b>56,428,606</b>	<b>541,602</b>	<b>1,150</b>
2036	Single Story SF	-	-	74,251,486	25,988,020	249,433	529
	Two Story SF	-	-	91,809,840	32,133,444	308,417	655
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>166,061,326</b>	<b>58,121,464</b>	<b>557,850</b>	<b>1,184</b>
2037	Single Story SF	-	-	76,479,030	26,767,661	256,916	545
	Two Story SF	-	-	94,564,135	33,097,447	317,669	674
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>171,043,166</b>	<b>59,865,108</b>	<b>574,585</b>	<b>1,220</b>
2038	Single Story SF	-	-	78,773,401	27,570,690	264,623	562
	Two Story SF	-	-	97,401,059	34,090,371	327,199	695
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>176,174,461</b>	<b>61,661,061</b>	<b>591,823</b>	<b>1,256</b>
<b>TOTAL</b>		<b>\$ 23,634,250</b>	<b>\$ 87,974,816</b>			<b>\$ 7,526,107</b>	<b>\$ 15,976</b>

APPENDIX 3, ASSUMPTIONS:

1. The project is currently located in the City of Sparks, generating property tax revenue for the City. The analysis subtracts existing taxable value of project parcels from amounts estimated in this analysis to arrive at incremental property tax revenue generated by project development. Existing project values are as follows:

Parcel Number	Taxable Land		Taxable Improv.		Acres
	Value		Value		
084-550-02	\$ 1,290,000		\$ 29,148		60.0
084-550-07	85,000		117,769		2.5
084-550-08	85,000		85,000		2.5
	<b>\$ 1,460,000</b>		<b>\$ 231,917</b>		<b>65.0</b>

Source: Washoe County Assessor's website.

2. Taxable value of land and improvements is estimated in Appendix 1.

3. Land and improvement taxable values are inflated by **3.0%** annually, the maximum allowed increase for owner-occupied properties.

4. Property tax calculation: Taxable Value X 35% = Assessed Value; Assessed Value/100 X Tax Rate = Property Tax Revenue.

Analysis assumes improvements will generate property tax revenue in the year after improvements are made to account for work-in-progress.

Land values will generate property tax in the year developed.

5. City of Sparks General Fund operating tax rate is assumed to remain constant at FY 2017-18 rate of **\$ 0.9598** per \$100 of value.

Source: City of Sparks Budget, FY 2017-18.

6. City of Sparks is expected to receive **7.49%** of property tax revenue generated by the AB 104 property tax rate of

**\$ 0.0272** Source: Nevada Department of Taxation. "Local Gov't Tax Act Distribution." Three-year average FY 2014-15, FY 2015-16, and 2016-17.

**APPENDIX 4  
CITY OF SPARKS  
ESTIMATED SALES TAX REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>CONSTR. MATERIALS COST</u>	<u>HOUSEHOLD EXPENDITURES</u>	<u>TOTAL TAXABLE SALES</u>	<u>CCRT SALES TAX REVENUE</u>	<u>AB 104 SALES TAX REVENUE</u>
2019	Single Story SF Two Story SF	\$ - -	\$ - -	\$ - -	\$ - -	\$ - -
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
2020	Single Story SF Two Story SF	963,827 1,263,462	- -	963,827 1,263,462	2,584 3,387	177 232
<b>Subtotal</b>		<b>2,227,288</b>	<b>-</b>	<b>2,227,288</b>	<b>5,970</b>	<b>410</b>
2021	Single Story SF Two Story SF	3,686,637 4,832,741	250,503 253,543	3,937,139 5,086,284	10,554 13,634	724 936
<b>Subtotal</b>		<b>8,519,378</b>	<b>504,046</b>	<b>9,023,423</b>	<b>24,188</b>	<b>1,660</b>
2022	Single Story SF Two Story SF	3,760,369 4,929,396	1,225,584 1,240,459	4,985,953 6,169,855	13,365 16,539	917 1,135
<b>Subtotal</b>		<b>8,689,765</b>	<b>2,466,043</b>	<b>11,155,808</b>	<b>29,904</b>	<b>2,052</b>
2023	Single Story SF Two Story SF	3,835,577 5,027,984	2,258,944 2,286,362	6,094,521 7,314,346	16,337 19,607	1,121 1,346
<b>Subtotal</b>		<b>8,863,561</b>	<b>4,545,306</b>	<b>13,408,867</b>	<b>35,944</b>	<b>2,467</b>
2024	Single Story SF Two Story SF	3,912,288 5,128,544	3,353,204 3,393,902	7,265,492 8,522,446	19,476 22,845	1,337 1,568
<b>Subtotal</b>		<b>9,040,832</b>	<b>6,747,106</b>	<b>15,787,938</b>	<b>42,321</b>	<b>2,905</b>
2025	Single Story SF Two Story SF	2,926,392 3,836,151	4,511,085 4,565,837	7,437,477 8,401,988	19,937 22,522	1,368 1,546
<b>Subtotal</b>		<b>6,762,542</b>	<b>9,076,923</b>	<b>15,839,465</b>	<b>42,459</b>	<b>2,914</b>
2026	Single Story SF Two Story SF	- -	5,445,021 5,511,108	5,445,021 5,511,108	14,596 14,773	1,002 1,014
<b>Subtotal</b>		<b>-</b>	<b>10,956,129</b>	<b>10,956,129</b>	<b>29,369</b>	<b>2,016</b>
2027	Single Story SF Two Story SF	- -	5,608,372 5,676,441	5,608,372 5,676,441	15,034 15,216	1,032 1,044
<b>Subtotal</b>		<b>-</b>	<b>11,284,813</b>	<b>11,284,813</b>	<b>30,250</b>	<b>2,076</b>
2028	Single Story SF Two Story SF	- -	5,776,623 5,846,735	5,776,623 5,846,735	15,485 15,673	1,063 1,076
<b>Subtotal</b>		<b>-</b>	<b>11,623,358</b>	<b>11,623,358</b>	<b>31,157</b>	<b>2,138</b>
2029	Single Story SF Two Story SF	- -	5,949,922 6,022,137	5,949,922 6,022,137	15,949 16,143	1,095 1,108
<b>Subtotal</b>		<b>-</b>	<b>11,972,058</b>	<b>11,972,058</b>	<b>32,092</b>	<b>2,203</b>
2030	Single Story SF Two Story SF	- -	6,128,419 6,202,801	6,128,419 6,202,801	16,428 16,627	1,128 1,141
<b>Subtotal</b>		<b>-</b>	<b>12,331,220</b>	<b>12,331,220</b>	<b>33,055</b>	<b>2,269</b>
2031	Single Story SF Two Story SF	- -	6,312,272 6,388,885	6,312,272 6,388,885	16,921 17,126	1,161 1,175
<b>Subtotal</b>		<b>-</b>	<b>12,701,157</b>	<b>12,701,157</b>	<b>34,047</b>	<b>2,337</b>
2032	Single Story SF Two Story SF	- -	6,501,640 6,580,551	6,501,640 6,580,551	17,428 17,640	1,196 1,211
<b>Subtotal</b>		<b>-</b>	<b>13,082,191</b>	<b>13,082,191</b>	<b>35,068</b>	<b>2,407</b>
2033	Single Story SF Two Story SF	- -	6,696,689 6,777,968	6,696,689 6,777,968	17,951 18,169	1,232 1,247
<b>Subtotal</b>		<b>-</b>	<b>13,474,657</b>	<b>13,474,657</b>	<b>36,120</b>	<b>2,479</b>
2034	Single Story SF Two Story SF	- -	6,897,590 6,981,307	6,897,590 6,981,307	18,490 18,714	1,269 1,284
<b>Subtotal</b>		<b>-</b>	<b>13,878,897</b>	<b>13,878,897</b>	<b>37,204</b>	<b>2,553</b>

**EXHIBIT "D"**

**APPENDIX 4  
CITY OF SPARKS  
ESTIMATED SALES TAX REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>CONSTR. MATERIALS COST</u>	<u>HOUSEHOLD EXPENDITURES</u>	<u>TOTAL TAXABLE SALES</u>	<u>CCRT SALES TAX REVENUE</u>	<u>AB 104 SALES TAX REVENUE</u>
2035	Single Story SF	-	7,104,518	7,104,518	19,044	1,307
	Two Story SF	-	7,190,746	7,190,746	19,275	1,323
<b>Subtotal</b>		-	<b>14,295,264</b>	<b>14,295,264</b>	<b>38,320</b>	<b>2,630</b>
2036	Single Story SF	-	7,317,653	7,317,653	19,616	1,346
	Two Story SF	-	7,406,468	7,406,468	19,854	1,363
<b>Subtotal</b>		-	<b>14,724,122</b>	<b>14,724,122</b>	<b>39,469</b>	<b>2,709</b>
2037	Single Story SF	-	7,537,183	7,537,183	20,204	1,387
	Two Story SF	-	7,628,662	7,628,662	20,449	1,404
<b>Subtotal</b>		-	<b>15,165,845</b>	<b>15,165,845</b>	<b>40,653</b>	<b>2,790</b>
2038	Single Story SF	-	7,763,298	7,763,298	20,810	1,428
	Two Story SF	-	7,857,522	7,857,522	21,063	1,446
<b>Subtotal</b>		-	<b>15,620,821</b>	<b>15,620,821</b>	<b>41,873</b>	<b>2,874</b>
<b>TOTAL</b>		<b>\$ 44,103,366</b>	<b>\$ 194,449,953</b>	<b>\$ 238,553,320</b>	<b>\$ 639,463</b>	<b>\$ 43,889</b>

**APPENDIX 4, ASSUMPTIONS:**

- Construction Materials Cost is estimated in Appendix 1.
- Household Taxable Sales-estimated based on the number of occupied households, estimated household income, and expenditure information. Household incomes and percent of income spent on taxable items are estimated as follows, based on projected sales price for each village shown in Appendix 1:

	<b>% Spent on Taxable</b>	
	<b>Household Income</b>	<b>Items</b>
Single Story SF	\$ 69,782	27.5%
Two Story SF	\$ 80,813	24.1%

Affordability calculator created by EEC and Center for Regional Studies, UNR. Percent of household income spent on taxable items from Consumer Expenditure Survey, 2016, Bureau of Labor Statistics, data by corresponding household income range. Estimates are inflated 3% annually.

- Relevant tax rates for the City of Sparks are as follows:
 

	<b>0.500%</b>	Basic City County Relief Tax (BCCRT)
	<b>1.750%</b>	Supplemental City County Relief Tax (SCCRT)
	<b>0.250%</b>	Fair Share (AB 104)

Distribution of BCCRT and SCCRT sales tax revenue to the City of Sparks is calculated at **12.13%** of all Washoe County CCRT revenue.

Source: Distribution based on average percentage share of Washoe County C-Tax distribution from FY 2014-15 to FY 2016-17. Data from Nevada Department of Taxation. "Consolidated Tax Distribution: Revenue Summary by County."

Distribution of AB 104 sales tax revenue to the City of Sparks is calculated at **7.49%** of all Washoe County AB 104 revenue.

Source: Distribution based on average percentage share of Washoe County AB104 distribution from FY 2014-15 to FY 2016-17. Data from Nevada Department of Taxation. "Local Government Tax Act Distribution."

- A State administrative fee of **1.75%** of all sales tax revenue is subtracted for State uses. Source: AB 552.

APPENDIX 5 CITY OF SPARKS ESTIMATED PERMIT AND IMPACT FEE REVENUE																		
YEAR	USE TYPE	ESTIMATED BUILDING VALUATION	PRINCIPAL AMOUNT	BUILDING PERMIT REVENUE	PLAN REVIEW REVENUE	CURRENT PLANNING REVENUE	FIRE INSP./ REGIONAL ROAD REVIEW REVENUE	SEWER CONNECT. REVENUE	RESIDENTIAL PARK TAX REVENUE	SANITARY SEWER CONTROL	IMPACT FEE SERVICE AREA #1							
											FLOOD CONTROL	REGIONAL PARKS/REC	FIRE STATION	TOTAL				
2019	Single Story SF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Two Story SF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	<b>Subtotal</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
2020	Single Story SF	1,927,653	16,000	15,296	6,400	1,680	7,040	73,296	12,000	3,564	7,116	9,336	4,080	24,096	24,096	24,096	24,096	24,096
	Two Story SF	2,526,924	19,356	18,504	7,742	1,680	8,517	73,296	12,000	3,564	7,116	9,336	4,080	24,096	24,096	24,096	24,096	24,096
	<b>Subtotal</b>	<b>4,454,577</b>	<b>35,356</b>	<b>33,800</b>	<b>14,142</b>	<b>3,360</b>	<b>15,556</b>	<b>146,591</b>	<b>24,000</b>	<b>7,128</b>	<b>14,232</b>	<b>18,672</b>	<b>8,160</b>	<b>48,192</b>	<b>48,192</b>	<b>48,192</b>	<b>48,192</b>	<b>48,192</b>
2021	Single Story SF	7,373,273	60,809	58,133	24,324	6,300	26,756	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	Two Story SF	9,665,482	73,645	70,405	29,458	6,300	32,404	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	<b>Subtotal</b>	<b>17,038,756</b>	<b>134,455</b>	<b>128,539</b>	<b>53,782</b>	<b>12,600</b>	<b>59,160</b>	<b>549,717</b>	<b>90,000</b>	<b>26,730</b>	<b>53,370</b>	<b>70,020</b>	<b>30,600</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>
2022	Single Story SF	7,520,739	61,635	58,923	24,654	6,300	27,119	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	Two Story SF	9,858,792	74,728	71,440	29,891	6,300	32,880	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	<b>Subtotal</b>	<b>17,379,531</b>	<b>136,363</b>	<b>130,363</b>	<b>54,545</b>	<b>12,600</b>	<b>60,000</b>	<b>549,717</b>	<b>90,000</b>	<b>26,730</b>	<b>53,370</b>	<b>70,020</b>	<b>30,600</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>
2023	Single Story SF	7,671,153	62,477	59,728	24,991	6,300	27,490	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	Two Story SF	10,055,968	75,832	72,496	30,333	6,300	33,366	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	<b>Subtotal</b>	<b>17,727,121</b>	<b>138,309</b>	<b>132,224</b>	<b>55,324</b>	<b>12,600</b>	<b>60,856</b>	<b>549,717</b>	<b>90,000</b>	<b>26,730</b>	<b>53,370</b>	<b>70,020</b>	<b>30,600</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>
2024	Single Story SF	7,824,576	63,336	60,550	25,335	6,300	27,868	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	Two Story SF	10,257,087	76,958	73,572	30,783	6,300	33,862	274,859	45,000	13,365	26,685	35,010	15,300	90,360	90,360	90,360	90,360	90,360
	<b>Subtotal</b>	<b>18,081,664</b>	<b>140,295</b>	<b>134,122</b>	<b>56,118</b>	<b>12,600</b>	<b>61,730</b>	<b>549,717</b>	<b>90,000</b>	<b>26,730</b>	<b>53,370</b>	<b>70,020</b>	<b>30,600</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>	<b>180,720</b>
2025	Single Story SF	5,852,783	47,089	45,017	18,836	4,620	20,719	201,563	33,000	9,801	19,569	25,674	11,220	66,264	66,264	66,264	66,264	66,264
	Two Story SF	7,672,301	57,279	54,758	22,911	4,620	25,203	201,563	33,000	9,801	19,569	25,674	11,220	66,264	66,264	66,264	66,264	66,264
	<b>Subtotal</b>	<b>13,525,085</b>	<b>104,368</b>	<b>99,776</b>	<b>41,747</b>	<b>9,240</b>	<b>45,922</b>	<b>403,126</b>	<b>66,000</b>	<b>19,602</b>	<b>39,138</b>	<b>51,348</b>	<b>22,440</b>	<b>132,528</b>	<b>132,528</b>	<b>132,528</b>	<b>132,528</b>	<b>132,528</b>
<b>TOTAL</b>		<b>\$ 88,206,733</b>	<b>\$ 689,145</b>	<b>\$ 658,823</b>	<b>\$ 275,658</b>	<b>\$ 63,000</b>	<b>\$ 303,224</b>	<b>\$ 2,748,587</b>	<b>\$ 450,000</b>	<b>\$ 133,650</b>	<b>\$ 266,850</b>	<b>\$ 350,100</b>	<b>\$ 153,000</b>	<b>\$ 903,600</b>	<b>\$ 903,600</b>	<b>\$ 903,600</b>	<b>\$ 903,600</b>	<b>\$ 903,600</b>

**APPENDIX 5. ASSUMPTIONS:**

- Building valuation is estimated in Appendix 1. It should be noted that permit fees associated with some residential uses are likely underestimated as construction values provided by the Client and used to estimate permit revenues for the project are lower than those provided by the 2012 International Building Code.
- Principal amount for the calculation of building permit and plan check fee revenue is estimated at follows, principal amount and resulting fees are estimated in the year prior to construction:
  - \$ **993.75** for the first \$100,000.01 of Building Permit Valuation, plus \$ **5.60** for each additional \$1,000 thereafter through a value of \$500,000.
  - Source: "City of Sparks Permit Fees." Revised December 22, 2017.
- Building Permit fee revenue is estimated at **95.60%** of principal amount.
  - Building Plan Review fee revenue is estimated at **40.00%** of principal amount, conservatively assuming all units are single family repeats.
  - Current Planning Plan Review fee revenue is estimated at \$ **140.00** per building, conservatively assuming all units are single family repeats.
  - Fire Prevention Inspection fee revenue is estimated at **22.00%** of the principal amount.
  - Fire Prevention Plan review fee revenue is estimated at **22.00%** of the principal amount.
- Analysis conservatively assumes all single family homes are repeat units. Source: "City of Sparks Permit Fees." Revised December 22, 2017. Revenue for mechanical, plumbing, and electrical permit fees is not estimated as the construction det required for these estimates are unknown.
- Regional Road Impact fee (RRIF) revenue is estimated at:
  - Single Family \$ **3,921.96** per dwelling unit.

**APPENDIX 5  
CITY OF SPARKS  
ESTIMATED PERMIT AND IMPACT FEE REVENUE**

<u>YEAR</u>	<u>ESTIMATED BUILDING VALUATION</u>	<u>PRINCIPAL AMOUNT</u>	<u>BUILDING PERMIT REVENUE</u>	<u>PLAN REVIEW REVENUE</u>	<u>CURRENT FIRE INSPEC./ PLANNING PLAN REVIEW REVENUE</u>	<u>REGIONAL ROAD REVENUE</u>	<u>SEWER CONNECT. REVENUE</u>	<u>RESIDENTIAL PARK TAX REVENUE</u>	<u>SANITARY SEWER REVENUE</u>	<u>FLOOD CONTROL PARKS/REC STATION</u>	<u>IMPACT FEE SERVICE AREA #1 FIRE STATION</u>	<u>TOTAL</u>
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Source: "Regional Road Impact Fee (RRIF)." Regional Transportation Commission. 5th Edition, March 20, 2017. Data for North Service Area.  
 5. Sewer Connection fee revenue is estimated at \$ **6,107.97** per residential unit. Source: "City of Sparks Permit Fees." Revised December 22, 2017.  
 6. Residential construction tax for neighborhood parks revenue is estimated at the lesser of 1% of building permit valuation or \$1,000 per residential unit. Given an estimated Added Improvements Value shown in Appendix 1, 1% of building perm valuation will result in the following values per unit:

Single Story SF	\$	1,544
Two Story SF	\$	2,024

7. The Project is located adjacent to the Impact Fees Service Area Number 1. Should the project be added to the Area, the following fees will apply to the project:

<u>Unit of Measure</u>	<u>Sanitary Sewer</u>	<u>Flood Control</u>	<u>Regional Parks/Rec</u>	<u>Fire Station</u>
Single Family Dwelling	\$ 297.00	\$ 593.00	\$ 778.00	\$ 340.00

Source: "City of Sparks Permit Fees." Revised December 22, 2017.

**EXHIBIT "D"**

**APPENDIX 6  
CITY OF SPARKS  
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

Base Year FY 16-17	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	1ST 10-YEAR SUBTOTAL
<b>GENERAL FUND</b>											
<b>REVENUE</b>											
<i>Taxes</i>											
Ad Valorem <sup>1</sup>	\$ 2,044	\$ 16,513	\$ 48,478	\$ 125,748	\$ 206,515	\$ 286,411	\$ 357,568	\$ 415,093	\$ 427,545	\$ 440,372	\$ 2,326,287
<b>Subtotal</b>	<b>\$ 2,044</b>	<b>\$ 16,513</b>	<b>\$ 48,478</b>	<b>\$ 125,748</b>	<b>\$ 206,515</b>	<b>\$ 286,411</b>	<b>\$ 357,568</b>	<b>\$ 415,093</b>	<b>\$ 427,545</b>	<b>\$ 440,372</b>	<b>\$ 2,326,287</b>
<i>Licenses and Permits</i>											
Business Licenses <sup>3</sup>	\$ 5,878,303	\$ -	\$ 4,314	\$ 21,106	\$ 38,901	\$ 57,745	\$ 77,685	\$ 93,768	\$ 96,581	\$ 99,478	\$ 489,577
Liquor Licenses <sup>3</sup>	252,674	-	185	907	1,672	2,482	3,339	4,031	4,151	4,276	21,044
City Gaming Licenses <sup>2</sup>	554,193	-	-	-	-	-	-	-	-	-	-
Franchise Fees <sup>3</sup>	4,416,852	-	3,241	15,858	29,229	43,389	58,371	70,455	72,569	74,746	367,859
Nonbusiness Licenses and Permits <sup>3</sup>	53,249	-	39	191	352	523	704	849	875	901	4,435
<b>Subtotal</b>	<b>\$ 11,155,271</b>	<b>\$ -</b>	<b>\$ 7,780</b>	<b>\$ 38,062</b>	<b>\$ 70,155</b>	<b>\$ 104,139</b>	<b>\$ 140,098</b>	<b>\$ 169,103</b>	<b>\$ 174,176</b>	<b>\$ 179,402</b>	<b>\$ 882,915</b>
<i>Intergovernmental Revenue</i>											
Consolidated Tax-CCRT Revenue <sup>4</sup>	\$ -	\$ 5,970	\$ 24,188	\$ 29,904	\$ 35,944	\$ 42,321	\$ 42,459	\$ 29,369	\$ 30,250	\$ 31,157	\$ 271,562
Consolidated Tax-Other Revenue <sup>5</sup>	\$ 3,643,715	-	2,674	13,082	24,113	35,794	48,153	58,123	59,866	61,662	303,468
State Distributive Fund-Sales Tax <sup>4</sup>	-	410	1,660	2,052	2,467	2,905	2,914	2,016	2,076	2,138	18,639
State Distributive Fund-Other <sup>6</sup>	Appendix 3	4	35	267	438	608	759	881	908	935	4,938
County Gaming Licenses <sup>2</sup>	389,292	-	-	-	-	-	-	-	-	-	-
Other Intergovernmental Revenue <sup>7</sup>	551,354	-	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>\$ 4</b>	<b>\$ 6,415</b>	<b>\$ 28,625</b>	<b>\$ 45,306</b>	<b>\$ 62,962</b>	<b>\$ 81,627</b>	<b>\$ 94,286</b>	<b>\$ 90,388</b>	<b>\$ 93,100</b>	<b>\$ 95,893</b>	<b>\$ 598,607</b>
<i>Charges for Services</i>											
Building and Zoning Fees <sup>7</sup>	\$ 27,305	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other <sup>8</sup>	2,646,746	-	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>\$ 2,674,051</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<i>Fines and Forfeits</i>											
Fines <sup>3</sup>	\$ 619,500	\$ -	\$ 455	\$ 2,224	\$ 4,100	\$ 6,086	\$ 8,187	\$ 9,882	\$ 10,178	\$ 10,484	\$ 51,595
Miscellaneous <sup>7</sup>	\$ 153,669	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>REVENUE TOTAL</b>	<b>\$ 2,048</b>	<b>\$ 22,928</b>	<b>\$ 85,338</b>	<b>\$ 211,341</b>	<b>\$ 343,731</b>	<b>\$ 478,263</b>	<b>\$ 600,139</b>	<b>\$ 684,466</b>	<b>\$ 705,000</b>	<b>\$ 726,150</b>	<b>\$ 3,859,405</b>

**EXHIBIT "D"**

**APPENDIX 6  
CITY OF SPARKS  
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	Base Year FY 16-17	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	1ST 10-YEAR SUBTOTAL
<b>EXPENDITURES</b>												
<b>General Government</b>												
Legislative <sup>9</sup>	\$ 438,791	\$ -	\$ 41	\$ 355	\$ 1,172	\$ 1,991	\$ 2,858	\$ 3,727	\$ 4,332	\$ 4,461	\$ 4,593	\$ 23,531
Mayor <sup>9</sup>	109,556	-	10	89	293	497	714	931	1,082	1,114	1,147	5,875
Management Services <sup>9</sup>	5,966,619	-	555	4,827	15,938	27,077	38,864	50,684	58,906	60,657	62,459	319,966
Legal <sup>9</sup>	1,617,935	-	151	1,309	4,322	7,342	10,538	13,744	15,973	16,448	16,937	86,763
Financial Services <sup>9</sup>	3,044,757	-	283	2,463	8,133	13,817	19,832	25,864	30,060	30,953	31,873	163,278
Community Services <sup>9</sup>	1,032,879	-	96	836	2,759	4,687	6,728	8,774	10,197	10,500	10,812	55,389
<b>General Government Total</b>	<b>\$ 12,210,537</b>	<b>\$ -</b>	<b>\$ 1,136</b>	<b>\$ 9,878</b>	<b>\$ 32,616</b>	<b>\$ 55,412</b>	<b>\$ 79,534</b>	<b>\$ 103,723</b>	<b>\$ 120,550</b>	<b>\$ 124,133</b>	<b>\$ 127,821</b>	<b>\$ 654,803</b>
<b>Judicial</b>												
Judicial <sup>10</sup>	\$ 2,123,457	\$ -	\$ -	\$ 1,558	\$ 7,624	\$ 14,052	\$ 20,860	\$ 28,063	\$ 33,872	\$ 34,889	\$ 35,935	\$ 176,853
<b>Judicial Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,558</b>	<b>\$ 7,624</b>	<b>\$ 14,052</b>	<b>\$ 20,860</b>	<b>\$ 28,063</b>	<b>\$ 33,872</b>	<b>\$ 34,889</b>	<b>\$ 35,935</b>	<b>\$ 176,853</b>
<b>Public Safety</b>												
Police <sup>11</sup>	Appendix 7	\$ -	\$ -	\$ 22,090	\$ 71,012	\$ 122,810	\$ 177,610	\$ 235,545	\$ 282,208	\$ 290,252	\$ 298,534	\$ 1,500,059
Fire <sup>12</sup>	Appendix 8	\$ -	\$ 4,522	\$ 22,122	\$ 40,775	\$ 60,527	\$ 81,427	\$ 98,285	\$ 101,233	\$ 104,270	\$ 107,398	\$ 620,558
Community Services <sup>10</sup>	\$ 1,277,098	\$ -	\$ -	\$ 937	\$ 4,585	\$ 8,451	\$ 12,545	\$ 16,877	\$ 20,372	\$ 20,983	\$ 21,612	\$ 106,364
<b>Public Safety Total</b>	<b>\$ -</b>	<b>\$ 4,522</b>	<b>\$ 45,149</b>	<b>\$ 116,372</b>	<b>\$ 191,788</b>	<b>\$ 271,582</b>	<b>\$ 350,707</b>	<b>\$ 403,812</b>	<b>\$ 415,505</b>	<b>\$ 427,544</b>	<b>\$ 427,544</b>	<b>\$ 2,226,981</b>
<b>Public Works</b>												
Community Services <sup>13</sup>	\$ 1,480,919	\$ -	\$ -	\$ -	\$ 4,967	\$ 5,116	\$ 5,269	\$ 5,427	\$ 5,590	\$ 5,758	\$ 5,931	\$ 38,057
<b>Public Works Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 4,967</b>	<b>\$ 5,116</b>	<b>\$ 5,269</b>	<b>\$ 5,427</b>	<b>\$ 5,590</b>	<b>\$ 5,758</b>	<b>\$ 5,931</b>	<b>\$ 38,057</b>
<b>Culture and Recreation</b>												
Community Services <sup>10</sup>	\$ 2,883,027	\$ -	\$ -	\$ 2,116	\$ 10,351	\$ 19,079	\$ 28,321	\$ 38,101	\$ 45,989	\$ 47,368	\$ 48,789	\$ 240,114
<b>Culture and Recreation Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,116</b>	<b>\$ 19,079</b>	<b>\$ 28,321</b>	<b>\$ 38,101</b>	<b>\$ 47,368</b>	<b>\$ 48,789</b>	<b>\$ 48,789</b>	<b>\$ 48,789</b>	<b>\$ 48,789</b>	<b>\$ 240,114</b>

**EXHIBIT "D"**

**APPENDIX 6  
CITY OF SPARKS  
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

Base Year FY 16-17	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	1ST 10-YEAR SUBTOTAL
<b>Community Support</b>											
Management Services <sup>9</sup>	\$ 268,707	\$ -	\$ 217	\$ 718	\$ 1,219	\$ 1,750	\$ 2,283	\$ 2,653	\$ 2,732	\$ 2,813	\$ 14,410
<b>Community Support Total</b>	\$ -	\$ 25	\$ 217	\$ 718	\$ 1,219	\$ 1,750	\$ 2,283	\$ 2,653	\$ 2,732	\$ 2,813	\$ 14,410
<b>EXPENDITURES SUBTOTAL</b>	\$ -	\$ 5,683	\$ 58,918	\$ 172,648	\$ 286,666	\$ 407,316	\$ 528,303	\$ 612,467	\$ 630,384	\$ 648,834	\$ 3,351,218
<b>CONTINGENCY</b>	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>EXPENDITURES TOTAL</b>	\$ -	\$ 5,683	\$ 58,918	\$ 172,648	\$ 286,666	\$ 407,316	\$ 528,303	\$ 612,467	\$ 630,384	\$ 648,834	\$ 3,351,218
<b>GENERAL FUND SURPLUS/(DEFICIT)</b>	\$ 2,048	\$ 17,245	\$ 26,420	\$ 38,693	\$ 57,065	\$ 70,947	\$ 71,836	\$ 72,000	\$ 74,616	\$ 77,317	\$ 508,187
<b>ROAD FUND</b>											
<b>REVENUE</b>											
Licenses and Permits											
Licenses and Permits <sup>3,14</sup>	\$ 2,476,550	\$ -	\$ 1,817	\$ 8,892	\$ 16,389	\$ 24,328	\$ 32,729	\$ 39,505	\$ 40,690	\$ 41,911	\$ 206,261
<b>Subtotal</b>	\$ -	\$ -	\$ 1,817	\$ 8,892	\$ 16,389	\$ 24,328	\$ 32,729	\$ 39,505	\$ 40,690	\$ 41,911	\$ 206,261
Intergovernmental Revenues											
County Gasoline Tax <sup>3</sup>	\$ 665,250	\$ -	\$ 488	\$ 2,389	\$ 4,402	\$ 6,535	\$ 8,792	\$ 10,612	\$ 10,930	\$ 11,258	\$ 55,406
State Gasoline Tax <sup>3</sup>	1,793,365	-	1,316	6,439	11,868	17,617	23,700	28,607	29,465	30,349	149,361
<b>Subtotal</b>	\$ 2,458,615	\$ -	\$ 1,804	\$ 8,827	\$ 16,270	\$ 24,152	\$ 32,492	\$ 39,219	\$ 40,395	\$ 41,607	\$ 204,767
Miscellaneous											
Interest Earned <sup>7</sup>	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>REVENUE TOTAL</b>	\$ -	\$ -	\$ 3,622	\$ 17,719	\$ 32,659	\$ 48,480	\$ 65,221	\$ 78,723	\$ 81,085	\$ 83,518	\$ 411,027
<b>EXPENDITURES</b>											
Public Works <sup>15</sup>	Appendix 9	\$ -	\$ -	\$ 163,145	\$ 164,156	\$ 164,184	\$ 164,213	\$ 164,243	\$ 164,274	\$ 164,305	\$ 1,148,520
<b>EXPENDITURES SUBTOTAL</b>	\$ -	\$ -	\$ -	\$ 163,145	\$ 164,156	\$ 164,184	\$ 164,213	\$ 164,243	\$ 164,274	\$ 164,305	\$ 1,148,520
<b>CONTINGENCY</b>	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>EXPENDITURES TOTAL</b>	\$ -	\$ -	\$ -	\$ 163,145	\$ 164,156	\$ 164,184	\$ 164,213	\$ 164,243	\$ 164,274	\$ 164,305	\$ 1,148,520
<b>ROAD FUND SURPLUS/(DEFICIT)</b>	\$ -	\$ -	\$ 3,622	\$ (145,426)	\$ (131,496)	\$ (115,704)	\$ (98,993)	\$ (85,520)	\$ (83,189)	\$ (80,787)	\$ (737,493)

**EXHIBIT "D"**



**APPENDIX 6  
CITY OF SPARKS  
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
<b>GENERAL FUND</b>												
<b>REVENUE</b>												
<u>Taxes</u>												
Ad Valorem <sup>1</sup>	\$ 453,583	\$ 467,190	\$ 481,206	\$ 495,642	\$ 510,512	\$ 525,827	\$ 541,602	\$ 557,850	\$ 574,585	\$ 591,823	\$ 5,199,820	\$ 7,526,107
<b>Subtotal</b>	<b>\$ 453,583</b>	<b>\$ 467,190</b>	<b>\$ 481,206</b>	<b>\$ 495,642</b>	<b>\$ 510,512</b>	<b>\$ 525,827</b>	<b>\$ 541,602</b>	<b>\$ 557,850</b>	<b>\$ 574,585</b>	<b>\$ 591,823</b>	<b>\$ 5,199,820</b>	<b>\$ 7,526,107</b>
<u>Licenses and Permits</u>												
Business Licenses <sup>3</sup>	\$ 102,463	\$ 105,537	\$ 108,703	\$ 111,964	\$ 115,323	\$ 118,782	\$ 122,346	\$ 126,016	\$ 129,797	\$ 133,690	\$ 1,174,619	\$ 1,664,196
Liquor Licenses <sup>3</sup>	4,404	4,536	4,672	4,813	4,957	5,106	5,259	5,417	5,579	5,747	50,490	71,534
City Gaming Licenses <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Franchise Fees <sup>3</sup>	76,989	79,298	81,677	84,128	86,651	89,251	91,928	94,686	97,527	100,453	882,588	1,250,447
Nonbusiness Licenses and Permits <sup>3</sup>	928	956	985	1,014	1,045	1,076	1,108	1,142	1,176	1,211	10,640	15,075
<b>Subtotal</b>	<b>\$ 184,784</b>	<b>\$ 190,327</b>	<b>\$ 196,037</b>	<b>\$ 201,918</b>	<b>\$ 207,976</b>	<b>\$ 214,215</b>	<b>\$ 220,641</b>	<b>\$ 227,261</b>	<b>\$ 234,078</b>	<b>\$ 241,101</b>	<b>\$ 2,118,338</b>	<b>\$ 3,001,253</b>
<u>Intergovernmental Revenue</u>												
Consolidated Tax-CCRT Revenue <sup>4</sup>	\$ 32,092	\$ 33,055	\$ 34,047	\$ 35,068	\$ 36,120	\$ 37,204	\$ 38,320	\$ 39,469	\$ 40,653	\$ 41,873	\$ 367,900	\$ 639,463
Consolidated Tax-Other Revenue <sup>5</sup>	63,512	65,418	67,380	69,402	71,484	73,628	75,837	78,112	80,455	82,869	728,097	1,031,566
State Distributive Fund-Sales Tax <sup>4</sup>	2,203	2,269	2,337	2,407	2,479	2,553	2,630	2,709	2,790	2,874	25,251	43,889
State Distributive Fund-Other <sup>6</sup>	963	992	1,021	1,052	1,084	1,116	1,150	1,184	1,220	1,256	11,038	15,976
County Gaming Licenses <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Other Intergovernmental Revenue <sup>7</sup>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>\$ 98,770</b>	<b>\$ 101,733</b>	<b>\$ 104,785</b>	<b>\$ 107,929</b>	<b>\$ 111,166</b>	<b>\$ 114,501</b>	<b>\$ 117,936</b>	<b>\$ 121,475</b>	<b>\$ 125,119</b>	<b>\$ 128,872</b>	<b>\$ 1,132,286</b>	<b>\$ 1,730,894</b>
<u>Charges for Services</u>												
Building and Zoning Fees <sup>7</sup>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other <sup>8</sup>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<u>Fines and Forfeits</u>												
Fines <sup>3</sup>	\$ 10,798	\$ 11,122	\$ 11,456	\$ 11,800	\$ 12,154	\$ 12,518	\$ 12,894	\$ 13,281	\$ 13,679	\$ 14,089	\$ 123,790	\$ 175,386
Miscellaneous <sup>7</sup>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>REVENUE TOTAL</b>	<b>\$ 747,935</b>	<b>\$ 770,373</b>	<b>\$ 793,484</b>	<b>\$ 817,289</b>	<b>\$ 841,807</b>	<b>\$ 867,061</b>	<b>\$ 893,073</b>	<b>\$ 919,865</b>	<b>\$ 947,461</b>	<b>\$ 975,885</b>	<b>\$ 8,574,234</b>	<b>\$ 12,433,639</b>

**EXHIBIT "D"**

**APPENDIX 6  
CITY OF SPARKS  
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
<b>EXPENDITURES</b>												
<b>General Government</b>												
Legislative <sup>9</sup>	\$ 4,730	\$ 4,870	\$ 5,015	\$ 5,164	\$ 5,318	\$ 5,476	\$ 5,638	\$ 5,806	\$ 5,978	\$ 6,156	\$ 54,151	\$ 77,682
Mayor <sup>9</sup>	1,181	1,216	1,252	1,289	1,328	1,367	1,408	1,450	1,493	1,537	13,520	19,395
Management Services <sup>9</sup>	64,315	66,226	68,194	70,221	72,308	74,456	76,669	78,947	81,293	83,709	736,339	1,056,305
Legal <sup>9</sup>	17,440	17,958	18,492	19,041	19,607	20,190	20,790	21,408	22,044	22,699	199,669	286,432
Financial Services <sup>9</sup>	32,820	33,795	34,800	35,834	36,898	37,995	39,124	40,287	41,484	42,717	375,753	539,031
Community Services <sup>9</sup>	11,134	11,464	11,805	12,156	12,517	12,889	13,272	13,667	14,073	14,491	127,467	182,857
<b>General Government Total</b>	<b>\$ 131,620</b>	<b>\$ 135,531</b>	<b>\$ 139,558</b>	<b>\$ 143,705</b>	<b>\$ 147,976</b>	<b>\$ 152,373</b>	<b>\$ 156,901</b>	<b>\$ 161,563</b>	<b>\$ 166,364</b>	<b>\$ 171,308</b>	<b>\$ 1,506,899</b>	<b>\$ 2,161,702</b>
<b>Judicial</b>												
Judicial <sup>10</sup>	\$ 37,013	\$ 38,124	\$ 39,267	\$ 40,445	\$ 41,659	\$ 42,908	\$ 44,196	\$ 45,522	\$ 46,887	\$ 48,294	\$ 424,315	\$ 601,168
<b>Judicial Total</b>	<b>\$ 37,013</b>	<b>\$ 38,124</b>	<b>\$ 39,267</b>	<b>\$ 40,445</b>	<b>\$ 41,659</b>	<b>\$ 42,908</b>	<b>\$ 44,196</b>	<b>\$ 45,522</b>	<b>\$ 46,887</b>	<b>\$ 48,294</b>	<b>\$ 424,315</b>	<b>\$ 601,168</b>
<b>Public Safety</b>												
Police												
Police <sup>11</sup>	\$ 307,060	\$ 315,838	\$ 324,874	\$ 334,177	\$ 343,755	\$ 353,615	\$ 363,766	\$ 374,216	\$ 384,975	\$ 396,051	\$ 3,498,327	\$ 4,998,387
Fire												
Fire <sup>12</sup>	\$ 110,620	\$ 113,939	\$ 117,357	\$ 120,878	\$ 124,504	\$ 128,239	\$ 132,086	\$ 136,049	\$ 140,130	\$ 144,334	\$ 1,268,137	\$ 1,888,695
Community Services												
Community Services <sup>10</sup>	\$ 22,261	\$ 22,928	\$ 23,616	\$ 24,325	\$ 25,055	\$ 25,806	\$ 26,580	\$ 27,378	\$ 28,199	\$ 29,045	\$ 255,193	\$ 361,557
<b>Public Safety Total</b>	<b>\$ 439,941</b>	<b>\$ 452,705</b>	<b>\$ 465,847</b>	<b>\$ 479,380</b>	<b>\$ 493,313</b>	<b>\$ 507,660</b>	<b>\$ 522,433</b>	<b>\$ 537,643</b>	<b>\$ 553,305</b>	<b>\$ 569,431</b>	<b>\$ 5,021,657</b>	<b>\$ 7,248,638</b>
<b>Public Works</b>												
Community Services <sup>13</sup>	\$ 6,108	\$ 6,292	\$ 6,480	\$ 6,675	\$ 6,875	\$ 7,081	\$ 7,294	\$ 7,513	\$ 7,738	\$ 7,970	\$ 70,026	\$ 108,084
<b>Public Works Total</b>	<b>\$ 6,108</b>	<b>\$ 6,292</b>	<b>\$ 6,480</b>	<b>\$ 6,675</b>	<b>\$ 6,875</b>	<b>\$ 7,081</b>	<b>\$ 7,294</b>	<b>\$ 7,513</b>	<b>\$ 7,738</b>	<b>\$ 7,970</b>	<b>\$ 70,026</b>	<b>\$ 108,084</b>
<b>Culture and Recreation</b>												
Community Services <sup>10</sup>	\$ 50,253	\$ 51,761	\$ 53,313	\$ 54,913	\$ 56,560	\$ 58,257	\$ 60,005	\$ 61,805	\$ 63,659	\$ 65,569	\$ 576,095	\$ 816,209
<b>Culture and Recreation Total</b>	<b>\$ 50,253</b>	<b>\$ 51,761</b>	<b>\$ 53,313</b>	<b>\$ 54,913</b>	<b>\$ 56,560</b>	<b>\$ 58,257</b>	<b>\$ 60,005</b>	<b>\$ 61,805</b>	<b>\$ 63,659</b>	<b>\$ 65,569</b>	<b>\$ 576,095</b>	<b>\$ 816,209</b>

**APPENDIX 6  
CITY OF SPARKS  
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
<b>Community Support</b>												
Management Services <sup>9</sup>	\$ 2,896	\$ 2,983	\$ 3,071	\$ 3,162	\$ 3,256	\$ 3,353	\$ 3,453	\$ 3,555	\$ 3,661	\$ 3,770	\$ 33,161	\$ 47,571
<b>Community Support Total</b>	<b>\$ 2,896</b>	<b>\$ 2,983</b>	<b>\$ 3,071</b>	<b>\$ 3,162</b>	<b>\$ 3,256</b>	<b>\$ 3,353</b>	<b>\$ 3,453</b>	<b>\$ 3,555</b>	<b>\$ 3,661</b>	<b>\$ 3,770</b>	<b>\$ 33,161</b>	<b>\$ 47,571</b>
<b>EXPENDITURES SUBTOTAL</b>	<b>\$ 667,831</b>	<b>\$ 687,394</b>	<b>\$ 707,538</b>	<b>\$ 728,281</b>	<b>\$ 749,639</b>	<b>\$ 771,633</b>	<b>\$ 794,281</b>	<b>\$ 817,601</b>	<b>\$ 841,614</b>	<b>\$ 866,341</b>	<b>\$ 7,632,154</b>	<b>\$ 10,983,372</b>
<b>CONTINGENCY</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>EXPENDITURES TOTAL</b>	<b>\$ 667,831</b>	<b>\$ 687,394</b>	<b>\$ 707,538</b>	<b>\$ 728,281</b>	<b>\$ 749,639</b>	<b>\$ 771,633</b>	<b>\$ 794,281</b>	<b>\$ 817,601</b>	<b>\$ 841,614</b>	<b>\$ 866,341</b>	<b>\$ 7,632,154</b>	<b>\$ 10,983,372</b>
<b>GENERAL FUND SURPLUS/(DEFICIT)</b>	<b>\$ 80,103</b>	<b>\$ 82,979</b>	<b>\$ 85,946</b>	<b>\$ 89,008</b>	<b>\$ 92,168</b>	<b>\$ 95,428</b>	<b>\$ 98,793</b>	<b>\$ 102,264</b>	<b>\$ 105,847</b>	<b>\$ 109,544</b>	<b>\$ 942,080</b>	<b>\$ 1,450,267</b>
<b>ROAD FUND</b>												
<b>REVENUE</b>												
Licenses and Permits												
Licenses and Permits <sup>11,14</sup>	\$ 43,168	\$ 44,463	\$ 45,797	\$ 47,171	\$ 48,586	\$ 50,043	\$ 51,545	\$ 53,091	\$ 54,684	\$ 56,324	\$ 494,871	\$ 701,132
<b>Subtotal</b>	<b>\$ 43,168</b>	<b>\$ 44,463</b>	<b>\$ 45,797</b>	<b>\$ 47,171</b>	<b>\$ 48,586</b>	<b>\$ 50,043</b>	<b>\$ 51,545</b>	<b>\$ 53,091</b>	<b>\$ 54,684</b>	<b>\$ 56,324</b>	<b>\$ 494,871</b>	<b>\$ 701,132</b>
Intergovernmental Revenues												
County Gasoline Tax <sup>3</sup>	\$ 11,596	\$ 11,944	\$ 12,302	\$ 12,671	\$ 13,051	\$ 13,443	\$ 13,846	\$ 14,261	\$ 14,689	\$ 15,130	\$ 132,932	\$ 188,338
State Gasoline Tax <sup>3</sup>	31,260	32,197	33,163	34,158	35,183	36,238	37,325	38,445	39,599	40,787	358,355	507,716
<b>Subtotal</b>	<b>\$ 42,855</b>	<b>\$ 44,141</b>	<b>\$ 45,465</b>	<b>\$ 46,829</b>	<b>\$ 48,234</b>	<b>\$ 49,681</b>	<b>\$ 51,171</b>	<b>\$ 52,707</b>	<b>\$ 54,288</b>	<b>\$ 55,916</b>	<b>\$ 491,287</b>	<b>\$ 696,054</b>
Miscellaneous												
Interest Earned <sup>1</sup>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>REVENUE TOTAL</b>	<b>\$ 86,023</b>	<b>\$ 88,604</b>	<b>\$ 91,262</b>	<b>\$ 94,000</b>	<b>\$ 96,820</b>	<b>\$ 99,724</b>	<b>\$ 102,716</b>	<b>\$ 105,798</b>	<b>\$ 108,972</b>	<b>\$ 112,241</b>	<b>\$ 986,159</b>	<b>\$ 1,397,186</b>
<b>EXPENDITURES</b>												
Public Works <sup>15</sup>	\$ 164,336	\$ 164,369	\$ 164,401	\$ 164,435	\$ 164,469	\$ 164,504	\$ 164,540	\$ 164,576	\$ 164,613	\$ 164,651	\$ 1,644,894	\$ 2,793,414
<b>EXPENDITURES SUBTOTAL</b>	<b>\$ 164,336</b>	<b>\$ 164,369</b>	<b>\$ 164,401</b>	<b>\$ 164,435</b>	<b>\$ 164,469</b>	<b>\$ 164,504</b>	<b>\$ 164,540</b>	<b>\$ 164,576</b>	<b>\$ 164,613</b>	<b>\$ 164,651</b>	<b>\$ 1,644,894</b>	<b>\$ 2,793,414</b>
<b>CONTINGENCY</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>EXPENDITURES TOTAL</b>	<b>\$ 164,336</b>	<b>\$ 164,369</b>	<b>\$ 164,401</b>	<b>\$ 164,435</b>	<b>\$ 164,469</b>	<b>\$ 164,504</b>	<b>\$ 164,540</b>	<b>\$ 164,576</b>	<b>\$ 164,613</b>	<b>\$ 164,651</b>	<b>\$ 1,644,894</b>	<b>\$ 2,793,414</b>
<b>ROAD FUND SURPLUS/(DEFICIT)</b>	<b>\$ (78,313)</b>	<b>\$ (75,764)</b>	<b>\$ (73,139)</b>	<b>\$ (70,435)</b>	<b>\$ (67,649)</b>	<b>\$ (64,779)</b>	<b>\$ (61,823)</b>	<b>\$ (58,778)</b>	<b>\$ (55,641)</b>	<b>\$ (52,410)</b>	<b>\$ (658,735)</b>	<b>\$ (1,396,228)</b>

**EXHIBIT "D"**

**APPENDIX 6**  
**CITY OF SPARKS**  
**COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

**APPENDIX 6. ASSUMPTIONS:**

Unless otherwise indicated, the analysis uses Estimated Current Year Ending 6/30/2017 (Fiscal Year 2016-2017) revenue and expenditure data from the City of Sparks Budget, FY 2017-18.

- 1 See Appendix 3 for calculations.
- 2 The analysis is conservative in not estimating the increase in some Sparks business-related revenues resulting from new residents of the development, though this increase is expected to occur.
- 3 ACM: Revenues are calculated based on estimated FY 2016-17 City of Sparks estimated per capita revenues inflated **3%** annually and applied to the estimated annual population of the Project. Per capita revenue is calculated by dividing FY 2016-17 revenue for each source by City of Sparks FY 2016-17 population of **93,581** Source: City of Sparks Budget FY 2017-18.
- 4 See Appendix 4 for calculations.
- 5 In addition to CCRT revenue, Consolidated tax for the City includes revenue from Real Property Transfer Tax, GST (MVPT), Cigarette and Liquor taxes. A per capita methodology as explained in footnote 3 is applied to estimate this revenue. Total Washoe County revenues from liquor, cigarette and GST (analysis conservatively does not include RPTT as it is not a recurring revenue) sources totaled **\$ 30,048,968** in FY 2016-2017. City of Sparks is estimated to receive **12.13%** of all County C-tax revenue. As a result, the City's portion of GST revenue is estimated at **\$ 3,643,715** and the ACM is applied to this amount.  
Source: Nevada Department of Taxation. "Consolidated Tax Distribution." City of Sparks portion of C-tax revenue is based on a three-year average data for FY 2014-15 to FY 2016-17.
- 6 In addition to sales tax revenue, AB 104 revenue for the City includes revenue from property, gaming, and RPTT taxes and interest. Analysis is conservative in not estimating gaming, RPTT, and interest revenue. Property tax revenue is estimated in Appendix 3.
- 7 Though the project may generate revenue for the City from these sources, the amount is difficult to estimate and/or expected to be minimal.
- 8 Charges for services for the City include inter-department and inter-fund transfers, which, though impacted, may be difficult to estimate. Some charges for services revenue, such as false alarms may be generated by the project, but again are difficult to estimate.
- 9 Administrative service (indirect) costs assumed to be impacted by the project are calculated at **25.7%** of direct service costs.  
Source: Average percent indirect costs of direct costs for FY 2016-17. Source: City of Sparks Budget, FY 2017-18.
- 10 ACM: Expenditures are calculated based on estimated FY 2016-17 City of Sparks budget per capita costs inflated **3%** annually and applied to estimated annual population of the Project. Per capita costs are calculated by dividing FY 2016-17 costs for each source by City of Sparks FY 2016-17 population of **93,581** Source: City of Sparks Budget FY 2017-18.
- 11 See Appendix 7 for calculations and assumptions.
- 12 See Appendix 8 for calculations and assumptions.
- 13 Expenditures for the Public Works source include Public Works administrative and facility maintenance costs. Costs associated with these services are estimated by dividing total expenditures for this source of **\$ 1,480,919** by the total square feet of City of Sparks streets of **67,541,767** and applying to the number of square feet added by the development of **195,400** inflated 3% annually. Source: Expenditures from City of Sparks budget FY 2017-18, City of Sparks streets inventory from City of Sparks Community Services Department.
- 14 Revenue estimates in 2018 are reduced by the one-time shift of some franchise revenues from the Road Fund to the Park & Recreation Project Fund.
- 15 See Appendix 9 for calculation and assumptions.

**EXHIBIT "D"**

**APPENDIX 7  
CITY OF SPARKS  
POLICE DEPARTMENT COST PROJECTIONS**

<u>YEAR</u>	<u>CUMUL. NEW RESIDENTIAL POPULATION</u>	<u>OFFICERS REQUIRED</u>	<u>CIVILIANS REQUIRED</u>	<u>SALARY/ BENEFITS</u>	<u>SERVICES/ SUPPLIES</u>	<u>NEW/REPLACE. VEHICLE PURCHASE</u>	<u>ANNUALIZED VEHICLE COSTS</u>	<u>TOTAL COST</u>
2019	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -
2020	-	-	-	-	-	-	-	-
2021	61	0.09	0.03	12,150	426	-	9,514	22,090
2022	290	0.43	0.14	59,416	2,082	-	9,514	71,012
2023	519	0.78	0.26	109,460	3,836	-	9,514	122,810
2024	747	1.12	0.37	162,404	5,692	-	9,514	177,610
2025	976	1.46	0.49	218,378	7,653	28,600	9,514	235,545
2026	1,144	1.72	0.57	263,461	9,233	-	9,514	282,208
2027	1,144	1.72	0.57	271,233	9,506	-	9,514	290,252
2028	1,144	1.72	0.57	279,234	9,786	-	9,514	298,534
2029	1,144	1.72	0.57	287,472	10,075	-	9,514	307,060
2030	1,144	1.72	0.57	295,952	10,372	66,149	9,514	315,838
2031	1,144	1.72	0.57	304,683	10,678	-	9,514	324,874
2032	1,144	1.72	0.57	313,671	10,993	-	9,514	334,177
2033	1,144	1.72	0.57	322,924	11,317	-	9,514	343,755
2034	1,144	1.72	0.57	332,450	11,651	-	9,514	353,615
2035	1,144	1.72	0.57	342,257.54	11,995	76,499	9,514	363,766
2036	1,144	1.72	0.57	352,354	12,349	-	9,514	374,216
2037	1,144	1.72	0.57	362,749	12,713	-	9,514	384,975
2038	1,144	1.72	0.57	373,450	13,088	-	9,514	396,051
<b>TOTAL</b>				<b>\$ 4,663,697</b>	<b>\$ 163,443</b>	<b>\$ 171,247</b>	<b>\$ 171,247</b>	<b>\$ 4,998,387</b>

**APPENDIX 7, ASSUMPTIONS:**

- Population estimates are shown in Appendix 2 of the report.
- Uniformed officer positions are estimated at **1.5** positions per 1,000 population.  
For non-uniformed positions, a ratio of **0.5** positions for every three uniformed positions, is used. Source: City of Sparks Police Department.
- The following City of Sparks salary information is used to estimate operating costs, inflated **3%** annually.

	<u>Salary Range</u>		
<u>FY 2017-18</u>	<u>Low</u>	<u>High</u>	<u>Average</u>
Police Officer \$	51,730	\$ 67,371	\$ 59,550
Sergeant	73,112	87,734	80,423
Crime Analyst	55,245	70,512	62,878
Records Technician	45,510	57,990	51,750
Police Office Assistant	34,070	43,368	38,719
GT/IT Support Specialist	44,866	57,179	51,022
Dispatcher	43,368	55,245	49,306
<b>Weighted Average Officers \$</b>	<b>\$ 54,402</b>	<b>\$ 69,917</b>	<b>\$ 62,160</b>
<b>Weighted Average Civilians \$</b>	<b>\$ 40,351</b>	<b>\$ 51,396</b>	<b>\$ 45,873</b>

Source: "Online Jobs Page." City of Sparks Human Resources.

- Benefits costs are calculated at **57.1%** of salaries.  
Services/Supplies costs calculated at **3.5%** of salaries and benefits.  
Source: Three-year average FY 2015-16 through FY 2017-18 from City of Sparks Budget FY 2017-18.
- One police vehicle is added for every 3 uniformed positions. The 2017 cost of a fully-equipped vehicle is **\$70,000** inflated 3% annually. Life of vehicle is 5 years and the analysis includes vehicle replacement costs with no salvage value. Source: City of Sparks Police Department.

**EXHIBIT "D"**

**APPENDIX 8  
CITY OF SPARKS  
FIRE DEPARTMENT COST PROJECTIONS**

<u>YEAR</u>	<u>CUMUL. # OF UNITS</u>	<u>PROJECT CFS*</u>	<u>ESTIMATED COST/CFS</u>	<u>TOTAL EXPENSES</u>
2019	0	0.00	\$ 1,518	\$ -
2020	24	2.89	1,563	4,522
2021	114	13.74	1,610	22,122
2022	204	24.59	1,658	40,775
2023	294	35.44	1,708	60,527
2024	384	46.28	1,759	81,427
2025	450	54.24	1,812	98,285
2026	450	54.24	1,866	101,233
2027	450	54.24	1,922	104,270
2028	450	54.24	1,980	107,398
2029	450	54.24	2,039	110,620
2030	450	54.24	2,101	113,939
2031	450	54.24	2,164	117,357
2032	450	54.24	2,229	120,878
2033	450	54.24	2,295	124,504
2034	450	54.24	2,364	128,239
2035	450	54.24	2,435	132,086
2036	450	54.24	2,508	136,049
2037	450	54.24	2,584	140,130
2038	450	54.24	2,661	144,334
<b>TOTAL</b>				<b>\$ 1,888,695</b>

\*CFS-calls for service.

**APPENDIX 8, ASSUMPTIONS:**

- Number of residential units from Appendix 1. Analysis includes all units, not just occupied units, for Fire Department impacts.
- Residential calls for service are estimated using average cfs per unit data for single-family residential properties between FY 2011-12 and FY 2015-16, estimated at **0.12** cfs. Source: City of Sparks Fire Department and Washoe County Assessor's Office parcel data for number of single-family units.
- Costs to provide services to the development are estimated at \$ **1,430.44** per call for service. This is estimated using total fire expenditures between FY 2011-12 and FY 2015-16 divided by total calls for service during this period. This includes costs for Administration, Emergency Services, and Training and Safety. Estimated costs are inflated 3% annually.

**EXHIBIT "D"**

**APPENDIX 9  
CITY OF SPARKS  
STREET MAINTENANCE COST PROJECTIONS**

YEAR	MAINTENANCE										REPAIR				TOTAL MAINT. COST
	ADDED SQUARE FEET	ADDED LINEAR FEET	SEWER CLEANING COST	CATCH BASIN COST	STREET SWEEP COST	STREET STRIPING COST	TOTAL COST	SLURRY/ CRACK SEAL COST	3 INCH OVERLAY COST	ROAD REHAB COST	TOTAL ANNUALIZED COST				
2019	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2022	195,400	5,300	-	-	421	-	421	-	-	-	162,724	-	-	163,145	
2023	-	-	702	7	430	293	1,432	-	-	-	162,724	-	-	164,156	
2024	-	-	716	7	438	298	1,460	-	-	-	162,724	-	-	164,184	
2025	-	-	731	8	447	304	1,489	-	-	-	162,724	-	-	164,213	
2026	-	-	745	8	456	310	1,519	-	-	-	162,724	-	-	164,243	
2027	-	-	760	8	465	317	1,550	86,403	-	-	162,724	-	-	164,274	
2028	-	-	775	8	474	323	1,581	-	-	-	162,724	-	-	164,305	
2029	-	-	791	8	484	329	1,612	-	-	-	162,724	-	-	164,336	
2030	-	-	807	8	493	336	1,645	-	-	-	162,724	-	-	164,369	
2031	-	-	823	9	503	343	1,677	-	-	-	162,724	-	-	164,401	
2032	-	-	839	9	513	350	1,711	-	1,030,273	-	162,724	-	-	164,435	
2033	-	-	856	9	524	357	1,745	-	-	-	162,724	-	-	164,469	
2034	-	-	873	9	534	364	1,780	-	-	-	162,724	-	-	164,504	
2035	-	-	891	9	545	371	1,816	-	-	-	162,724	-	-	164,540	
2036	-	-	908	9	556	378	1,852	-	-	-	162,724	-	-	164,576	
2037	-	-	927	10	567	386	1,889	105,325	-	-	162,724	-	-	164,613	
2038	-	-	945	10	578	394	1,927	-	2,032,479	-	162,724	-	-	164,651	
<b>TOTAL</b>	<b>195,400</b>	<b>5,300</b>	<b>\$ 13,088</b>	<b>\$ 136</b>	<b>\$ 8,428</b>	<b>\$ 5,454</b>	<b>\$ 27,106</b>	<b>\$ 191,727</b>	<b>\$ 1,030,273</b>	<b>\$ 2,032,479</b>	<b>\$ 2,766,308</b>	<b>\$ 2,793,414</b>	<b>\$ -</b>	<b>\$ -</b>	

**APPENDIX 9, ASSUMPTIONS:**

- The development is projected to construct approximately **5,300** linear feet or **195,400** square feet of streets to be dedicated to the City for maintenance in the year shown above.

**APPENDIX 9  
CITY OF SPARKS  
STREET MAINTENANCE COST PROJECTIONS**

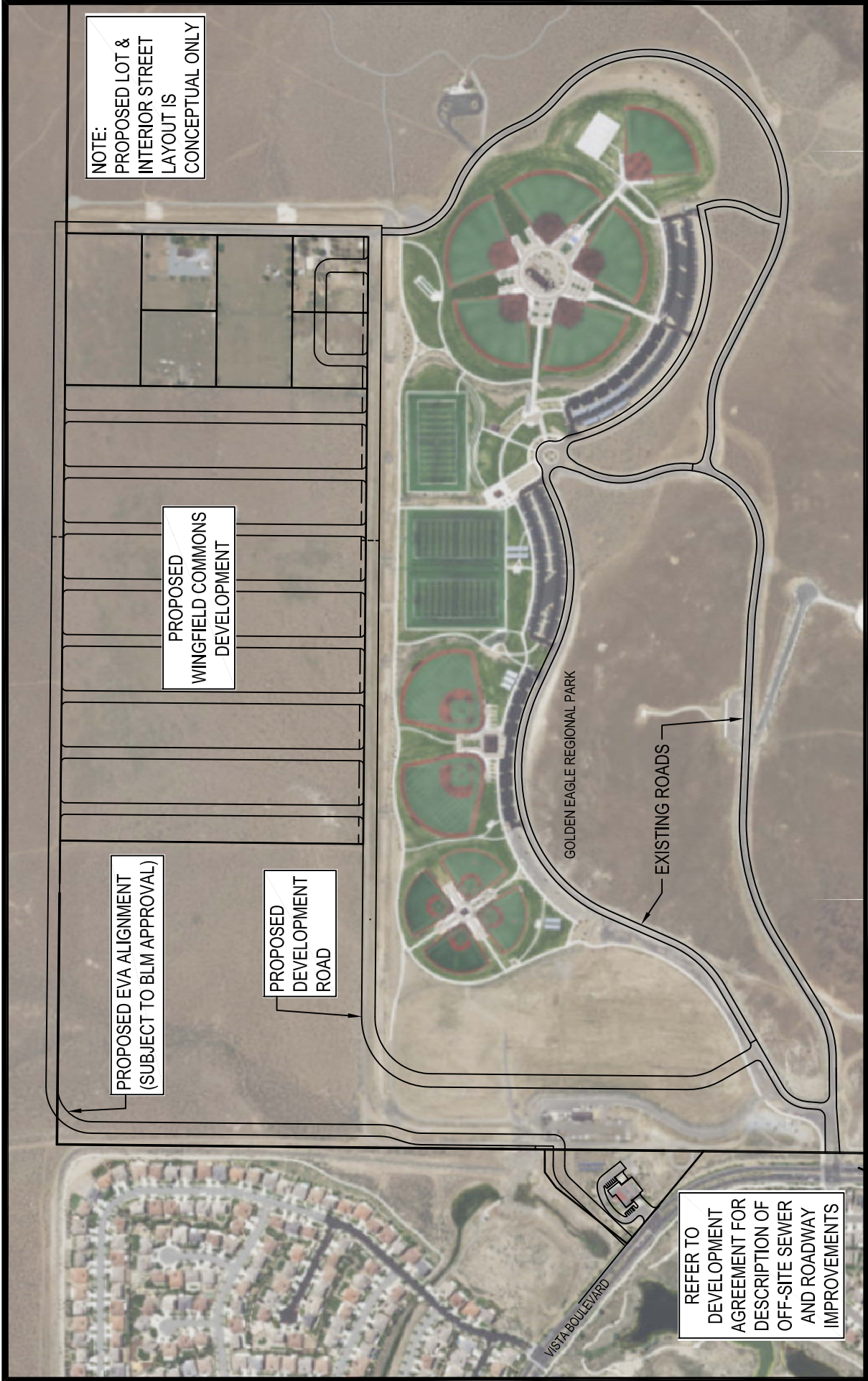
2. The following street maintenance costs are used to estimate the impact of the development's streets on the City:

<b>Item</b>	<b>Frequency</b>	<b>Cost</b>
Slurry/Crack Seal	Year 5 and 15	\$0.37 per square foot
3 Inch Overlay	10 years	\$4.00 per square foot
Road Rehabilitation	20 years	\$7.00 per square foot
Sewer Cleaning	1.5 years	\$0.18 per linear foot
Catch Basin Cleaning	1.75 years	\$11.56 per mile
Street Sweeping	30 days	\$32.30 per mile
Striping	1 year	\$0.05 per linear foot

Note: 2/3 of the cost is added annually  
 Note: 3/5 of the cost is added annually  
 Note: cost is multiplied by 12 annually

Costs are inflated 2% annually. Source: City of Sparks Community Services Department. Estimated repair (extraordinary maintenance) costs are annualized by taking the total estimated costs over the 20-year period and dividing by 20 years.





NOTE:  
 PROPOSED LOT &  
 INTERIOR STREET  
 LAYOUT IS  
 CONCEPTUAL ONLY

PROPOSED  
 WINGFIELD COMMONS  
 DEVELOPMENT

PROPOSED EVA ALIGNMENT  
 (SUBJECT TO BLM APPROVAL)

PROPOSED  
 DEVELOPMENT  
 ROAD

GOLDEN EAGLE REGIONAL PARK

EXISTING ROADS

REFER TO  
 DEVELOPMENT  
 AGREEMENT FOR  
 DESCRIPTION OF  
 OFF-SITE SEWER  
 AND ROADWAY  
 IMPROVEMENTS

VISTA BOULEVARD

EXHIBIT SHOWING GENERAL LOCATION OF  
 REQUIRED INFRASTRUCTURE IMPROVEMENTS  
 WINGFIELD COMMONS  
 SPARKS, NEVADA

JULY 2018

EXHIBIT  
 "E"

