

# Planned Development Major Amendment Staff Report

**Date:** July 23, 2025  
**To:** Douglas County Planning Commission  
**From:** Matt Jakubowski, AICP, Chief Planner *MAJ*  
Curt Weitkunat, AICP, Long Range Planning Manager *CW*  
Steven E. Koster, AICP, Assistant Director of Planning Services *SK*  
**Subject:** Highlands Ranch Planned Development, 80<sup>th</sup> Amendment  
**Project File:** ZR2025-001

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<b>Planning Commission Hearing:</b>	<b>July 21, 2025 @ 6:00 p.m.</b>
<b>Planning Commission Hearing (Continued Hearing):</b>	<b>August 4, 2025 @ 6:00 p.m.</b>
<b>Board of County Commissioners Hearing:</b>	<b>August 12, 2025 @ 2:30 p.m.</b>

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## **I. EXECUTIVE SUMMARY**

The applicant is requesting a Major Planned Development (PD) Amendment to the Highlands Ranch PD (HRPD) to add 400 residential dwelling units to Planning Area 85 (PA 85) of the HRPD. The applicant intends to develop multi-family residential units on two adjacent parcels, 4.61 and 10.2 acres in size, owned by the Englewood McLellan Reservoir Foundation. PA 85 currently allows “multiple-family dwellings” by right, but does not have assigned units available for development. The applicant requested a continuance of this item from the July 21, 2025 Planning Commission hearing to allow it to re-publish notice in the Douglas County News Press.

## **II. APPLICATION INFORMATION**

### **A. Applicant**

Adam Wallace  
Pagewest Acquisitions, LLC  
414 N. Mill Street, Floor 2  
Aspen, Colorado 801611

### **B. Applicant’s Representative**

Norris Design  
1101 Bannock Street  
Denver, Colorado 80204

### **C. Request**

The applicant requests approval of a Major PD Amendment to the HRPD through the addition of 400 dwelling units in PA 85.

#### **D. Process**

A Major PD Amendment application is processed pursuant to Douglas County Zoning Resolution (DCZR) Sections 1519 through 1523. The request is considered a major amendment because the total number of units in the planning area would increase by more than 20%.

Per Section 1522.06 of the DCZR, "The Planning Commission shall evaluate the application, referral comments, staff report, and public testimony, and make a recommendation to the Board to approve, approve with conditions, table for further study, or deny the amendment request. The Planning Commission's comments shall be based on the evidence presented, compliance with the adopted County standards, regulations, policies and other guidelines."

#### **E. Location**

PA 85 is located in northwest Douglas County at C-470 and Kendrick Castillo Way. The project area is accessible from Plaza Drive and Plaza Circle. A Vicinity Map, Zoning Map, and Aerial Map highlight site location and existing conditions and are within the staff report attachments.

#### **F. Project Description**

The applicant is proposing a Major PD Amendment to the HRPD through the addition of 400 dwelling units to PA 85 within the High Density residential dwelling unit subcategory of the Development Plan Zoning Map. The proposed amended Development Plan Zoning Map is attached to the staff report. The proposal would increase total units within the HRPD to 36,468. The applicant intends to develop two parcels, 4.61 and 10.2 acres in size, into a 400-unit multi-family development. A future Site Improvement Plan process would be required for development of the site.

### **III. CONTEXT**

#### **A. Background**

The HRPD was originally approved in 1979. PA 85 was added to the PD in 1988. Residential development, including one-family attached, two-family, and multi-family dwellings were allowed by right in PA 85, but no units were assigned to the PA. In 2015, the HRPD was amended to create PA 85-A within a portion of PA 85. With creation of PA 85-A, 285 dwelling units were transferred from PA 84 (north of the site, across C-470) to PA 85-A. In 2015, a minor development plat was approved covering PA 85-A, the subject parcels, a potential transit station site, and Ben Franklin Academy. In 2016, PA 85-A was developed into a 285-unit multi-family development.

#### **B. Adjacent Land Uses and Zoning**

The site is located in an area with a variety of land uses common to a major highway interchange and potential transit station, including multi-family residences, offices, and a hospital.



### **Zoning and Land Use**

<b>Direction</b>	<b>Zoning</b>	<b>Land Use</b>
<b>North</b>	HRPD	Multi-family residential, potential RTD station & park-and-ride, C-470 right-of-way
<b>South</b>	HRPD	Multi-family residential and Children's Hospital
<b>East</b>	HRPD	Right-of-way for C-470 and Kendrick Castillo Way, and parking lot for an office use
<b>West</b>	HRPD	Ben Franklin Academy Charter School

## **IV. PHYSICAL SITE CHARACTERISTICS**

### **A. Site Characteristics and Constraints**

No existing physical conditions impact the proposed amendment.

### **B. Access**

The project area includes frontage along both Plaza Drive and Plaza Circle. The applicant's Traffic Impact Study (TIS) anticipates access to the development exclusively from Plaza Circle. Implementation of intersection and other traffic improvements as identified by County Engineering and the TIS will be completed as part of future development of the site.

### **C. Soils and Geology**

Based on a review of the 2040 Douglas County Comprehensive Master Plan (CMP) Class 3 Hazards and Environmental Constraints Map, the property does not include any hazardous geologic or soil conditions.

### **D. Drainage and Erosion**

The applicant will be required to meet all engineering requirements for drainage, grading, and erosion control during future development of the site.

### **E. Floodplain**

No floodplain is present on the site.

## **V. PROVISION OF SERVICES**

### **A. Schools**

The Douglas County School District (DCSD) estimates 20 elementary school students, 3 middle school students, and 7 high school students to be generated by this development, with a land dedication requirement of 0.66 acres. DCSD requests a cash-in-lieu of land dedication payment to be determined with a property appraisal at the time of site development.

**B. Fire Protection**

South Metro Fire Rescue (South Metro) provides fire protection services in the area. South Metro indicated that future development of the site will require compliance with applicable fire code requirements.

**C. Sheriff Services**

The Douglas County Sheriff's Office (DCSO) provides police protection. The DCSO provided no objection to the application. The DCSO Office of Emergency Management provided a no comment response. DCSO E911 provided no response.

**D. Water**

Water service will be provided by the Highlands Ranch Water and Sanitation District (HR Water). The Colorado Division of Water Resources (CDWR) provided a referral response request and has no objection to the proposal.

**E. Sanitation**

Sanitary sewer service is also provided by HR Water.

**F. Utilities**

Utility service providers are Xcel (electrical service and natural gas), AT&T, CenturyLink, and Comcast (phone and data services). AT&T and Xcel have no conflicts. CenturyLink has no objection to the proposal. No response was received from Comcast.

**G. Parks and Trails**

Douglas County Parks, Trails, and Building Grounds provided referral comments on the proposal and indicated that park land dedication is determined per Douglas County Subdivision Resolution Article 10. Per Article 10, the applicant is required to either provide a park land dedication or an equivalent cash-in-lieu of land dedication. Determination of a park land dedication for the proposal will be finalized at the time of site development.

**VI. PUBLIC NOTICE AND INPUT**

In accordance with DCZR Section 1523, public notice is required to be published in the Douglas County News Press, posted on site by the applicant, and mailed to abutting property owners and owners within PA 85.

Courtesy notices of an application in process were also sent to adjacent property owners as part of the referral period. No comments from adjacent property owners or members of the public have been received. Staff provided referrals to the Highlands Ranch Community Association (HRCA), the Highlands Ranch Golf Club HOA (HRGCA), and the Highlands Ranch Backcountry Association (Backcountry). The HRCA Development Review Committee formally approved the proposal. No response was received from HRGCA or Backcountry.

All referral agency comments are outlined in the Referral Agency Response Report attached to the staff report. The applicant provided responses to referral comments within a separate letter included in the staff report appendix.

## **VII. STAFF ANALYSIS**

Per Section 1520 of the DCZR, the following criteria shall be considered for approval of a major amendment:

### **1520.01: Whether the amendment is consistent with the development standards, commitments, and overall intent of the planned development.**

*Staff Comment: The application is consistent with the development standards and intent of the HRPD. The HRPD states an intent “to accommodate a balanced mix of residential, commercial, industrial, educational, recreational, and non-urban uses,” as well as be “responsive to changing community needs.” While additional unit density is requested in PA 85, multi-family development is allowed as a right and the site is well-suited for density considering its location adjacent to a potential transit station abutting C-470. The proposal furthers PD intent by adding to the diversity of housing options in Highlands Ranch addressing a community need.*

### **1520.02: Whether the amendment is consistent with the intent, efficient development and preservation of the entire planned development.**

*Staff Comment: The application supports the intent, efficient development, and preservation of the entire planned development. The proposal adds residential dwelling units, which are already allowed in PA 85, in an area of Highlands Ranch that has trended toward multi-family development. Aside from this proposal and adjacent multi-family development, a site to the west (also on the north side of Plaza Drive) is being processed for multi-family development.*

### **1520.03: Whether the amendment will adversely affect the public interest or enjoyment of the adjacent land.**

*Staff Comment: The proposal does not adversely impact the public interest or enjoyment of adjacent land. Multi-family development is allowed as of right in PA 85. Moreover, the site is adjacent to other complimentary land uses, including an existing multi-family development, a potential transit station and park-and-ride, C-470, a hospital, and a school.*

### **1520.04: Whether the sole purpose of the amendment is to confer a special benefit upon an individual.**

*Staff Comment: The application does not as its sole purpose confer a benefit upon an individual. The proposal benefits the development of the HRPD and facilitates 400 additional housing units to Highlands Ranch.*

**1520.05: For applications proposing an increase in the intensity of allowed land-uses, including changes in densities, whether the amendment is consistent with the water supply standards in Section 18A, Water Supply Overlay District, of this Resolution.**

*Staff Comment: DCZR Section 1803A establishes approval standards to be used in the evaluation of land use applications reviewed under Section 18A. HR Water has the capacity to serve the proposed development and has issued a will serve letter as requested by the applicant.*

**1803A.01: The applicant has demonstrated that the water rights can be used for the proposed uses.**

*Water and sewer service are to be provided by HR Water.*

**1803A.02: The reliability of a renewable water right has been analyzed and is deemed sufficient by the County based on its priority date within the Colorado System of Water Rights Administration.**

*No new renewable water rights are being used to serve this project. HR Water has identified renewable water rights that it currently owns within its portfolio of water rights.*

**1803A.03: The Water Plan is deemed adequate and feasible by the County to ensure that water supply shortages will not occur due to variations in the hydrologic cycle.**

*A water plan is not required when water is provided by a District.*

**1803A.04: The Water Plan is sufficient to meet the demand applicable to the project based on the minimum water demand standards in Section 1805A herein.**

*A water plan is not required when water is provided by a District.*

**1520.06: Whether the public facilities and services necessary to accommodate the proposed development will be available concurrently with the impacts of such development.**

*Staff Comment: The proposal does not significantly impact public facilities and services as the site is in a developed area connected to infrastructure. HR Water will provide water and sewer service. The application has been reviewed by South Metro Fire, utility providers, and the Douglas County Sheriff's Office. None of these agencies expressed an inability to serve the development. Douglas County School District and Douglas County Parks, Trails, and Building Grounds will determine land dedication or cash-in-lieu fees as part of future development.*

**1520.07: Whether the roadway capacity necessary to maintain the adopted roadway level of service for the proposed development will be available concurrently with the impacts of such development.**

*Staff Comment: Public Works Engineering has reviewed the applicant's TIS. The applicant will implement the recommendations proposed within the TIS in conjunction with future development of the site.*

## VIII. STAFF ASSESSMENT

Staff has evaluated the request in accordance with Section 15 of the DCZR. Should the Planning Commission find that the approval standards for a Major PD Amendment are met, the following condition should be considered for inclusion in the recommendation to the Board of County Commissioners:

1. Prior to recordation, all technical corrections to the Highlands Ranch Planned Development, 80th Amendment document shall be made to the satisfaction of Douglas County.

<b><u>ATTACHMENTS</u></b>	<b><u>PAGE</u></b>
Douglas County Land Use Application .....	8
Applicant's Narrative .....	9
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**LAND USE APPLICATION**

Please complete, sign, and date this application. Return it with the required items listed on the Submittal Checklist to [planningsubmittals@douglas.co.us](mailto:planningsubmittals@douglas.co.us). Submittals may also be mailed or submitted in person to Planning Services. *NOTE: The Planning Commission or the Board of County Commissioners should not be contacted regarding an open application.*

**OFFICE USE ONLY**

PROJECT TITLE:

PROJECT NUMBER:

PROJECT TYPE: PD Amendment to add residential units in Highlands Ranch

MARKETING NAME: Lucent Station

PRESUBMITTAL REVIEW PROJECT NUMBER: PS2024-247

**PROJECT SITE:**

Address: Plaza Drive and Lucent Drive

State Parcel Number(s): Parcel 1: 2229-042-08-001 ; Parcel 2: 2229-042-09-002

Subdivision/Block#/Lot# (if platted):

**PROPERTY OWNER(S):**

Name(s): Englewood McLellan Reservoir Foundation

Address: 414 N Mill St., Floor 2, Aspen, CO 81611

Phone: 512-788-1428

Email: adam@pagewestco.com

**AUTHORIZED REPRESENTATIVE:** (Notarized Letter of Authorization is required from the property owner, unless the owner is acting as the representative)

Name: Pagewest Acquisitions, LLC; Norris Design

Address: 1101 Bannock St., Denver, CO 80204

Phone: 303-892-1166

Email: mmooney@norris-design.com

To the best of my knowledge, the information contained on this application is true and correct. I have received the County's information sheet regarding the *Pueblo's Meadow Jumping Mouse*.

  
Applicant Signature2/27/25  
Date



April 4, 2025

Douglas County, Department of Community Development  
100 Third Street #220  
Castle Rock, CO 80104

**RE: NARRATIVE FOR AMENDMENT 80 TO THE HIGHLANDS RANCH PLANNED DEVELOPMENT**

Dear Douglas County Department of Community Development,

On behalf of Pagewest Acquisitions, LLC, Norris Design is pleased to present the following proposal to amend the Highlands Ranch Planned Development to allow for multi-family development in Planning Area 85 (PA-85).

<b>OWNER:</b> Englewood McLellan Reservoir Foundation 1000 Englewood Parkway Englewood, CO 80110	<b>DEVELOPER:</b> Pagewest Acquisitions, LLC 414 N Mill Street, Floor 2 Aspen, CO 81611 Contact: Adam Wallace, Partner <a href="mailto:adam@pagewestco.com">adam@pagewestco.com</a> 512-788-1428
<b>ENTITLEMENTS:</b> Norris Design 1101 Bannock St. Denver, CO 80204 Contact: Mallory Mooney, Project Manager <a href="mailto:mmooney@norris-design.com">mmooney@norris-design.com</a> 720-782-0059	<b>CIVIL ENGINEER:</b> Kimley-Horn 1125 17th St #1400 Denver, CO 80202 Contact: Eric McDaniel, PE <a href="mailto:eric.mcdaniel@kimley-horn.com">eric.mcdaniel@kimley-horn.com</a> 720-943-5657

**PROJECT OVERVIEW**

The subject Site is composed of two separate parcels of land currently owned by the Englewood McLellan Reservoir Foundation. Parcel #1 (County Parcel #2229-042-08-001) is roughly 4.61 acres in size and Parcel #2 (County Parcel #2229-042-09-002) is roughly 10.2 acres in size. The Site is located within Planning Area 85 of the Highlands Ranch Planned Development.

The applicant team is exploring a multifamily development for the two parcels and intends to amend the Highlands Ranch Planned Development to support this development. This Amendment proposes the addition of 400 residential dwelling units to the Highlands Ranch Planned Development, increasing the Total Dwelling Units of the PD from 36,068 to 36,468. These additional residential units would be designated to Planning Area 85 so that the Site may be developed with multifamily residential through a future land use application.

This Amendment does not propose to rezone land within the Highlands Ranch Planned Development, it simply increases the allowed number of dwelling units by roughly 1%. Multifamily residential is already a Use Permitted by Right in Planning Area 85 per Section X-B of the Highlands Ranch Planned Development.



The applicant team has met with the Highlands Ranch Metro District (HRMD) and Highlands Ranch Water (HR Water), who confirmed that there are adequate taps and sufficient water for a residential development of up to 400 units. The Site has existing infrastructure to serve a future development of this size.

The team also reached out to the Highlands Ranch Community Association (HRCA), sending them an outline of the proposed Amendment in order to get preliminary feedback ahead of submitting a formal application for their review as a referral agency. The application was presented to the HRCA Board of Directors who took no exception to the proposed project. On March 11, 2025, the HRCA issued a memo to the development team which stated that a proposed multi-family development on the Site was consistent with the adjacent land use in Planning Area 85-A. The application will be reviewed by the HRCA Development Review Committee as part of the County's review process.

Community input is an important part of the development process. Following the submittal of this application, the development team intends on hosting a neighborhood meeting via Zoom to present and discuss the proposed Amendment with adjacent property owners.

### **TRAFFIC, ACCESS AND CIRCULATION**

The Site is accessed through existing roadways – Plaza Drive and Plaza Circle. The nearby connection of Kendrick Castillo Way is an important thoroughfare in Highlands Ranch, with C-470 also nearby as a major regional highway.

Access and circulation, which will be detailed in a future site plan will comply with all applicable local, state and emergency regulations at the time of Site Improvement Plan. The development team will work with the County and the Metro District on requirements.

### **PROJECT IMPROVEMENTS**

The proposed Amendment will allow the Site to be developed as a multifamily residential community. The development team is proposing a community that will complement the existing character of the neighborhood while delivering a premier experience for its residents. The development will enhance the area by providing high-quality housing that supports growing nearby employers, promotes a healthy lifestyle, minimizes traffic impact, and fits within the area's existing infrastructure capacity.

The architecture will utilize premium materials, including masonry, glazing, and cementitious siding. Ample on-site parking, including covered garages and surface spaces, will fully accommodate residents and guests, preventing any overflow onto surrounding streets.

The community will feature a state-of-the-art fitness center equipped with weight training, cardio facilities, and spin bikes as well as an outdoor pool and spa, dog parks, pet wash stations, pedestrian-friendly pathways, bicycle storage and repair stations, and wellness-focused gathering spaces such as yoga areas and passive outdoor courtyards.

The proposed community will bring much needed housing for nearby employment centers, prioritize high-quality design, thoughtful infrastructure integration, and lifestyle-driven amenities in a location well suited for density.

### **CONFORMANCE WITH THE GOALS, OBJECTIVES, AND POLICIES OF THE COMPREHENSIVE PLAN**

The proposed PD Amendment is in conformance with the Douglas County 2040 Comprehensive Master Plan in the following ways.



**Goal 2-1: Improve and enhance existing Infrastructure; support healthy living; reduce vehicle miles travelled; maintain air quality standards; and conserve open space.**

The project is proposed within the Primary Urban Area (PUA), in accordance with Objective 2-1A to "Direct urban-level development to designated urban areas". Additionally, as the Site is in close proximity to two major hospital systems, a school, and one of the area's premier employment centers, the community intends for future residents to live and work in the same area. This supports healthy living and reduces vehicle miles traveled while maintaining air quality standards. Further, future residential development of the Site is intended to be programmed with abundant fitness and recreation facilities both indoors and outdoors.

**Goal 2-5: Minimize the impact of development on natural and historic resources.**

The proposed PD Amendment will allow future residential development of the Site which will not impact natural and historic resources. The Site is already served by existing streets and it is not located near environmentally or visually-sensitive lands, making it an appropriate location for development.

**Policy 2-5A.5: Encourage compact development patterns that conserve natural resources.**

Future residential development of the Site would be infill development which is more sustainable than a greenfield development because instead of building new infrastructure, it will improve the existing infrastructure that is already in place.

**Goal 2-6: Achieve compatibility between residential and nonresidential land uses, in terms of land use and design.**

The Site is adjacent to existing higher-density residential development. The proposed PD Amendment will allow for higher-density residential ensuring that future development is consistent with surrounding land uses. The proximity of a nearby school, hospital, office, and retail will provide services to future residents as well as housing for the nearby employers.

**Objective 2-6F: Ensure residential and nonresidential building design, scale, and orientation are compatible with the natural and built environment.**

The PD Amendment only proposes to add residential units to PA-85 of the Highlands Ranch Planned Development. No changes to the existing residential standards of the Highlands Ranch PD are proposed with this application. Future residential development will comply with the existing standards of the PD ensuring development will be compatible with the natural and built environment of the area.

**Policy 2-7B.3: Create opportunities for residents to access transportation and community services**

Given the Site's location, future development would provide residents with excellent access to transportation and community services. The Site is located close to the intersection of Kendrick Castillo Way, a major arterial, and C-470, a state freeway, offering future residents' easy access to major road corridors in the region. The parcel directly north of the Site is owned by RTD and if it were to ever develop as a transit center, it would provide future residents with adjacent transit access. For bicyclists and other outdoor enthusiasts, Fly'n B Park is located to the north of the Site along Plaza Drive. The park is a trailhead for the Highline Canal, a major regional trail corridor throughout the larger metro area. To the east of the Site is the nearby Central Park retail center as well as the Arc 470 business park campus.

**Goal 2-9: Ensure development occurs concurrently with essential services and infrastructure.**

The applicant team has met with the Highlands Ranch Metro District (HRMD) and Highlands Ranch Water (HR Water), who confirmed that there are adequate taps and sufficient water for



residential development of up to 400 units. The project site has existing infrastructure to serve a future development of this size.

### **COMPLIANCE WITH CRITERIA FOR APPROVAL**

**1. Whether the Amendment is consistent with the development standards, commitments, and overall intent of the planned development.**

The proposed Amendment is consistent with the development standards, commitments, and overall intent of the Highlands Ranch Planned Development (HRPD). The HRPD Master Plan and Development Guide provides a comprehensive controlling document for the regulation of land within the HRPD area and this Amendment to the HRPD proposes development consistent with the overall intent of the Planned Development. The HRPD features lots and standards consistent with what is proposed by this Amendment. The proposed amendment will allow for the subject property to be developed in a land use pattern that was approved previously and that is in concert with the surrounding area. The development standards for this property will be those found in Section VI – High Density Residential of the HRPD Development Guide and represent a development approach for the subject property that is consistent with the surrounding area.

**2. Whether the Amendment is consistent with the intent, efficient development and preservation of the entire planned development.**

The proposed Amendment is consistent with the intent, efficient development and preservation of the entire Planned Development. One of the stated Objectives of the Highlands Ranch Planned Development Guide is to be "...responsive to changing community needs". The Site has remained vacant for many years, while a need for housing, particularly near major employers, has grown. This demonstrates a changing community need for the planning area.

Further, a portion of PA 85 has already been re-designated for high-density housing, and the proposed multifamily use is consistent with the surrounding area, which includes the Creekside at Highlands Ranch Apartments, Longs Ridge Apartments, Solana Lucent Sation Apartments, and Windcrest Summit Square Apartments.

The proposed land use does not represent a significant change from the existing land use pattern and allows for the continued success of the HRPD by activating a long vacant property with needed housing. Also, future residential development of the Site is supported by the capacity of existing infrastructure which aligns with the Highlands Ranch Planned Development's Legislative Intent C.5. to "Encourage a more efficient use of land and public services".

**3. Whether the Amendment will adversely affect the public interest or enjoyment of the adjacent land.**

The proposed Amendment will not adversely affect the public interest or enjoyment of the adjacent land. The proposed Amendment allows for the Site to develop as a residential community similar in size and character to existing nearby uses. The proposed land use is compatible with the surrounding area and will not increase or change the nature and character of the area. Included with this application is a Traffic Study which revealed that the proposal would have minimal impact on the existing traffic patterns in Highlands Ranch. Potential roadway improvements such as a full service intersection at Plaza Circle and Plaza Drive will improve traffic safety in the area. The intent of the proposal is to allow for the development of the subject property in a manner consistent and in harmony with the surrounding area.



**4. Whether the sole purpose of the Amendment is to confer a special benefit upon an individual.**

The sole purpose of the Amendment is not to confer a special benefit upon an individual. The purpose of this Amendment is to allow for the subject property to be developed in a manner consistent with the surrounding area. The benefit is to the entire community by adding additional and more diverse housing to Highlands Ranch.

**5. For applications proposing an increase in the intensity of allowed land uses, including changes in densities, whether the Amendment is consistent with the water supply standards in Section 18A, Water Supply Overlay District, of this Resolution.**

A meeting was held with the Highlands Ranch Water (HR Water) on December 20, 2024. HR Water expressed their capacity to serve this proposed community and stated they will need the final unit count plus the size of proposed irrigation meters and the proposed tap for community center in order to issue a will serve letter. Once this information is available, the development team will provide it to HR Water to obtain the will serve letter and comply with the water supply standards in Section 18A.

**6. Whether the public facilities and services necessary to accommodate the proposed development will be available concurrently with the impacts of such development.**

Public facilities and services such as school and fire protection are available and have the capacity to support the proposed development. Please see the attached will serve letter from South Metro Fire Rescue stating the capacity to provide fire prevention, fire suppression, emergency medical, and special team response services to properties within its jurisdictional boundaries of which the subject parcel is within. A will serve letter from the Douglas County School District is also included with the application materials.

**7. Whether the roadway capacity necessary to maintain the adopted roadway level of service for the proposed development will be available concurrently with the impacts of such development.**

Included with this application is a detailed traffic study that examined the impact of proposal on the roadway level of service available in the area. The adopted roadway level of service for the proposed development will be available concurrently with the impacts of the development.

We are excited to work with Douglas County again to make this project a success, and we look forward to meeting with you.









Sincerely,  
Norris Design

Mallory Mooney  
Project Manager







# Comprehensive Master Plan Land Use Reference Map

## Comprehensive Master Plan Areas

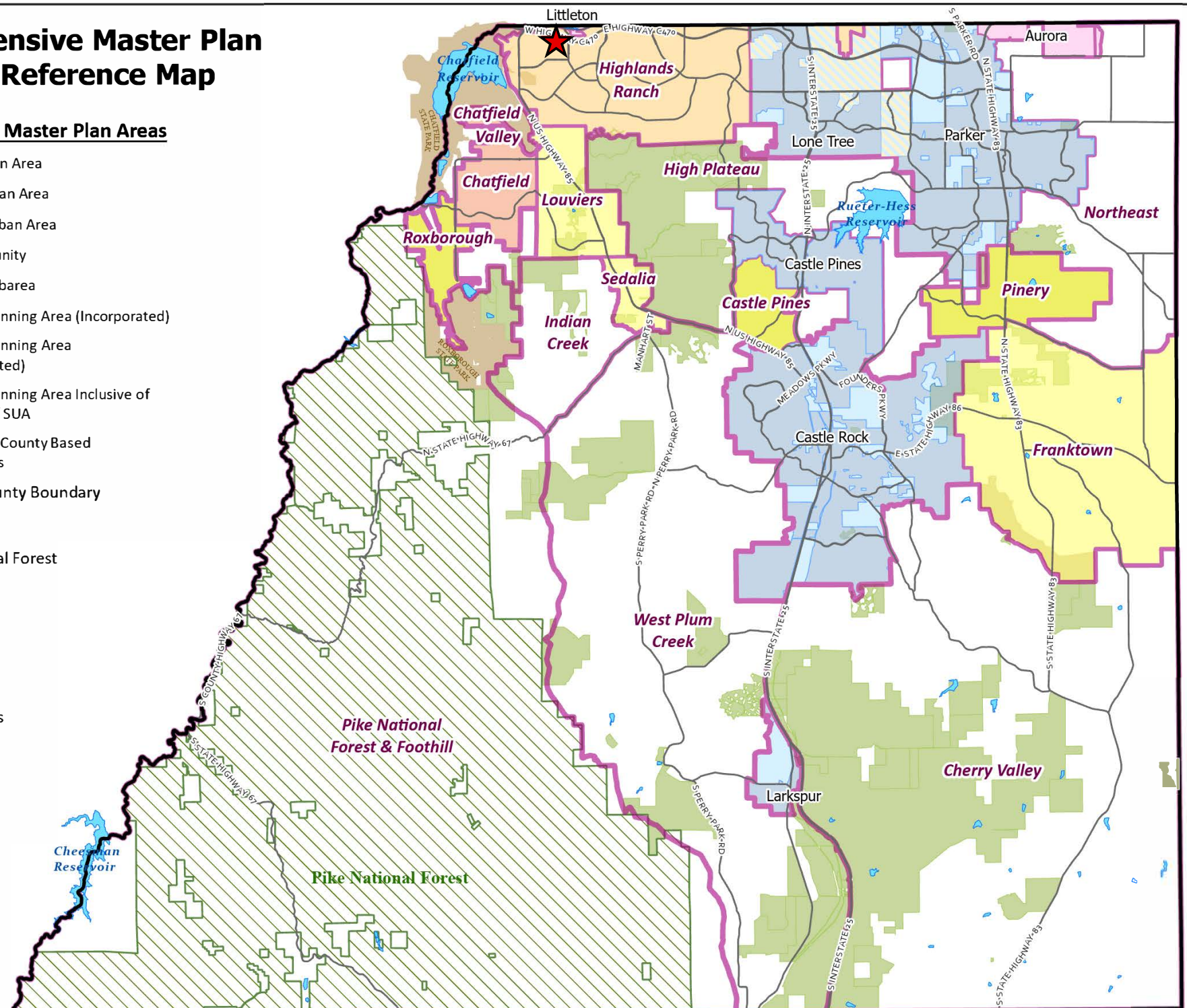
-  Primary Urban Area
-  Chatfield Urban Area
-  Separated Urban Area
-  Rural Community
-  Nonurban Subarea
-  Municipal Planning Area (Incorporated)
-  Municipal Planning Area (Unincorporated)
-  Municipal Planning Area Inclusive of County PUA / SUA
-  Non-Douglas County Based Municipalities
-  Douglas County Boundary

## Parks

-  Pike National Forest
-  State Parks
-  Open Space
-  Lakes

## Roadways

-  Major Roads









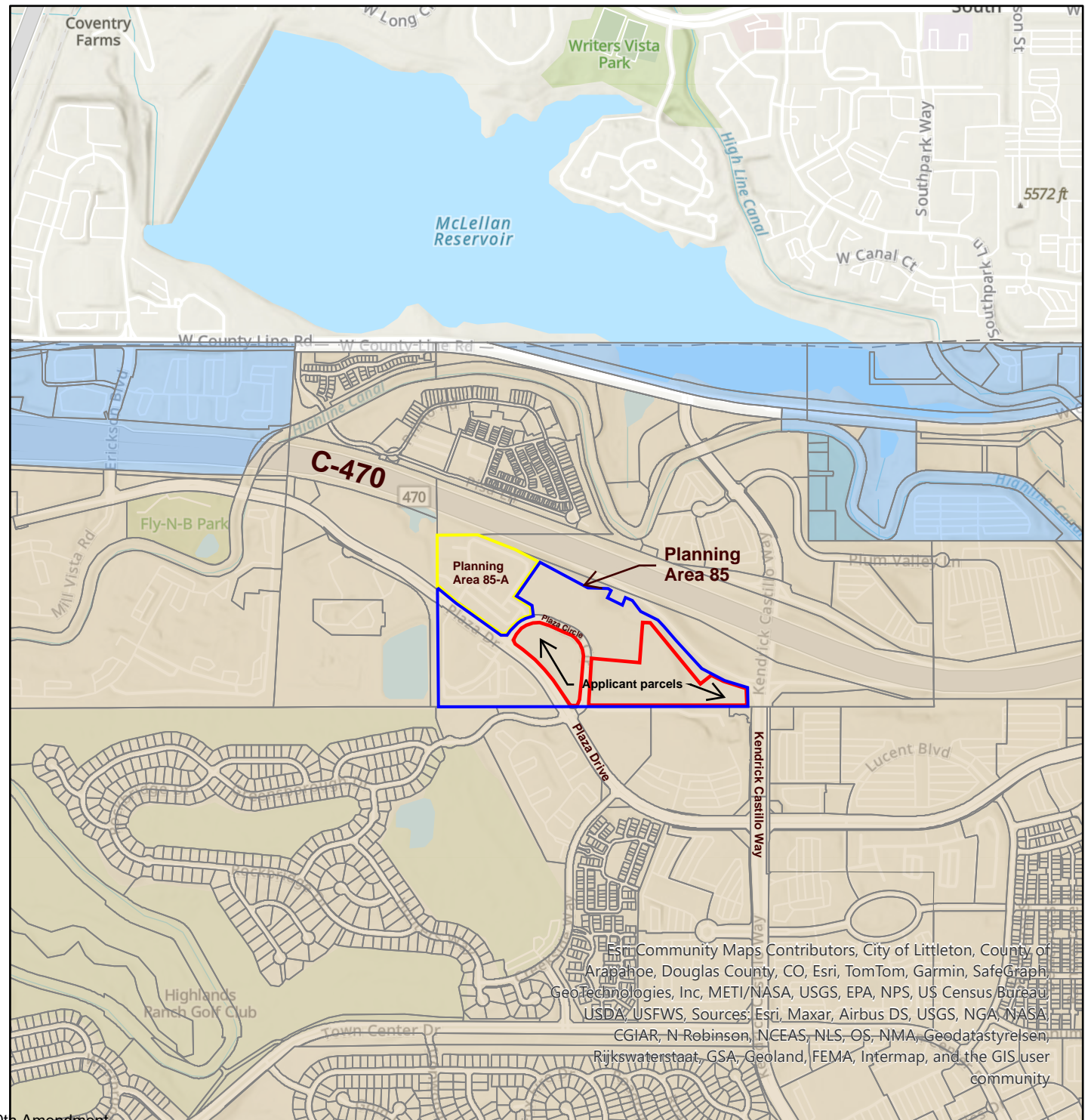


ZR2025-001  
Zoning Map



## LEGEND

-  A1 - AGRICULTURAL ONE  
 CTY  
 PD - PLANNED DEVELOPMENT  
 PLANNING AREA 85  
 APPLICANT PARCELS  
 PLANNING AREA 85-A



Esri, Community Maps Contributors, City of Littleton, County of  
Arapahoe, Douglas County, CO, Esri, TomTom, Garmin, SafeGraph,  
GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau,  
USDA, USFWS, Sources: Esri, Maxar, Airbus DS, USGS, NGA, NASA,  
CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen,  
Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user  
community






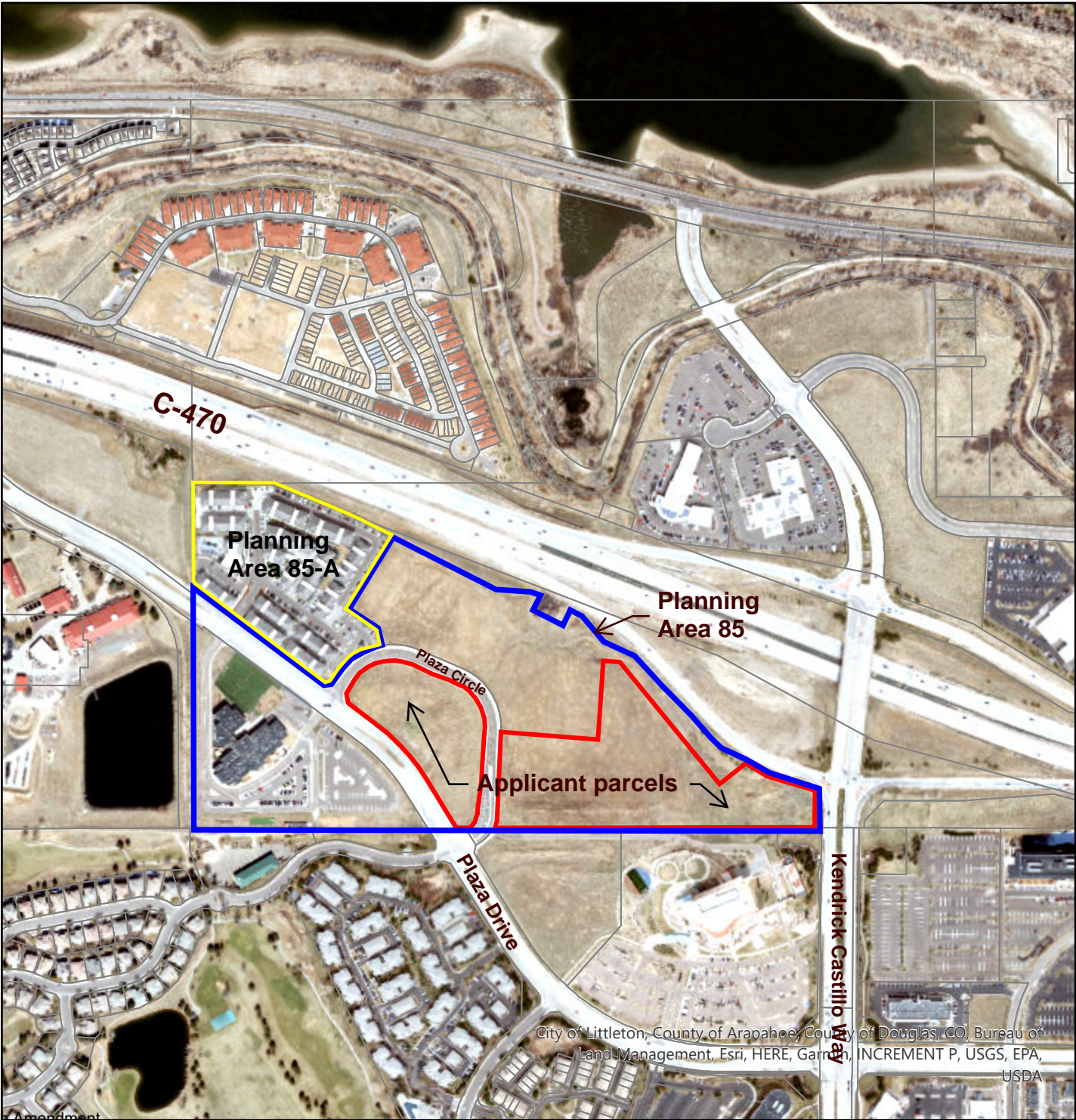
# Highlands Ranch Planned Development, 80th Amendment

ZR2025-001  
Aerial Map



LEGEND

-  PLANNING AREA 85
-  APPLICANT PARCELS
-  PLANNING AREA 85-A



City of Littleton, County of Arapahoe, County of Douglas, CO, Bureau of  
Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, EPA,  
USDA

**Referral Agency Response Report****Page 1 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

Agency	Date Received	Agency Response	Response Resolution
Addressing Analyst	04/28/2025	No Comment.	No action necessary.
Arapahoe County Engineering Services Division	04/24/2025	Received: Following is a summary of comments received from Arapahoe County Engineering. See full letter for detail.  No comments, although other divisions may comment on the application.	No action necessary.
Arapahoe County PWD/ Planning	04/24/2025	Received: Following is a summary of comments received from Arapahoe County Planning. See full letter for detail.  No comments, although other divisions may comment on the application.	No action necessary.
AT&T Long Distance - ROW	05/07/2025	Received: Following is a summary of comments received from AT&T. See the full letter for detail. A map is also attached to the comment letter.  There should be no conflicts with AT&T lines in the project area.	No action necessary.
Backcountry Association, Inc		No Response Received.	No action necessary.
Building Services	04/25/2025	No Comment.	No action necessary.
CenturyLink	05/23/2025	Received: Following is a summary of comments from CenturyLink. No comment and no objection.	No action necessary.
City of Centennial	04/29/2025	No Comment.	No action necessary.
Colorado Department of Transportation CDOT-Region # 1	04/24/2025	Received: I have reviewed the referral of the Highlands Ranch Planned Development, 80th Amendment and the request for a Major Planned Development amendment to the Highlands Ranch PD to add 400 residential units to PA 85 and have the following comments.  <ul style="list-style-type: none"> <li>• Due to the proximity of these developments to C470 we would like to review the drainage report when available in order to ensure there will be no negative impact.</li> <li>• Any signing for this development that advertises to C470 must comply with CDOT rules pertaining to outdoor advertising per 2 CCR 601-3</li> </ul>	Applicant will provide drainage reports to CDOT during future development of the site and will comply with CDOT rules for outdoor advertising as necessary.

**Referral Agency Response Report****Page 2 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

Agency	Date Received	Agency Response	Response Resolution
Colorado Division of Water Resources	05/20/2025	<p>Received: Following is a summary of the referral comments received from the Colorado Division of Water Resources (CDWR). See full letter for detail.</p> <p><u>Water Supply Demand</u> Per an April 22, 2025 will serve letter from the Highlands Ranch Water and Sanitation District (HR Water), 400 additional units of multi-family development will generate a demand of 117 acre-feet of water per year (approximately 234 SFEs).</p> <p><u>Source of Water Supply</u> HR Water's will serve letter indicates 34,137 acre-feet of secure water supplies, plus the right of use of stored water supplies in various reservoirs and an aquifer recharge program. HR Water indicates the demand of all existing and future customers ranges between 19,600 and 22,600 acre-feet per year.</p> <p><u>State Engineer's Office Opinion</u> Water supply is adequate and can be provided without causing injury to decreed water rights. CDWR's opinion is based on a 100-year aquifer life. CDWR recommends that the County consider requiring development of renewable water resources to provide for a long-term supply.</p> <p><u>Additional Comments</u> Applicant must comply with State regulations regarding storm water detention if proposed.</p>	Project area is being served by HR Water and will comply with applicable State Law regarding stormwater detention.
Comcast		No Response Received.	No action necessary.
Douglas County Health Department	04/25/2025	<p>Received: Following is a summary of referral comments received from the Douglas County Health Department (DCHD). See the full letter for detail.</p> <p>Fugitive Dust – Recommendations for temporary uses During development, DCHD recommends mitigation and control of fugitive dust, such as watering, chemical stabilization, carpeting roads with aggregate, and speed restrictions.</p>	Applicant will comply with best practices for dust management during future development of the site.
Douglas County Housing Partnership		No Response Received.	No action necessary.



**Referral Agency Response Report****Page 3 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

Agency	Date Received	Agency Response	Response Resolution
Douglas County Parks and Trails	05/15/2025	<p>Received:</p> <p>Applicant would be responsible for meeting park land dedication as outlined in Article 10 of the Douglas County Subdivision Resolution.</p> <p>1003 Parks</p> <p>Whenever land is proposed for residential or non-residential use, the owner of the land is to provide land or cash-in-lieu of land for active and specialized recreation generated by the proposed use. In general, these lands need to be suitable for the development of active play areas, trails, or in some instances serve to preserve unique landforms or natural areas. Where no suitable land is available in a residential or non-residential development, cash-in-lieu of land or of equivalent value in the donation of recreational facilities may be substituted at the County's discretion. Additional dedication for open land may be required by the Board if deemed necessary to preserve areas of special countywide significance (refer to Sections 1003.11.5 and 1003.12.5 of these regulations).</p> <p>1003.01 The following formula is used to calculate the minimum amount of land dedication required in residential developments which is deemed necessary to provide the needed parks. This formula is based on 15 acres/1000 population.</p> <p>Local Park = Dwelling units x 0.015 acres/unit  Regional Park = Dwelling units x 0.030 acres/unit  Total = Dwelling units x 0.045 acres/unit</p> <p>The Board reserves the right to adjust the acreage requirement between local and regional park categories as deemed necessary to meet specific needs and to determine the amount of developed park acreage required. The Board may also consider alternative park land dedication formulas for multi-family development proposals.</p>	Final determination of land dedication or parks cash-in-lieu will occur during any future Site Improvement Plan for development of the property.
Douglas County School District RE 1	04/28/2025	<p>Received:</p> <p>Following is a summary of the referral response received from the Douglas County School District (DCSD). See the letter for full detail.</p> <p>DCSD has calculated a total of 20 elementary students, 3 middle school students, and 7 high school students, and a land dedication requirement of 0.660 acres from the proposed development. DCSD requests cash-in-lieu of land dedication per Douglas County Subdivision Resolution 1004.05.03. DCSD requests a proposal for the cash-in-lieu fee with adequate information for the school district to review the proposal. Assuming the applicant agrees to payment of fees, DCSD has no objection to the proposal.</p>	Final cash-in-lieu determination will occur during any future Site Improvement Plan for development of the property.

**Referral Agency Response Report****Page 4 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

Engineering Services	05/16/2025	<p>Received:</p> <p>Following is a summary of the referral comments received from Douglas County Engineering. See the full letter for detail.</p> <p>I have reviewed the traffic study provided for the Highlands Ranch PD - 80th Amendment project and have the following comments:</p> <p><u>Section 3.4 Unspecified Development Traffic Growth</u></p> <p>In addition to establishing an annual growth rate, this section needs to include narrative related to the remaining undeveloped adjacent land that will assumably also take access to Plaza Cir in the future. Items to be discussed would include but not be limited to the type and intensity of the potential development of this land.</p> <p>It's not clear if this property (currently owned by RTD) and its potential traffic impacts have been accounted for in this study.</p> <p><u>Section 5.2 Key Intersection Operational Analysis</u></p> <p><i>Plaza Cir &amp; Plaza Drive,</i></p> <p>The delay shown for the southbound approach at this intersection in the 2045 horizon (&gt;300 sec/veh) warrants discussion. Mitigation of this level of delay should be identified in this study.</p> <p>If there is no potential mitigation, then that should be stated in the study.</p> <p><i>Project Accesses</i></p> <p>Accesses to the western lot are located on curves and roadway ROW is limited. It should be noted that sight-light easement outside of ROW as appropriate will be needed to provide control of the sight distance.</p> <p><u>Section 5.3 Vehicle Queuing Analysis</u></p> <p>This section identifies an operational issue that has no mitigation other than limiting the level of development for this project. There is no way to provide the needed southbound left turn land storage at the Plaza Cir &amp; Plaza Dr intersection due to spacing to the Percy Ln intersection.</p> <p>This issue will be magnified with development of the RTD site. Queues could potentially prevent vehicles from getting onto Plaza Cir from Percy Ln.</p> <p>This analysis needs to be revised to address the issues above. Let me know if you have any questions or need additional information.</p>	<p>Applicant has addressed the traffic comments from County Engineering and has revised its Traffic Impact Study. Implementation of the recommendations within the Traffic Impact Study will occur during future development of the site.</p>
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**Referral Agency Response Report****Page 5 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

Agency	Date Received	Agency Response	Response Resolution
Douglas County Water Commission	05/19/2025	No Comment.	No action necessary.
High Line Canal Conservancy		No Response Received.	No action necessary.
Highlands Ranch Community Association	05/15/2025	<p>Received: Mr. Wallace and Ms. Mooney presented their PD Amendment proposal to the HRCA Development Review Committee (DRC) last night.</p> <p>I'm pleased to report that the DRC formally APPROVED the application as presented. The Committee looks forward to continued coordination as the project moves through the County's design and review process.</p> <p>We appreciate the opportunity to provide input on the application and remain available to support next steps as needed.</p> <p>Should you have any questions or wish to discuss any of the details further, please don't hesitate to reach out to me at (303) 471-8802 / <a href="mailto:commercialreview@hrcaonline.org">commercialreview@hrcaonline.org</a>, or to John Mezger at (303) 471-8823 / <a href="mailto:john.mezger@hrcaonline.org">john.mezger@hrcaonline.org</a>.</p> <p>Respectfully, Weylan A. "Woody" Bryant, M LS, PE Director: Community Improvement Services</p>	No action necessary.
Highlands Ranch Golf Club HOA		No Response Received.	No action necessary.

**Referral Agency Response Report****Page 6 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

Agency	Date Received	Agency Response	Response Resolution
Highlands Ranch Metro District	05/13/2025	<p>Received:</p> <p>Parks &amp; Parkways Manager Dirk Ambrose - No comment</p> <p>Natural Resource Manager Nick Adamson - No comment</p> <p>Director of Operations &amp; Maintenance Ken Standen -No comment</p> <p>Director of Parks, Recreation &amp; Open Space Neil Alderson</p> <p>Construction and Facilities Maintenance - Manager Tyler Ensign</p> <p>Public Works Manager of Development Engineering Forrest Dykstra</p> <p>Director of Engineering &amp; Public Works Ryan Edwards</p> <p>Public Works HR Water - Project Engineer Austin Long</p> <p>Public Works HR Water - Project Manager - Site Civil and ARCH/MEP plans must be submitted to the District for review and approval. Jon Klassen, Project Manager</p> <p>Finance Department There are generally three developments fees applicable to residential development in Highlands Ranch:</p> <ul style="list-style-type: none"><li>• Tap Fees</li><li>• Meter Fees</li><li>• System Development Fees (SDF)</li></ul> <p>Information regarding Procedures, Definition of Service, Meter Sizing, Fees and Application for Service can be found in The Highlands Ranch Development Guidelines which can be found on our website.</p>	Applicant will comply with all requirements to receive service from HR Water and HRMD at time of development of the project site.

**Referral Agency Response Report****Page 7 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

<b>Agency</b>	<b>Date Received</b>	<b>Agency Response</b>	<b>Response Resolution</b>
Highlands Ranch Water and Sanitation District	05/13/2025	Received: See Highlands Ranch Metro District comments	Applicant will comply with all requirements to receive service from HR Water and HRMD at time of development of the project site.
Jefferson County Planning and Zoning		No Response Received.	No action necessary.
Littleton		No Response Received.	No action necessary.
Mile High Flood District		No Response Received.	No action necessary.
Office of Emergency Management	04/24/2025	No Comment.	No action necessary.
RTD - Planning & Development Dept	05/15/2025	No Comment.	No action necessary.
Sheriff's Office	05/12/2025	Received: Deputy Jeff Pelle reviewed this regarding security, keeping Crime Prevention Through Environmental Design (CEPTD) concepts in mind. There are no comments or concerns at this time regarding this DCSO request.	No action necessary.
Sheriff's Office E911		No Response Received.	No action necessary.
South Metro Fire Rescue	04/29/2025	Received: South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed PD amendment. Applicants and designers are encouraged to contact SMFR to ensure the Site Improvement Plans will meet the applicable Fire Code requirements for the proposed project prior to submitting the SIP.	No action necessary.

**Referral Agency Response Report****Page 8 of 8****Project Name:** Highlands Ranch Planned Development, 80th Amendment**Project File #:** ZR2025-001**Date Sent:** 04/24/2025**Date Due:** 05/15/2025

Agency	Date Received	Agency Response	Response Resolution
Xcel Energy-Right of Way & Permits	05/13/2025	<p>Received:</p> <p>Following is a summary of the referral response received from Xcel Energy. See the full letter for detail.</p> <p>No apparent conflicts. In the future, Xcel requests the following note:</p> <p>Minimum 10-foot-wide dry utility easements are hereby dedicated on private property abutting all public streets, and around the perimeter of each lot in the subdivision or platted area including tracts, parcels and/or open space areas. These easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.</p> <p>Property owner must apply to Xcel and receive design approval for any new gas or electric service. Additional easements needed must be acquired by separate document.</p>	<p>Applicant will comply with all requirements to receive service from Xcel Energy. The requested note is not applicable to the PD Amendment process. The location of utilities and any potential new easements will be determined as part of future development of the site.</p>



**BRYAN D. WEIMER, PWLF**  
Director

## **Engineering Services Division Referral Comments**

Lima Plaza  
6924 South Lima Street  
Centennial, Colorado 80112-3853  
720-874-6500  
arapahoeco.gov

April 24, 2025

Douglas County – Planning Services Division  
100 Third St  
Castle Rock, CO 80104  
Attn: Case Manager



RE: Highlands Ranch Planned Development, 80th Amendment  
ZR2025-001

Engineering Services Division of Arapahoe County Public Works and Development (Staff) thanks you for the opportunity to review the outside referral for the proposed project. Staff has no comments regarding the referral at this time based on the information submitted.

Please know that other Divisions in the Public Works Department may submit comments as well.

If you have any questions, please feel free to contact our offices at 720-874-6500.

Respectfully,

Sue Liu, PE, CFM

Arapahoe County Public Works & Development  
Engineering Services Division  
cc Arapahoe County Case No. O25-089

**From:** Terri Maulik  
**Sent:** Thursday, April 24, 2025 10:51 AM  
**To:** Matt Jakubowski  
**CC:** Referrals  
**Subject:** FW: AC CASE NO. O25-089 - DOUGCO REF / ZR2025-001 / LUCENT STATION PUD AMENDMENT

Matt,

Thank you for the opportunity to review and comment on this project. The Arapahoe County Planning Division has no comments; however, other departments and/or divisions may submit comments.

I am happy to start posting to the website, but I am not sure what our account is. Do we need to register one or have you set something up for us?



**Terri Maulik (she/her/hers)**

**Planning Technician**

**Planning Division**

Department of Public Works and Development

6924 S Lima St., Centennial, CO 80112

O: 720-874-6840

[tmaulik@arapahoegov.com](mailto:tmaulik@arapahoegov.com)

[www.arapahoeco.gov](http://www.arapahoeco.gov)



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**From:** Kim Lynch <KLynch@arapahoegov.com>  
**Sent:** Thursday, April 24, 2025 10:30 AM  
**To:** Sue Liu <SLiu@arapahoegov.com>; Ava Pecherzewski <APecherzewski@arapahoegov.com>; Ceila Rethamel <CRethamel@arapahoegov.com>; James Katzer <JKatzer@arapahoegov.com>; Joe Schiel <JSchiel@arapahoegov.com>; Michelle Lengyel <MLengyel@arapahoegov.com>; Referrals <Referrals@arapahoegov.com>; Roger Harvey <RHarvey@arapahoegov.com>; Ryan Seacrist <RSeacrist@arapahoegov.com>  
**Subject:** AC CASE NO. O25-089 - DOUGCO REF / ZR2025-001 / LUCENT STATION PUD AMENDMENT

LOCATION: PLAZA DR & LUCENT RD

DUE: 05-15-2025

With gratitude,



**KIM LYNCH**

**Planning Technician** | PWD Planning Division

6924 S Lima St., Centennial, CO 80112

720-874-6650

Highlands Ranch Planned Development, 80th Amendment

Project File: ZR2025-001

Planning Commission Staff Report - Page 26 of 309



**From:** annb cwc64.com  
**Sent:** Wednesday, May 7, 2025 2:45 PM  
**To:** Matt Jakubowski  
**CC:** CHOY, PAM; duanew cwc64.com; jt cwc64.com  
**Subject:** Plaza Dr Circle Highlands Ranch, Colorado Douglas County eReferral #ZR2025-001  
**Attachments:** Plaza Dr Circle Highlands Ranch, Colorado.jpg

Hi Matt,

This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near Plaza Dr Circle Highlands Ranch, Colorado. The Earth map shows the project area in red. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Lines, as we do not have facilities in that area.

Please feel free to contact us with any questions or concerns.

Ann Barnowski  
Clearwater Consulting Group Inc  
120 9th Avenue South  
Suite 140  
Nampa, ID 83651  
Annb@cwc64.com

The attached google earth maps are intended to show approximate locations of the buried AT&T long line fiber optic cable. The maps are provided for informational purposes only. In no way should the maps be used for anything other than general guidelines as to where the fiber is or is not and any other use of these maps is strictly prohibited.

-----Original Message-----

From: mjakubow@douglas.co.us <mjakubow@douglas.co.us>  
Sent: Thursday, April 24, 2025 8:46 AM  
To: annb cwc64.com <annb@cwc64.com>  
Subject: Douglas County eReferral (ZR2025-001) Is Ready For Review

There is an eReferral for your review. Please use the following link to log on to your account:  
<https://apps.douglas.co.us/planning/projects/Login.aspx>

Project Name: Highlands Ranch Planned Development, 80th Amendment  
Project File #: ZR2025-001

Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85, additional units must be assigned to develop such uses. The applicant ultimately proposes a multifamily community on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Approval of future multifamily development on the property requires a separate Site Improvement Plan approval, which is not subject of this application.

This referral will close on Thursday, May 15, 2025.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner  
Douglas County Department of Community Development Planning Services Division Address | 100 Third St., Castle Rock, CO 80104  
Phone | 303-660-7460 Email | mjakubow@douglas.co.us



**From:** Loeffler - CDOT, Steven  
**Sent:** Thursday, April 24, 2025 11:36 AM  
**To:** Matt Jakubowski  
**CC:** Joseph Tripple - CDOT; Aaron Eyl  
**Subject:** Re: Douglas County eReferral (ZR2025-001) Is Ready For Review

Matt,

I have reviewed the referral of the Highlands Ranch Planned Development, 80th Amendment and the request for a Major Planned Development amendment to the Highlands Ranch PD to add 400 residential units to PA 85 and have the following comments.

- Due to the proximity of these developments to C470 we would like to review the drainage report when available in order to ensure there will be no negative impact.
- Any signing for this development that advertises to C470 must comply with CDOT rules pertaining to outdoor advertising per **2 CCR 601-3**

Thank you for the opportunity to review this referral.

**Steve Loeffler**  
Permits Unit- Region 1



P 303.757.9891 | F 303.757.9053  
2829 W. Howard Pl. 2nd Floor, Denver, CO 80204  
[steven.loeffler@state.co.us](mailto:steven.loeffler@state.co.us) | [www.codot.gov](http://www.codot.gov) | [www.cotrip.org](http://www.cotrip.org)



On Thu, Apr 24, 2025 at 8:47 AM <[mjakubow@douglas.co.us](mailto:mjakubow@douglas.co.us)> wrote:

There is an eReferral for your review. Please use the following link to log on to your account:

[https://urldefense.com/v3/https://apps.douglas.co.us/planning/projects/Login.aspx\\_!!PUG2raq7KiCZwBk!Y27VDSYWVHfV\\_d2hpbB9rgaz4MUrj\\_VFuKmFEAqCubZ2gj7aN7RPLZmne-GfqFsHd3fa\\_xrgjasfiCyZ2AsX98jua\\_Je0\\$](https://urldefense.com/v3/https://apps.douglas.co.us/planning/projects/Login.aspx_!!PUG2raq7KiCZwBk!Y27VDSYWVHfV_d2hpbB9rgaz4MUrj_VFuKmFEAqCubZ2gj7aN7RPLZmne-GfqFsHd3fa_xrgjasfiCyZ2AsX98jua_Je0$)

Project Name: Highlands Ranch Planned Development, 80th Amendment

Project File #: ZR2025-001

Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85, additional units must be assigned to develop such uses. The applicant ultimately proposes a multifamily community on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately 1/2 mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Approval of future

multifamily development on the property requires a separate Site Improvement Plan approval, which is not subject of this application.

This referral will close on Thursday, May 15, 2025.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner  
Douglas County Department of Community Development  
Planning Services Division  
Address | 100 Third St., Castle Rock, CO 80104  
Phone | 303-660-7460  
Email | [mjakubow@douglas.co.us](mailto:mjakubow@douglas.co.us)



## REFERRAL RESPONSE REQUEST – MAJOR PLANNED DEVEL. AMD.

 Date sent: April 24, 2025

 Comments due by: **May 15, 2025**

Fax: 303.660.9550

**Project Name:** Highlands Ranch Planned Development, 80<sup>th</sup> Amendment

**Project File #:** ZR2025-001

**Project Summary:**

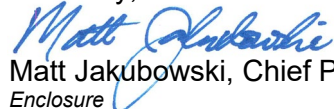
Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85, additional units must be assigned to develop such uses. The applicant ultimately proposes a multifamily community on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Approval of future multifamily development on the property requires a separate Site Improvement Plan approval, which is not subject of this application.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

<input checked="" type="checkbox"/> No Comment	
<input type="checkbox"/> Please be advised of the following concerns: <div style="border-bottom: 1px solid black; height: 20px; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; height: 20px; margin-bottom: 5px;"></div>	
<input checked="" type="checkbox"/> See letter attached for detail.	
<b>Agency:</b> CenturyLink	<b>Phone #:</b> 352-425-8763
<b>Your Name:</b> Stephanie Canary (please print)	<b>Your Signature:</b> <i>Stephanie Canary</i>
	<b>Date:</b> 5-23-2025

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,



Matt Jakubowski, Chief Planner

Enclosure



CenturyLink

May 23, 2025

Matt Jakubowski, AICP | Chief Planner  
Douglas County Department of Community Development  
Planning Services Division  
100 Third St.  
Castle Rock, CO 80104

Sent To: [mjakubow@douglas.co.us](mailto:mjakubow@douglas.co.us)  
Copied To: Lumen Engineering

**P865825**  
**No Reservations/No Objection**

No Reservations/No Objection for: Douglas County Encroachment- ZR2025-001/ Highlands Ranch Project Development, 80th Amendment / Plaza Dr & Lucent Blvd, Highlands Ranch, CO / *Highlands Ranch Filing No.157*, Lot 3 & 4/ Douglas County APN R0490949 & R0490951

Dear Mr. Jakubowski :

Qwest Corporation, d/b/a CenturyLink QC (“CenturyLink”) has reviewed the request for comment on the project described above and has determined that it has No Comments/No Objections.

It is the intent and understanding of CenturyLink that this Letter of No Objection shall not reduce our rights to any existing easement or rights we have on this site or in the area.

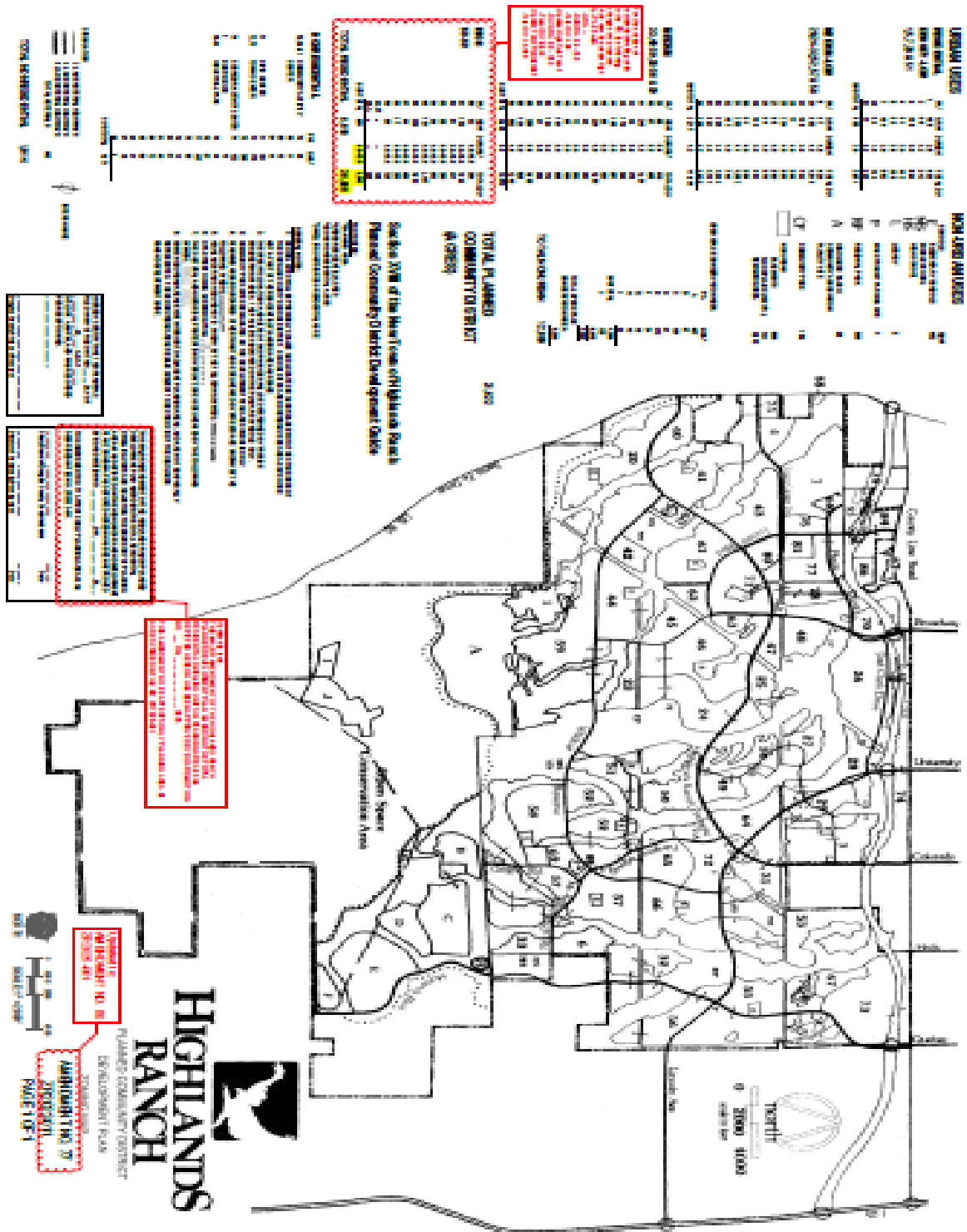
This Letter of No Comment/No Objection response is submitted WITH THE STIPULATION that if CenturyLink facilities are found and/or damaged within the area as described, the Applicant will notify Lumen and bear the cost of relocation and repair of said facilities.

If you have any questions please contact Stephanie Canary at (352) 425-8763 or [stephanie.canary@lumen.com](mailto:stephanie.canary@lumen.com).

Sincerely yours,

CenturyLink Right of Way Team

**Not to Scale-For Illustration Only**





May 20, 2025

Matt Jakubowski, AICP | Chief Planner

Douglas County Department of Community Development

Transmission via email: [mjakubow@douglas.co.us](mailto:mjakubow@douglas.co.us)

**Re: Highlands Ranch Planned Development, 80<sup>th</sup> Amendment**

Project File #: ZR2025-001

Part of the S ½ NW ¼ of Sec. 4, T6S, R68W, 6<sup>th</sup> P.M.

Water Division 1, Water District 8

Dear Matt Jakubowski:

We have reviewed your April 24, 2025 submittal concerning the above reference proposal for a major amendment to the Highlands Ranch Planned Development to add 400 residential units to planning area 85 (PA85). This major Amendment proposes to include a multi-family community on the two parcels of 4.61 acres (Lot 3, Highlands Ranch Filing 157) and 10.2 acres (Lot 4, Highlands Ranch Filing 157). PA85 already allows for one-family attached, two-family, and multi-family dwelling units.

### **Water Supply Demand**

According to a letter from the Highlands Ranch Water and Sanitation District (“District”) dated April 22, 2025, this amendment will include approximately 234 Single Family Equivalent (SFE) taps. Based on District’s water demand requirements, the total demand for this project will be 117 acre-feet per year.





### **Source of Water Supply**

The proposed water source is the District. A letter of commitment for service from the District was provided in the referral material. According to the Statement of Water Availability dated April 22, 2025 the District currently has 34,137 acre-feet of secure water supplies (approximately 16,420 acre-feet of surface water and 17,717 acre-feet of decreed Denver Basin groundwater). The District also has use of 3,885 acre-feet of storage in McLellan Reservoir, 6,400 acre-feet of storage in the South Platte Reservoir, 205 acre-feet of storage in James Tingle Reservoir, and 6,922 acre-feet storage in the Chatfield Reservoir Reallocation Project. In addition, the District operates an aquifer recharge program that contains approximately 15,300 acre-feet of stored water that is available when needed. According to the District, the projected demand to serve all existing and future customers in its service area is in the range of 19,600 to 22,600 acre-feet per year. The annual demand for the last few years has averaged around 17,000 acre-feet with the service area approximately 95% developed.

The proposed source of water for this subdivision includes bedrock aquifer ground water in the Denver Basin. The State Engineer's Office does not have evidence regarding the length of time for which this source will be a physically and economically viable source of water. According to section 37-90-137(4)(b)(I), C.R.S., "Permits issued pursuant to this subsection (4) shall allow withdrawals on the basis of an aquifer life of one hundred years." Based on this **allocation** approach, the annual amounts of water decreed by Centennial in the Denver Basin are equal to one percent of the total amount, as determined by rules 8.A and 8.B of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7. Therefore, the water may be withdrawn in those annual amounts for a maximum of 100 years.

### **State Engineer's Office Opinion**

Based upon the above and pursuant to sections 30-28-136(1)(h)(II) and 30-28-136(1)(h)(II), C.R.S., the State Engineer's office offers the opinion that, with District as the water supplier for the proposed development, the proposed water supply is **adequate and can be provided**

**without causing material injury to existing water rights, so long as Highlands Ranch Water and Sanitation District is committed to supplying all 400 residential units.**

Our opinion that the water supply is **adequate** is based on our determination that the amount of water required annually to serve the subdivision is physically available, based on current conditions.

Our opinion that the water supply can be **provided without causing injury** is based on our determination that the amount of water that is legally available to the District on an annual basis, according to the statutory allocation approach, for the proposed uses is greater than the annual amount of water required to supply the District's water commitments at build-out and the demands of the proposed subdivision.

Our opinion is qualified by the following:

For the decreed Denver Basin water, the Division 1 Water Court has retained jurisdiction over the final amount of water available pursuant to the decrees referenced in District's court cases, pending actual geophysical data from the aquifer.

**The amounts of water in the Denver Basin aquifers, and identified in this letter, are calculated based on estimated current aquifer conditions. The source of water is from a non-renewable aquifer, the allocations of which are based on a 100 year aquifer life. The county should be aware that the economic life of a water supply based on wells in a given Denver Basin aquifer may be less than the 100 years used for allocation due to anticipated water level declines. We recommend that the county determine whether it is appropriate to require development of renewable water resources for this subdivision to provide for a long-term water supply.**

**Additional Comments**

The applicant should be aware that any storm water detention structure for this project must meet the requirements of a “storm water detention and infiltration facility” as defined in section 37-92-602(8), C.R.S., otherwise the structure may be subject to administration by this office. The applicant should review DWR’s *Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado*, attached, to ensure that the notification, construction and operation of the proposed structure meets statutory and administrative requirements. The applicant is encouraged to use *Colorado Stormwater Detention and Infiltration Facility Notification Portal*, located at to meet the notification requirements, located at:

<https://maperture.digitaldataservices.com/gvh/?viewer=cswdif>.

Please contact me at (303) 866-3581 x8246 or [ioana.comaniciu@state.co.us](mailto:ioana.comaniciu@state.co.us) with questions.

Sincerely,



Ioana Comaniciu, P.E.

Water Resource Engineer

Ec: Subdivision File # 34043

Highlands Ranch Water & Sanitation District File

April 25th, 2025

Matt Jakubowski  
100 Third St.  
Castle Rock, CO 80104

RE: ZR2025-001

Dear Mr. Jakubowski

Thank you for the opportunity to review and comment on the Highlands Ranch Planned Development Amendment. Douglas County Health Department (DCHD) staff have reviewed the application for compliance with pertinent environmental and public health regulations. After reviewing the application, DCHD has the following comment(s).

**Fugitive Dust – Recommendations for temporary uses**

Exposure to air pollution is associated with a number of health problems including asthma, lung cancer, and heart disease. Development of the land may contribute to increased fugitive dust emissions. We recommend that the applicant utilize all available methods to minimize fugitive dust. Control measures or procedures that may be employed include, but are not limited to, watering, chemical stabilization, carpeting roads with aggregate, and speed restrictions.

Sincerely,

Caden Thompson  
Environmental Health Specialist I  
Douglas County Health Department



620 W. Ibox Street  
Castle Rock, Colorado 80104

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April 28<sup>th</sup>, 2025

Matt Jakubowski, AICP | Chief Planner  
Douglas County Department of Community Development  
Planning Services Division  
Address | 100 Third St., Castle Rock, CO 80104  
Phone | 303-660-7460  
Email | [mjakubow@douglas.co.us](mailto:mjakubow@douglas.co.us)

RE: Highlands Ranch Planned Development, 80th Amendment

Dear Mr. Jakubowski,

It is our understanding that the applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. It is also our understanding that the amendment, if approved, would increase the total allowed dwelling units in the PD from 36,068 to 36,468. The property is located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive.

DCSD has calculated the amount of school site land requirement for students generated by the proposed planned development. A total of 20 elementary school students, 3 middle school students, and 7 high school students are expected from the development (as proposed) generating a land dedication requirement of 0.660-acres. Since this is smaller than DCSD's minimum school site size, DCSD would request cash-in-lieu of land dedication.

**CASH-IN-LIEU CALCULATION  
STUDENT GENERATION**

<b>PROJECT NAME: HIGHLANDS RANCH PLANNED DEVELOPMENT, 80TH AMENDMENT (ZR2025-001)</b>					
<b>DU/</b>	<b>ACRES</b>		<b>DENSITY</b>		
<b>400</b>	<b>14.81</b>		<b>27.01</b>		
			<b>Generation</b>	<b>Number</b>	
<b><u>STUDENT GENERATION RATES</u></b>	<b><u>No. of DU's</u></b>		<b><u>Rate</u></b>	<b><u>of Students</u></b>	
<b>ELEMENTARY</b>	<b>400</b>	<b>X</b>	<b>0.05</b>	<b>20</b>	
<b>MIDDLE SCHOOL</b>	<b>400</b>	<b>X</b>	<b>0.008</b>	<b>3</b>	
<b>HIGH SCHOOL</b>	<b>400</b>	<b>X</b>	<b>0.017</b>	<b>7</b>	
			<b>TOTAL</b>	<b>30</b>	
				<b>Required</b>	
			<b>School</b>	<b>Land</b>	
	<b>Number</b>		<b>Acreage</b>	<b>Dedication</b>	
<b><u>SCHOOL LAND DEDICATION</u></b>	<b><u>of Students</u></b>		<b><u>Per Student</u></b>	<b><u>Acreage</u></b>	
<b>ELEMENTARY</b>	<b>20</b>	<b>X</b>	<b>0.018</b>	<b>0.360</b>	
<b>MIDDLE SCHOOL</b>	<b>3</b>	<b>X</b>	<b>0.030</b>	<b>0.096</b>	
<b>HIGH SCHOOL</b>	<b>7</b>	<b>X</b>	<b>0.030</b>	<b>0.204</b>	
			<b>TOTAL</b>	<b>0.660</b>	

As per Article 1004.05.3 of the Douglas County Subdivision Regulations, "The cash-in-lieu fee shall be equivalent to the full market value of the acreage required for school land dedication. Value shall be based on anticipated market value after completion of platting. The applicant shall submit a proposal for the cash-in-lieu fee and supply the information necessary for the Board to evaluate the adequacy of the proposal. This information shall include at least one appraisal of the property by a qualified appraiser." And as per Article 1004.06, "The conveyance of land or payment of fees obtained through the County's dedication requirement shall be required prior to the recordation of the first final plat for the subdivision. The conveyance of dedicated school land to Douglas County shall be by warranty deed and the title shall be free and clear of all liens and encumbrances, including real property taxes prorated to the time of conveyance. The applicant shall provide a title insurance policy in the County's name and a certified survey at the time of conveyance."

Granted neither the applicant nor Douglas County object to these fees DCSD has no objection to the proposed project. DCSD looks forward to future collaboration with the applicant and Douglas County on this proposal.

Shavon Caldwell, Planning Manager  
DCSD Planning & Construction  
[scaldwell21@dcsdk12.org](mailto:scaldwell21@dcsdk12.org)  
303.387.0417

**REFERRAL RESPONSE REQUEST – MAJOR PLANNED DEVEL. AMD.**

 Date sent: April 24, 2025

 Comments due by: **May 15, 2025**

Fax: 303.660.9550

**Project Name:** Highlands Ranch Planned Development, 80<sup>th</sup> Amendment

**Project File #:** ZR2025-001

**Project Summary:** Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85, additional units must be assigned to develop such uses. The applicant ultimately proposes a multifamily community on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Approval of future multifamily development on the property requires a separate Site Improvement Plan approval, which is not subject of this application.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

<input type="checkbox"/> No Comment	
<input type="checkbox"/> Please be advised of the following concerns:	
<hr/> <hr/>	
<input checked="" type="checkbox"/> See letter attached for detail.	
<b>Agency:</b> <u>ENGINEERING</u>	<b>Phone #:</b> <u>4318</u>
<b>Your Name:</b> <u>AL PETERSON</u>	<b>Your Signature:</b> <u>Al Peterson</u>
(please print)	<b>Date:</b> <u>5/19/25</u>

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,

  
 Matt Jakubowski, Chief Planner  
 Enclosure

100 Third Street, Castle Rock, Colorado 80104 • 303.660.7460

## Al Peterson

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**From:** Chris Martin  
**Sent:** Friday, May 16, 2025 4:39 PM  
**To:** Al Peterson  
**Cc:** Matt Jakubowski  
**Subject:** RE: Highlands Ranch PD - 80th Amendment Dv25-164

Al,

I have reviewed the traffic study provided for the Highlands Ranch PD - 80th Amendment project and have the following comments:

### Section 3.4 Unspecified Development Traffic Growth

In addition to establishing an annual growth rate, this section needs to include narrative related to the remaining undeveloped adjacent land that will assumably also take access to Plaza Cir in the future. Items to be discussed would include but not be limited to the type and intensity of the potential development of this land.

Its not clear if this property (currently owned by RTD) and its potential traffic impacts have been accounted for in this study.

### Section 5.2 Key Intersection Operational Analysis

Plaza Cir & Plaza Drive,

- the delay shown for the southbound approach at this intersection in the 2045 horizon (>300 sec/veh) warrants discussion. Mitigation of this level of delay should be identified in this study.

If there is not potential mitigation, then that should be stated in the study.

Project Accesses

- Accesses to the western lot are located on curves and roadway ROW is limited. It should be noted that sight-light easement outside of ROW as appropriate will be needed to provide control of the sight distance.

### Section 5.3 Vehicle Queuing Analysis

This section identifies an operational issue that has no mitigation other than limiting the level of development for this project. There is no way to provide the needed southbound left turn land storage at the Plaza Cir & Plaza Dr intersection due to spacing to the Percy Ln intersection.

This issue will be magnified with development of the RTD site. Queues could potentially prevent vehicles from getting onto Plaza Cir from Percy Ln.

This analysis needs to be revised to address the issues above. Let me know if you have any questions or need additional information.

Thanks  
Chris





## MEMORANDUM

Date: Tuesday - March 11, 2025

Sent Via: ☐ 1<sup>st</sup> Class ☐ FedEx ☐ Courier ☒ Hand Deliver  
☐ Facsimile to: ☐ Email to:

**ACTION:** ☐ Rush ☒ F.Y.I. ☐ Call Me ☐ Follow Up ☐ Please Handle ☒ Other: **Comment**

To: Mike Bailey, HRCA GM  
HRCA Board of Directors

From: Weylan A. "Woody" Bryant, M LS, PE (Director: Community Improvement Services)

Subject: **Highlands Ranch Apartments**  
Plaza Drive, West of Children's Hospital (Highlands Ranch, CO)

### **Development Team Seeking HRCA Initial Support for Major PD Amendment**

#### **DISCUSSION:**

##### **ISSUE:**

Is the Board of Directors willing to provide initial support (e.g., No Exceptions Taken) for a Major PD Amendment to assign dwelling units to Planning Area 85?

##### **FACTS:**

The applicant is proposing a multi-family development consisting of approximately 364 apartments in 12 buildings, along with supportive elements including a leasing/clubhouse, pool, garages, dog parks, and open space (reference: Conceptual Plan, attached). The property is located on the northeast side of Plaza Drive, west of Children's Hospital and east of Solana Lucent Station Apartments.

The property is composed of two separate parcels of land currently owned by the Englewood McLellan Reservoir Foundation. The first parcel (#229-042-08-001) is approximately 4.6-acres in size; the second parcel (#229-042-09-002) is approximately 10.2-acres in size. The land is in Planning Area 85.

While multi-family residential is a Use Permitted by Right per HRPDG §X-B(B)(19), no dwelling units are currently assigned to PA 85.

The applicant, through their consultant (Norris Design), based on a suggestion from the Douglas County Board of County Commissioners, is seeking a letter from the HRCA noting that we are in general support of this development moving forward with the Planned Development (PD) Amendment and Site Improvement Plan (SIP) processes.

##### **ANALYSIS:**

The current Highlands Ranch Planned Development, Amendment #79, is dated October, 2023. In 2022 (ZR2022-011) the PD was amended (Amendment #77, see attached Amendment #77 Mapping) to "remove non-urban area in Westridge Glen (former Douglas County School Property) and



add 49 dwelling units to PA 43, increasing the HRPD total dwelling units to 36,058). Amendments #78 & #79 did not impact the dwelling unit count but rather allowed animal clinic/hospital as permitted uses in Planning Area 71-C and F and Planning Area 90, and Planning Area 72, respectively.

This application is similar in context to what was approved as part of Amendment #77 (reduce non-urban land area to increase dwelling units).

The following questions were presented to the project consultant (their initial responses are provided in *blue italicized serif-font*):

**1. HRPDG Zoning Map:**

While multi-family residential is a Use Permitted by Right per HRPDG §X-B(B)(19), no dwelling units are currently assigned to PA 85.

**Question:** Is your team intending to amend the PD Zoning Map to create another sub-area (e.g., PA 85-B, PA 85-A was created as part of Amendment #69, circa 2013) and reassign the proposed 364 units from other PAs with excess availability? Is the intent to increase the overall cap of 36,068 dwelling units to account for these additional residential units?

*Our application intends to amend the PD Zoning Map by adding 400 units of High Density Residential to Planning Area 85. Through early discussions with the County Planning Department, we have been advised that we do not need to create a new sub-area on the map, we simply need to transfer the acreage of our Site out of Nonresidential and into Residential, because, as you mentioned, multi-family residential is a Use Permitted by Right. Attached is a mark up of the PD Zoning Map, which indicates the map changes we will be proposing to the County with our application.*

*We will not be transferring units from other Planning Areas with excess availability, our application proposes to indeed add units to the HRPD, just like the 77th Amendment did.*

**2. Non-Residential to Residential Conversion:**

Historically, converting areas designated as Industrial Park to residential has raised concerns about potential impacts on the future tax base if Highlands Ranch were to incorporate.

In this case, the planned RTD light-rail station adds a layer of consideration. However, this may be mitigated by preserving land for the station and allowing for ancillary tax-generating uses (e.g., coffee shops, small retail). Additionally, since only approximately 15 acres are being considered, it's unlikely the site would support a significant tax generator.

This concern may be minimal here, but it's worth discussing with your client so they're prepared to address it as the project advances. I do agree with your observation that this use is consistent with the nearby multi-family developments southwest and west of the site (Solana and Creekside).

*We appreciate the insight on this. This is super helpful to understand!*



**3. Traffic Impact:**

I don't have a copy of the TIS you referenced, but I hope it accounts for the substantial drop-off and pick-up traffic at Ben Franklin Academy (BFA) on Plaza Drive, directly across from the northern loop driveway intersection.

A traffic signal at the southern loop intersection with Plaza/Greensborough makes sense and may help manage BFA-related queuing. If the TIS hasn't addressed BFA specifically, I recommend your traffic consultant do so.

*Again, we very much appreciate the insight. Our TIS will absolutely account for the traffic conditions that you have mentioned, thanks for pointing those out!*

**4. Stormwater Management:**

I understand you're still early in design, but has stormwater management been considered? Is there an existing regional system this development will be tied into? From the preliminary site plans, it doesn't appear on-site stormwater facilities are currently proposed.

*Appreciate you pointing this out. Again, the design that was shared is very much in the early stages and there are still many details that are still to be determined but Stormwater Management will absolutely be considered as our Site Plan advances.*

**5. Architecture and Landscaping:**

I expect the building elevations will reflect a high-quality design, with visual interest and character similar to Solana and Creekside. As you know, this will be a focus of DRC review. The same applies to landscape design, where a thoughtful and diverse plant palette will be important.

*Understood 100%. We know the approach and quality of design that the DRC expects and will assess our application by at the time of DRC review. If it's helpful at this stage, our team can share some example character imagery of the type of building elevations we anticipate being built.*

**CONCLUSION:**

The inclusion of multi-family residential in this Planning Area is consistent with what was created in 2013 with Planning Area 85-A. However, it comes at a greater net loss of non-residential land area (15-acres), which could nominally impact development of commercial and/or industrial tax generating businesses. This potential revenue impact may be mitigated with the ultimate development of the RTD "Lucent Station," when/if that occurs.

The project will include reviews by the HRCA Development Review Committee (DRC) during both the PD Amendment phase and the Site Improvement Plan (SIP) phase.

Staff position is neutral.

**REQUIREMENTS / RESOLUTION / STATUS:**

☐ Obtain BOD direction and coordinate with developer's consultant accordingly. **STATUS:** IN PROGRESS.





Urban Uses

Residential Density -				
Low	PA'	GRA'	DU/GR'	Total DU
1,5,7,23&51	1	165	2.6	423
	2	66	3.2	212
	3	165	3.6	594
	4	51	2.0	102
	5	53	3.8	198
	7	194	2.9	562
	23	64	1.6	104
	51	72	3.2	226
	Sub Total	824	2.9	2,451

Medium-Low				
10,24-32,52,57&58	6	87	4.9	429
	20	353	4.3	1,518
	24	185	4.0	740
	25	77	4.0	308
	26	254	4.0	936
	27	95	4.0	380
	29	94	4.0	376
	29	108	4.0	432
	30	91	4.0	364
	31	353	4.1	1,032
	32	187	4.0	748
	52	275	4.4	1,094
	57	391	4.4	1,737
	58	336	4.2	1,400
	Sub Total	2,717	4.2	11,404

Medium				
30,40-50,53-56&59	31	65	6.4	419
	46	87	5.3	465
	41	216	5.3	1,134
	42	45	5.9	275
	43	169	5.0	845
	44	186	5.0	935
	45	86	5.0	430
	46	224	5.9	1,330
	47	46	5.0	230
	48	72	5.0	360
	49	98	5.0	490
	50	181	5.0	905
	53	154	5.0	770
	54	47	5.6	265
	55	258	5.8	1,495
	56	101	5.0	505
	59	262	4.8	1,258
	Sub Total	2,395	5.3	12,622

High				
60-66	60	32	8.0-15.0	284
	61	168	8.0-15.0	1,294
	62	51	8.0-15.0	447
	63	35	8.0-15.0	280
	64	98	8.0-15.0	863
	65	151	8.0-15.0	2,187
	66	229	8.0-15.0	1,832
	67	44	8.0-15.0	456
	68	17	8.0-15.0	255
	69	36	8.0-15.0	725
	84,87	--	--	135
	85-A	--	--	285
	Sub Total	861	8.0-15.0	9,542

Total Residential 6,807 36,020

Nonresidential				
70, 89-91	Community Activity Center	PA'	GNA'	
		70	85	
		89	11	
		90	13	
		91	14	
71	Civic Center	71	151	
72, 73	Town Center	72	173	
		73	286	
74	Corridor Activity Center	74	132	
75	Shop-N-Ride	75	13	
76-88	Industrial Park	76	45	
		77	51	
		78	80	
		79	12	
		80	61	
		81	40	
		84	72	
		85	69	
		86	27	
		87	15	
		88	8	
		Sub Total	1,471	

Circulation				
	2 Lane Arterial Highways			
	4 Lane Arterial Highways			
	6 Lane Arterial Highways			
	Total Arterials			443

Interchange  
Total Nonresidential 1,914

Nonurban Uses

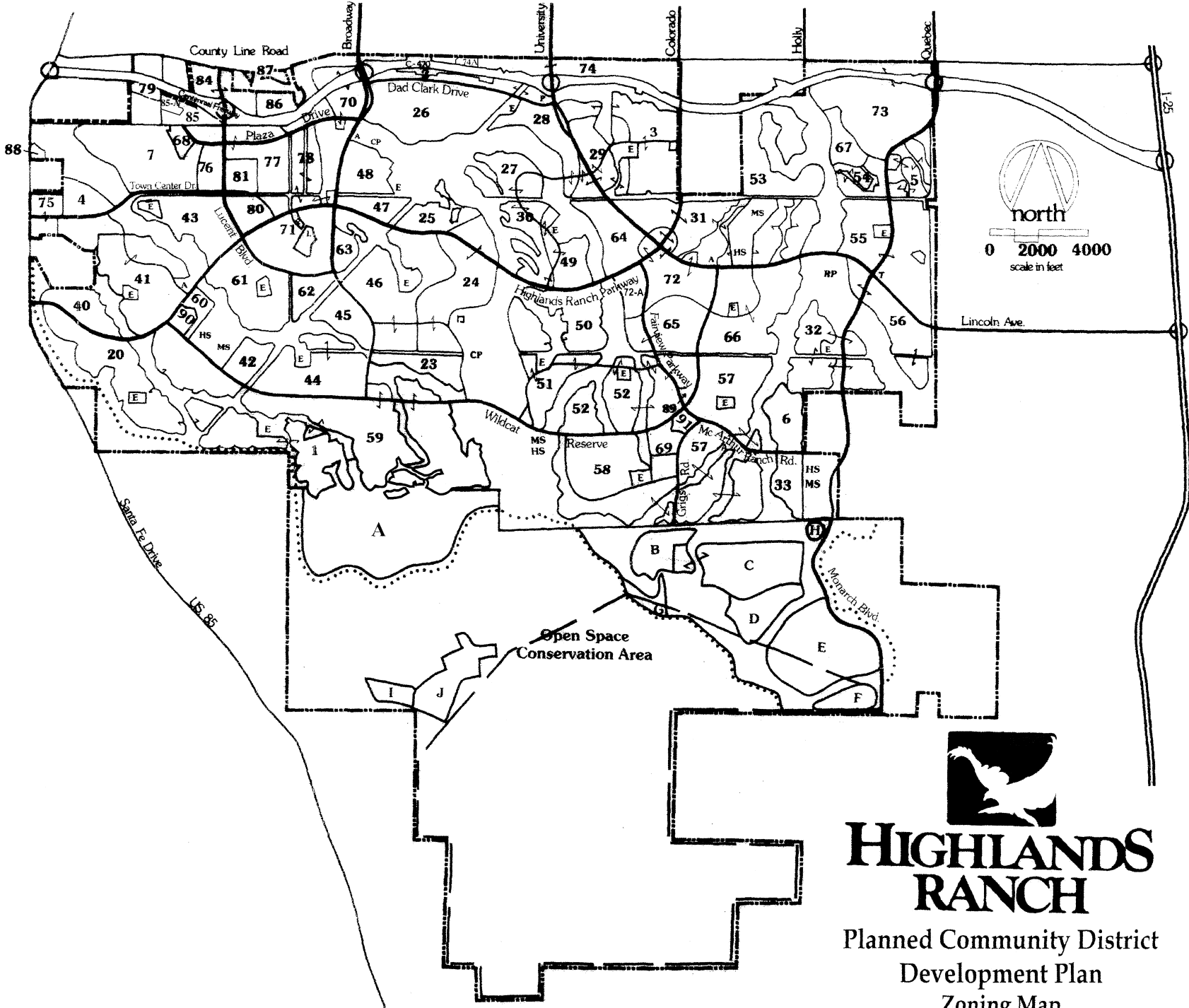
Schoools				
E	Elementary School		GNA'	
MS	Middle School		472	
HS	High School			
L	Library		3	
P	Mass Transit Parking Site		7	
RP	Regional Park		300	
A	Highlands Ranch Community Association Facility Site		35	
CP	Community Park		360	
Nonurban				
	Easements		600	
	Floodplains (100 yr.)		741	
	Remaining Area		1,382	

Open Space Conservation Area				
PA			GNA	
A			467	
B			87	
C			191	
D			87	
E			272	
F			34	
G			19	
H			10	
I			33	
Subtotal			1,200	
J			125	
			6,875	
			7,000	
Total Open Space Conservation Area 8,200				

Total Nonurban 12,900  
Total Planned Community District (acres) 21,621

Section XVIII of The New Town of Highlands Ranch  
Planned Community District Development Guide

Footnotes  
1. Planning Area  
2. Gross Residential Acres  
3. Gross Nonresidential Acres  
4. Dwelling Units/Gross Residential Acre  
5. General Notes  
6. School sites will be precisely scaled and located in accordance with the standards of the Douglas County School District. School sites are Nonurban Uses and as such are not a part of the residential planning area acreage.  
7. The specific location and size of Shop-N-Rides will be determined by precise engineering studies. The facilities indicated on this plan are symbolic only.  
8. Community park sites designated in the Development Plan are symbolic only.  
9. Planning Area boundaries other than those defined by streets are shown by the following symbol:  
10. Highlands Ranch boundary is shown by the following symbol:  
11. The Cultural and Historical Protector Overlay Zone is delineated by the following symbol:  
12. Some nonurban areas exist interior to adjacent planning areas, and are not graphically represented. These nonurban areas remain subject to Section XIII of the Highlands Ranch Development Guide.



**HIGHLANDS RANCH**  
Planned Community District  
Development Plan  
Zoning Map  
EXHIBIT 'A' - AS AMENDED  
Amendment No. 69  
ZR2013-022  
PAGE 1 OF 1

THE HIGHLANDS RANCH PLANNED DEVELOPMENT, 77TH AMENDMENT  
TRACT A HIGHLANDS RANCH FILING 112-A 2ND AMENDMENT WITHIN PLANNING AREA 43 OF THE HIGHLANDS RANCH PLANNED DEVELOPMENT  
DOUGLAS COUNTY, STATE OF COLORADO

NORRIS DESIGN  
Planning | Landscape Architecture | Branding  
1101 S. Bascom Street  
Denver, Colorado 80204  
P: 303.462.1100  
www.norrisdesign.com

URBAN USES

RESIDENTIAL DENSITY-LOW 1,5,7,23 & 51	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
1	165	2.6		433
2	66	3.2		212
3	165	3.6		594
4	51	2.0		102
5	53	3.8		198
7	194	2.9		562
23	64	1.6		104
51	77	3.2		246
SUB TOTAL	835	2.9		2,451

MEDIUM-LOW 20,24-32,52,57 & 58	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
6	87	4.9		429
20	353	4.3		1,518
24	185	4.0		740
25	77	4.0		308
26	234	4.0		936
27	95	4.0		380
28	94	4.0		376
29	108	4.0		432
30	91	4.0		364
31	253	4.1		1,032
32	167	4.0		748
52	226	4.4		1,004
57	391	4.4		1,737
58	336	4.2		1,400
SUB TOTAL	2,717	4.2		11,404

MEDIUM 33,40-50,53-56 & 59	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
33	65	6.4		419
40	87	5.3		465
41	216	5.3		1,134
42	43	5.9		275
43	179	5.0		893
44	186	5.0		957
45	86	5.0		430
46	224	5.9		1,330
47	46	5.0		230
48	72	5.0		360
49	98	5.0		490
50	181	5.0		905
53	154	5.0		770
54	47	5.6		265
55	258	5.8		1,493
56	101	5.0		505
59	362	4.8		1,749
SUB TOTAL	2,405	5.3		12,670

HIGH 60-69	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
60	32	8.0-15.0		284
61	168	8.0-15.0		1,794
62	51	8.0-15.0		447
63	35	8.0-15.0		280
64	98	8.0-15.0		863
65	151	8.0-15.0		2,187
66	229	8.0-15.0		1,832
67	44	8.0-15.0		456
68	17	8.0-15.0		255
69	36	8.0-15.0		725
84,87	-	-		135
85-A	-	-		285
SUB TOTAL	861	8.0-15.0		9,543

TOTAL RESIDENTIAL 6,818 36,068

NONRESIDENTIAL	PA <sup>2</sup>	GNA <sup>3</sup>
70, 89-91 COMMUNITY ACTIVITY CENTER	70	85
	89	11
	90	13
	91	14
71 CIVIC CENTER	71	151
72,73 TOWN CENTER	72	173
	73	286
74 CORRIDOR ACTIVITY CENTER	74	132
T SHOP-N-RIDE	13	13
75-88 INDUSTRIAL PARK	75	45
	76	57
	77	107
	78	80
	79	12
	80	61
	81	40
	84	72
	85	69
	86	27
	87	15
	88	8
SUB TOTAL	1,471	

CIRCULATION	TOTAL ARTERIALS
2 LANE ARTERIAL HIGHWAYS	443
4 LANE ARTERIAL HIGHWAYS	
6 LANE ARTERIAL HIGHWAYS	

NON-URBAN USES

SCHOOLS	GNA <sup>3</sup>
E ELEMENTARY SCHOOLS	462
MS MIDDLE SCHOOL	
HS HIGH SCHOOL	
L LIBRARY	3
P MASS TRANSIT PARKING SITE	7
RP REGIONAL PARK	300
A HIGHLANDS RANCH COMMUNITY ASSOCIATION FACILITY SITE	35
CP COMMUNITY PARK	160
NONURBAN EASEMENTS	600
FLOODPLAINS (100 YR.)	741
REMAINING AREA	2,382

OPEN SPACE CONSERVATION AREA	GNA <sup>3</sup>
PA	467
A	87
B	191
C	87
D	272
E	34
F	19
G	10
H	33
I	1,200
SUBTOTAL	125
J	6,875
	7,000

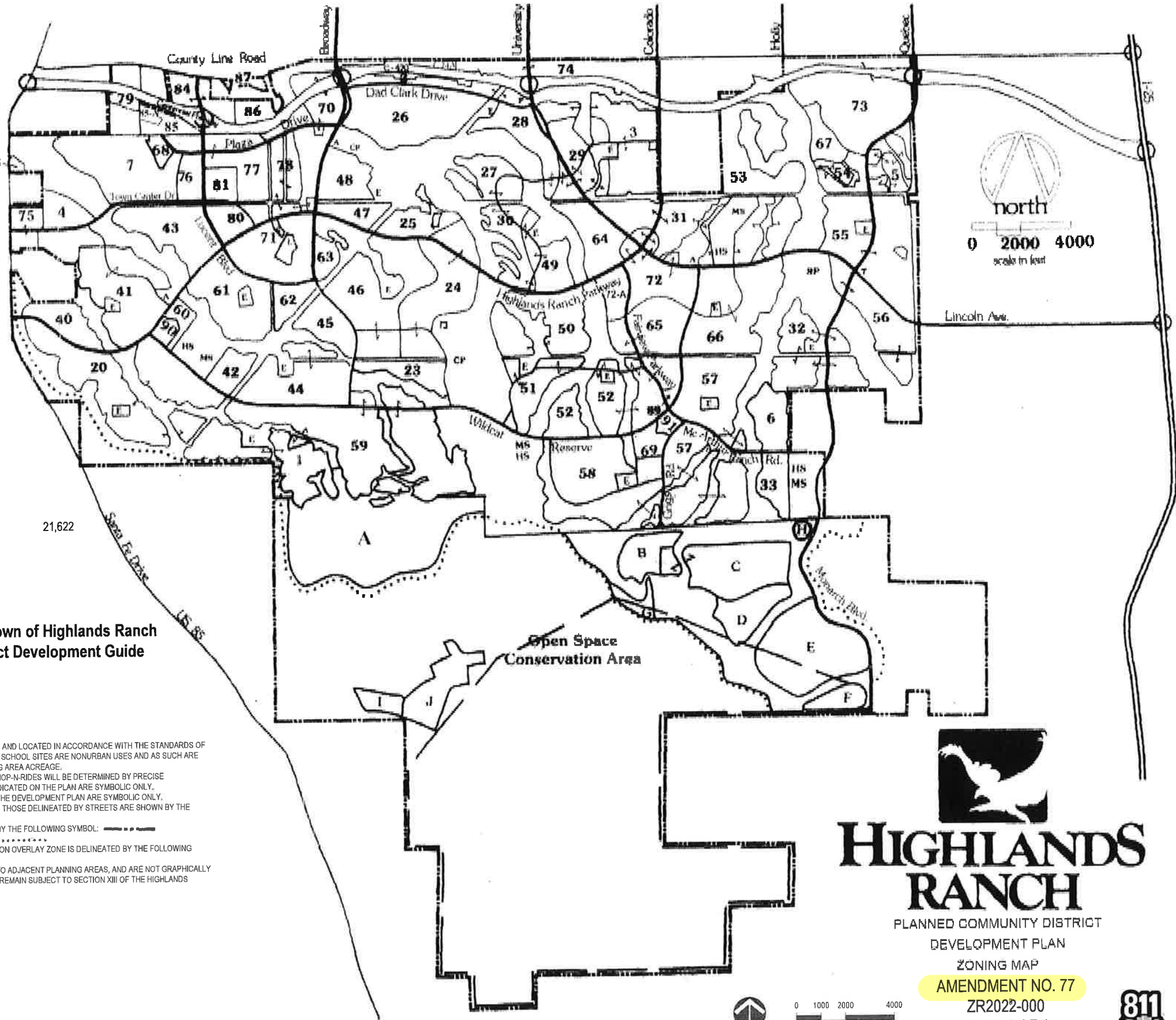
TOTAL OPEN SPACE CONSERVATION AREA 8,200  
TOTAL NONURBAN 12,890

TOTAL PLANNED COMMUNITY DISTRICT (ACRES)

Section XVIII of the New Town of Highlands Ranch  
Planned Community District Development Guide

FOOTNOTES:  
1 PLANNING AREA  
2 GROSS RESIDENTIAL ACRES  
3 GROSS NONRESIDENTIAL ACRES  
4 DWELLING UNITS/GROSS RESIDENTIAL ACRE

GENERAL NOTES:  
1: SCHOOL SITES WILL BE PRECISELY SCALED AND LOCATED IN ACCORDANCE WITH THE STANDARDS OF THE DOUGLAS COUNTY SCHOOL DISTRICT. SCHOOL SITES ARE NONURBAN USES AND AS SUCH ARE NOT A PART OF THE RESIDENTIAL PLANNING AREA ACREAGE.  
2: THE SPECIFIC LOCATIONS AND SIZES OF SHOP-N-RIDES WILL BE DETERMINED BY PRECISE ENGINEERING STUDIES. THE FACILITIES INDICATED ON THE PLAN ARE SYMBOLIC ONLY.  
3: COMMUNITY PARK SITES DESIGNATED ON THE DEVELOPMENT PLAN ARE SYMBOLIC ONLY.  
4: PLANNING AREA BOUNDARIES OTHER THAN THOSE DELINEATED BY STREETS ARE SHOWN BY THE FOLLOWING SYMBOL:  
5: HIGHLANDS RANCH BOUNDARY IS SHOWN BY THE FOLLOWING SYMBOL:  
6: OFF-STREET HIKING AND BIKING TRAIL  
7: THE CULTURAL AND HISTORICAL PROTECTION OVERLAY ZONE IS DELINEATED BY THE FOLLOWING SYMBOL:  
8: SOME NONURBAN AREAS EXIST INTERIOR TO ADJACENT PLANNING AREAS, AND ARE NOT GRAPHICALLY REPRESENTED. THESE NONURBAN AREAS REMAIN SUBJECT TO SECTION XIII OF THE HIGHLANDS RANCH DEVELOPMENT GUIDE.



**HIGHLANDS RANCH**  
PLANNED COMMUNITY DISTRICT  
DEVELOPMENT PLAN  
ZONING MAP  
AMENDMENT NO. 77  
ZR2022-000  
PAGE 1 OF 1

Highlands Ranch PD Amendment 77  
State Parcel #: 2229-081-06-030  
Douglas County, CO

OWNER:  
Douglas County School District  
620 Wilcox St  
Castle Rock, CO

DEVELOPER:  
Miller United  
8950 E. Belview Ave, Suite 300  
Greenwood Village, CO 80111

NOT FOR CONSTRUCTION

DATE:  
02/11/22 SUBMITTAL

SHEET TITLE:



## URBAN USES

RESIDENTIAL DENSITY-LOW 1,5,7,23 & 51	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
1	165	2.6		433
2	66	3.2		212
3	165	3.6		594
4	51	2.0		102
5	53	3.8		198
7	194	2.9		562
23	64	1.6		104
51	77	3.2		246
SUB TOTAL	835	2.9		2,451

MEDIUM-LOW 20,24-32,52,57 & 58	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
6	87	4.9		429
20	353	4.3		1,518
24	185	4.0		740
25	77	4.0		308
26	234	4.0		936
27	95	4.0		380
28	94	4.0		376
29	109	4.0		432
30	91	4.0		364
31	253	4.1		1,032
32	187	4.0		748
52	226	4.4		1,004
57	391	4.4		1,737
58	336	4.2		1,400
SUB TOTAL	2,717	4.2		11,404

MEDIUM 33,40-50,53-56 & 59	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
33	65	6.4		419
40	87	5.3		465
41	216	5.3		1,134
42	43	5.9		275
43	179	5.0		893
44	186	5.0		957
45	86	5.0		430
46	224	5.9		1,330
47	46	5.0		230
48	72	5.0		360
49	98	5.0		490
50	181	5.0		905
53	154	5.0		770
54	47	5.6		265
55	258	5.8		1,493
56	101	5.0		505
59	362	4.8		1,749
SUB TOTAL	2,405	5.3		12,670

HIGH 60-69	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
60	32	8.0-15.0		284
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63	35	8.0-15.0		280
64	98	8.0-15.0		863
65	151	8.0-15.0		2,187
66	229	8.0-15.0		1,832
67	44	8.0-15.0		456
68	17	8.0-15.0		255
69	36	8.0-15.0		725
84,87	-	-	-	135
85-A	-	-	-	285
SUB TOTAL	861	8.0-15.0		9,543

TOTAL RESIDENTIAL 6,818 36,068

## NONRESIDENTIAL

70, 89-91 COMMUNITY ACTIVITY CENTER	PA <sup>2</sup>	GNA <sup>3</sup>
70	85	
89	11	
90	13	
91	14	
71 CIVIC CENTER	71	151
72,73 TOWN CENTER	72	173
73	286	
74 CORRIDOR ACTIVITY CENTER	74	132
T SHOP-N-RIDE	13	
75-88 INDUSTRIAL PARK	75	45
	76	57
	77	107
	78	80
	79	12
	80	61
	81	40
	84	72
	85	69
	86	27
	87	15
	88	8
SUB TOTAL	1,471	

CIRCULATION  
2 LANE ARTERIAL HIGHWAYS  
4 LANE ARTERIAL HIGHWAYS  
6 LANE ARTERIAL HIGHWAYS  
TOTAL ARTERIALS 443

TOTAL NONRESIDENTIAL 1,914

Total Nonresidential = 1899

## NON-URBAN USES

SCHOOLS	GNA <sup>3</sup>
E ELEMENTARY SCHOOLS	462
MS MIDDLE SCHOOL	
HS HIGH SCHOOL	
L LIBRARY	3
P MASS TRANSIT PARKING SITE	7
RP REGIONAL PARK	300
A HIGHLANDS RANCH COMMUNITY ASSOCIATION FACILITY SITE	35
CP COMMUNITY PARK	160
NONURBAN	
EASEMENTS	600
FLOODPLAINS (100 YR.)	741
REMAINING AREA	2,382

OPEN SPACE CONSERVATION AREA	PA	GNA <sup>3</sup>
A	467	
B	87	
C	191	
D	87	
E	272	
F	34	
G	19	
H	10	
I	33	
SUBTOTAL	1,200	
J	125	
	6,875	
	7,000	
TOTAL OPEN SPACE CONSERVATION AREA	8,200	
TOTAL NONURBAN	12,890	

## TOTAL PLANNED COMMUNITY DISTRICT (ACRES)

21,622

-Moving 15 acres of PA-85 from non-residential to residential  
-GRA increases by 15 acres  
-Total Dwelling Units = 400  
-DU/GRA = 8-25 du/ac

## Section Plan

## Town of Highlands Ranch District Development Guide

FOOTNOTES:  
\*PLANNING AREA  
\*GROSS RESIDENTIAL ACRES  
\*GROSS NONRESIDENTIAL ACRES  
\*DWELLING UNITS/GROSS RESIDENTIAL ACRE

## GENERAL NOTES:

- SCHOOL SITES WILL BE PRECISELY SCALED AND LOCATED IN ACCORDANCE WITH THE STANDARDS OF THE DOUGLAS COUNTY SCHOOL DISTRICT. SCHOOL SITES ARE NONURBAN USES AND AS SUCH ARE NOT A PART OF THE RESIDENTIAL PLANNING AREA ACREAGE.
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- COMMUNITY PARK SITES DESIGNATED ON THE DEVELOPMENT PLAN ARE SYMBOLIC ONLY.
- PLANNING AREA BOUNDARIES OTHER THAN THOSE DELINEATED BY STREETS ARE SHOWN BY THE FOLLOWING SYMBOL: \_\_\_\_\_
- HIGHLANDS RANCH BOUNDARY IS SHOWN BY THE FOLLOWING SYMBOL: \_\_\_\_\_
- OFF-STREET HIKING AND BIKING TRAIL: \_\_\_\_\_
- THE CULTURAL AND HISTORICAL PROTECTION OVERLAY ZONE IS DELINEATED BY THE FOLLOWING SYMBOL: \_\_\_\_\_
- SOME NONURBAN AREAS EXIST INTERIOR TO ADJACENT PLANNING AREAS, AND ARE NOT GRAPHICALLY REPRESENTED. THESE NONURBAN AREAS REMAIN SUBJECT TO SECTION XIII OF THE HIGHLANDS RANCH DEVELOPMENT GUIDE.

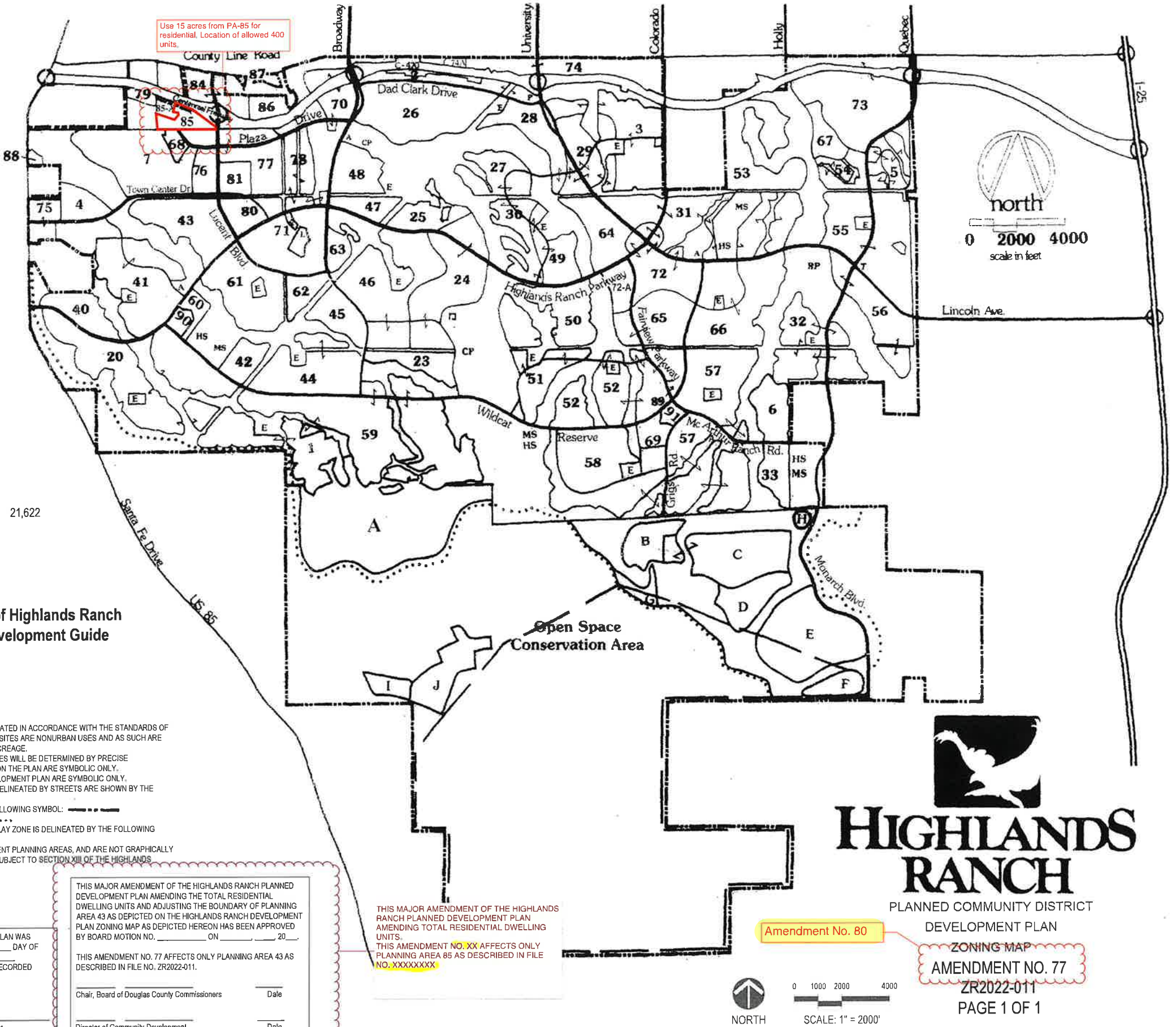
THIS MAJOR AMENDMENT OF THE HIGHLANDS RANCH PLANNED DEVELOPMENT PLAN AMENDING THE TOTAL RESIDENTIAL DWELLING UNITS AND ADJUSTING THE BOUNDARY OF PLANNING AREA 43 AS DEPICTED ON THE HIGHLANDS RANCH DEVELOPMENT PLAN ZONING MAP AS DEPICTED HEREON HAS BEEN APPROVED BY BOARD MOTION NO. \_\_\_\_\_ ON \_\_\_\_\_, 20\_\_\_\_.

THIS AMENDMENT NO. 77 AFFECTS ONLY PLANNING AREA 43 AS DESCRIBED IN FILE NO. ZR2022-011.

Chair, Board of Douglas County Commissioners Date  
Director of Community Development Date

I HEREBY CERTIFY THAT THIS PLAN WAS FILED IN MY OFFICE ON THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_, A.D. AT \_\_\_\_\_ O'CLOCK A.M./P.M., AND WAS RECORDED PER RECEPTION NO. \_\_\_\_\_  
Douglas County Clerk and Recorder

Use 15 acres from PA-85 for residential. Location of allowed 400 units.



# HIGHLANDS RANCH

PLANNED COMMUNITY DISTRICT DEVELOPMENT PLAN

Amendment No. 80

ZONING MAP AMENDMENT NO. 77

ZR2022-011

PAGE 1 OF 1



0 1000 2000 4000  
SCALE: 1" = 2000'

**From:** Commercial Review  
**Sent:** Thursday, May 15, 2025 6:57 AM  
**To:** Matt Jakubowski  
**CC:** Adam Wallace; Mallory Mooney; John Mezger  
**Subject:** Douglas County eReferral (ZR2025-001) | HRCA DRC REVIEW COMMENTS

**Importance:** High

Good morning, Matt...

Mr. Wallace and Ms. Mooney presented their PD Amendment proposal to the HRCA Development Review Committee (DRC) last night.

I'm pleased to report that the DRC formally APPROVED the application as presented. The Committee looks forward to continued coordination as the project moves through the County's design and review process.

We appreciate the opportunity to provide input on the application and remain available to support next steps as needed.

Should you have any questions or wish to discuss any of the details further, please don't hesitate to reach out to me at (303) 471-8802 / commercialreview@hrcaonline.org, or to John Mezger at (303) 471-8823 / john.mezger@hrcaonline.org.

Respectfully,

Weylan A. "Woody" Bryant, M LS, PE  
Director: Community Improvement Services

CommercialReview@hrcaonline.org  
(303) 471-8802 (direct) | (303) 471-8821 (admin)  
Eastridge Rec Center: Admin Wing  
9568 University Blvd, Highlands Ranch, CO 80126

<https://hrcaonline.org/>

NOTICE: This communication (including attachments) is covered by the Electronic Communication Privacy Act, U.S.C. Section 2510-2521, is confidential, and may contain privileged information. If you are not the intended recipient or if you believe you may have received this communication in error, please do not print, copy, retransmit, disseminate, or otherwise use this communication or any of the information contained herein. Also, please notify sender that you have received this communication in error and delete the copy you received. This email and any attachments are believed to be free of any virus or other defect that might negatively affect any computer system, it is the responsibility of the recipient to ensure that it is virus-free, and no responsibility is accepted by the sender for any damage arising in any way in the event that such a virus or defect exists. Thank you.

-----Original Message-----

From: Commercial Review  
Sent: Thursday, April 24, 2025 2:09 PM  
To: mjakubow@douglas.co.us  
Cc: Daniel Jennings <djennings@norris-design.com>; Greg Banks <gbanks@norris-design.com>; Adam Wallace <adam@pagewestco.com>; Mallory Mooney <mmooney@norris-design.com>; John Mezger <john.mezger@hrcaonline.org>  
Subject: RE: Douglas County eReferral (ZR2025-001) Is Ready For Review  
Importance: High

Good afternoon, Matt...

This PD Amendment will require review by the HRCA Development Review Committee. Their next meeting is Wednesday, May 14th - one day before this referral is closed. I've spoken with the Applicant, and they are aware of HRCA's process. I've also reviewed this proposal with our Board of Directors (BOD) and provided the Applicant with our BOD's "conceptual no exceptions taken" reading (which I believe they've provided to your team); however, our BOD has directed that our DRC is to review the project. I will coordinate directly with the Applicant to get our process started. Thanks!!



Good afternoon, Norris-Design Team and Mr. Wallace...

As we've discussed in the past, as your project progresses through the various steps, engagement with the HRCa Development Review Committee (DRC) is required. The next DRC meeting, as I noted to Matt above, is on Wednesday, May 14th. We need to move quickly to ensure we can get you on the agenda for that meeting so that your project isn't delayed. Please reach out to me at your earliest convenience so we can discuss applications, fees, and documents that will be necessary. My contact information is provided below for ease of reference. Thank you!

Feel free to call me (303.471.8802) or email me (<mailto:Woody.Bryant@hrcaonline.org>) with questions or if you wish to review the information discussed above in greater detail. Thank you.

Respectfully,

Weylan A. "Woody" Bryant, M LS, PE  
Director: Community Improvement Services

<mailto:Woody.Bryant@hrcaonline.org>

(303) 471-8802 (direct) | (303) 471-8821 (admin) Eastridge Rec Center: Admin Wing  
9568 University Blvd, Highlands Ranch, CO 80126

<https://hrcaonline.org/>

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-----Original Message-----

From: <mailto:mjakubow@douglas.co.us> <<mailto:mjakubow@douglas.co.us>>  
Sent: Thursday, April 24, 2025 8:46 AM  
To: Commercial Review <<mailto:commercialreview@hrcaonline.org>>  
Subject: Douglas County eReferral (ZR2025-001) Is Ready For Review

There is an eReferral for your review. Please use the following link to log on to your account:

<https://apps.douglas.co.us/planning/projects/Login.aspx>

Project Name: Highlands Ranch Planned Development, 80th Amendment

Project File #: ZR2025-001

Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85, additional units must be assigned to develop such uses. The applicant ultimately proposes a multifamily community on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Approval of future multifamily development on the property requires a separate Site Improvement Plan approval, which is not subject of this application.

This referral will close on Thursday, May 15, 2025.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner

Douglas County Department of Community Development Planning Services Division Address | 100 Third St., Castle Rock, CO 80104  
Phone | 303-660-7460 Email | <mailto:mjakubow@douglas.co.us>

## **DOUGLAS COUNTY PLANNING REFERRALS**

REFERRAL NUMBER: ZR2025-001

DATE RECEIVED: 5/5/25

PROJECT NAME: HR Planned Development-Lucent Station 400 Residential Units

PLANNER:

DUE DATE: 5/13/2025

Parks & Parkways Manager

Dirk Ambrose

No comment

Natural Resource Manager

Nick Adamson

No comment

Director of Operations & Maintenance

Ken Standen

No comment

Director of Parks, Recreation & Open Space

Neil Alderson

Construction and Facilities Maintenance - Manager

Tyler Ensign

Highlands Ranch Metropolitan District Highlands Ranch Water & Sanitation District  
62 Plaza Drive Highlands Ranch CO 80129

Public Works Manager of Development Engineering  
Forrest Dykstra

Director of Engineering & Public Works  
Ryan Edwards

Public Works HR Water - Project Engineer  
Austin Long

Public Works HR Water - Project Manager  
Jon Klassen

Site Civil and ARCH/MEP plans must be submitted to the District for review and approval.

Jon Klassen  
Project Manager

Finance Department

There are generally three developments fees applicable to residential development in Highlands Ranch:

- Tap Fees
- Meter Fees
- System Development Fees (SDF)

Information regarding Procedures, Definition of Service, Meter Sizing, Fees and Application for Service can be found in The Highlands Ranch Development Guidelines which can be found on our website.

Highlands Ranch Metropolitan District Highlands Ranch Water & Sanitation District  
62 Plaza Drive Highlands Ranch CO 80129

## REFERRAL RESPONSE REQUEST – MAJOR PLANNED DEVEL. AMD.

 Date sent: April 24, 2025

 Comments due by: **May 15, 2025**

Fax: 303.660.9550

**Project Name:** Highlands Ranch Planned Development, 80<sup>th</sup> Amendment

**Project File #:** ZR2025-001

**Project Summary:**

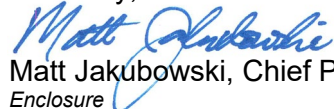
Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85, additional units must be assigned to develop such uses. The applicant ultimately proposes a multifamily community on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Approval of future multifamily development on the property requires a separate Site Improvement Plan approval, which is not subject of this application.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

<input checked="" type="checkbox"/> No Comment	
<input type="checkbox"/> Please be advised of the following concerns: <div style="border-bottom: 1px solid black; height: 15px; margin-top: 5px;"></div> <div style="border-bottom: 1px solid black; height: 15px; margin-top: 5px;"></div>	
<input type="checkbox"/> See letter attached for detail.	
<b>Agency:</b> RTD	<b>Phone #:</b> 303-299-2943
<b>Your Name:</b> C. Scott Woodruff (please print)	<b>Your Signature:</b>
	<b>Date:</b> 5-15-25

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,



Matt Jakubowski, Chief Planner

Enclosure

# RTD Engineering Review Comments

Prepared by: C. Scott Woodruff

5/15/2025

Project Name: ZR2025-001

Department	Comments
Bus Operations	No exceptions
Bus Stop Program	No exceptions
Commuter Rail	No exceptions
Construction Management	No exceptions
Engineering	No exceptions
Light Rail	No exceptions
Real Property	No exceptions
Service Development	No exceptions
Transit Oriented Development	No exceptions
Utilities	No exceptions

This review is for Design concepts and to identify any necessary improvements to RTD stops and property affected by the design. This review of the plans does not eliminate the need to acquire, and/or go through the acquisition process of any agreements, easements or permits that may be required by the RTD for any work on or around our facilities and property.

# **SOUTH METRO FIRE RESCUE**

## **FIRE MARSHAL'S OFFICE**

---



December 13, 2024

County Parcel #'s 2229-042-08-001 & 2229-042-09-002

Attn: Mallory Mooney

RE: "Will-Serve" Letter for County Parcel #'s 2229-042-08-001 & 2229-042-09-002

Mallory,

The purpose of this letter is to confirm that the subject address is within the jurisdictional boundaries of South Metro Fire Rescue, a Special District in the State of Colorado with powers and duties outlined in section 32-1-1002 of the Colorado Revised Statutes. South Metro Fire Rescue provides fire prevention, fire suppression, emergency medical, and special team response services to properties within its jurisdictional boundaries. Any questions regarding our services may be directed to our office at 720-989-2230.

Sincerely,

*Roberta Payan*

Roberta Payan  
Permit Coordinator

cc: file County Parcel #'s 2229-042-08-001 & 2229-042-09-002



# **SOUTH METRO FIRE RESCUE**

## **FIRE MARSHAL'S OFFICE**

---



Matthew Jakubowski, AICP, Chief Planner  
Douglas County Department of Community Development, Planning Services  
100 Third St  
Castle Rock Co 80104  
303.660.7460  
303.660.9550 Fax

Project Name: Highlands Ranch Planned Development, 80<sup>th</sup> Amendment.  
Project File #: **ZR2025-001**  
S Metro Review #: REFMDP25-00080

Review date: April 29, 2025

Plan reviewer: Aaron Miller  
720.989.2246  
[aaron.miller@southmetro.org](mailto:aaron.miller@southmetro.org)

**Project Summary:** Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85, additional units must be assigned to develop such uses. The applicant ultimately proposes a multifamily community on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Approval of future multifamily development on the property requires a separate Site Improvement Plan approval, which is not subject of this application.

Code Reference: Douglas County Fire Code, 2018 International Fire Code, and 2021 International Building Code with amendments as adopted by Douglas County.

South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed PD amendment. Applicants and designers are encouraged to contact SMFR to ensure the Site Improvement Plans will meet the applicable fire code requirements for the proposed project prior to submitting the SIP.



**Right of Way & Permits**

1123 West 3<sup>rd</sup> Avenue  
Denver, Colorado 80223  
Telephone: 303.285.6612  
violeta.ciocanu@xcelenergy.com

May 13, 2025

Douglas County Planning Services  
100 Third Street  
Castle Rock, CO 80104

Attn: Matt Jakubowski

**Re: Highlands Ranch Planned Development, 80th Amendment, Case # ZR2025-001**

Public Service Company of Colorado's (PSCo) Right of Way and Permits Referral Desk has reviewed the plan for **Highlands Ranch Planned Development, 80th Amendment** and currently has **no apparent conflict**.

In the future and to ensure that adequate utility easements are available within this development and per state statutes §31-23-214 (3) and 30-28-133(e), PSCo requests that the following language or plat note be placed on the preliminary and final plats for the subdivision:

*Minimum 10-foot-wide dry utility easements are hereby dedicated on private property abutting all public streets, and around the perimeter of each lot in the subdivision or platted area including tracts, parcels and/or open space areas. These easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.*

The property owner/developer/contractor must complete the application process for any new natural gas or electric service, or modification to existing facilities via [xcelenergy.com/InstallAndConnect](https://xcelenergy.com/InstallAndConnect). It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details.

Additional easements may need to be acquired by separate document. The Designer must contact the appropriate Right-of-Way Agent.

As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.

Violeta Ciocanu (Chokanu)  
Right of Way and Permits  
Public Service Company of Colorado dba Xcel Energy  
Office: 303-285-6612 – Email: [violeta.ciocanu@xcelenergy.com](mailto:violeta.ciocanu@xcelenergy.com)



## MEETING NOTES

<b>PROJECT:</b>	HR PD Amendment #80	<b>DATE:</b>	4/16/25
<b>SUBJECT:</b>	Neighborhood Meeting	<b>TIME:</b>	6:00 PM
<b>MINUTES BY:</b>	Mallory Mooney	<b>LOCATION:</b>	Zoom

COMPANY	ATTENDEES	EMAIL
<i>Development Team:</i>		
Pagewest	Adam Wallace	x@x.com
Norris Design	Daniel Jennings	
Norris Design	Mallory Mooney	
Kimley-Horn	Jeff Planck	
Kimley-Horn	Eric McDaniel	
<i>Neighbors:</i>		

### Summary:

The development team hosted a virtual neighborhood meeting on Wednesday, April 16, 2025 at 6:00 PM. Notices were sent to adjacent property owners and stakeholders on Thursday, April 3, 2025. However, as of 6:15 PM, no one other than the development team was in attendance. As a result, the team ended the meeting early.

### Questions/Comments:

None.



June 11, 2025

Matt Jakubowski  
Department of Community Development  
100 Third Street  
Castle Rock, CO 80104

**Re: Highlands Ranch Planned Development, 80th Amendment (ZR2025-001) – Response to 2nd Review Letter**

Dear Mr. Jakubowski,

Thank you for your comments for the initial review of a PD Major Amendment to the Highlands Ranch Planned Development to develop the property known as Lucent Station.

We are pleased to make our submittal for a Planned Development, addressing the comments provided by the County on May 9, 2025. We have provided below a response to all written County comments.

Sincerely,  
Norris Design

*Mallory Mooney*

Mallory Mooney  
Project Manager



**DOUGLAS COUNTY STAFF COMMENTS:**

**PLANNING**

1. No additional PD exhibit corrections are required at this time. You may prepare a “clean” version of the PD exhibit based on the attached PD redline. This is the same exhibit that went on the referral period and is only provided for your reference. I am available to discuss preparation of the clean exhibit at any time.

**Response: Comment noted; a clean exhibit is included with this resubmittal.**

2. Douglas County Parks, Trails and Buildings Grounds responded to the referral and indicated that the applicant is responsible for meeting park land dedication requirements outlined in Article 10, Section 1003 of the Douglas County Subdivision Resolution (DCSR). Final determination of land dedication acreage or cash-in-lieu of land dedication fees would occur as part of a future Site Improvement Plan (SIP) or platting process (if necessary) following a property appraisal.

- a. No comments regarding parks, recreation, or open space were provided by the Highlands Ranch Community Association (HRCA) or the Highlands Ranch Metro District.

**Response: Comment noted; final determination of land dedication acreage or cash-in-lieu of land dedication fees will occur as part of a future Site Improvement Plan (SIP) or platting process (if necessary) following a property appraisal.**

3. The Douglas County School District (DCSD) indicated an estimated impact of 20 elementary students, 3 middle school students, and 7 high school students from the development. This generates a land dedication requirement of 0.660 acres. DCSD requests cash-in-lieu of land dedication to be calculated per DCSR Section 1004.05.03. Final calculation of cash-in-lieu fees would be determined during a future SIP or plat process (if needed) following a property appraisal.

**Response: Comment noted; final calculation of cash-in-lieu fees will be determined during a future SIP or plat process (if needed) following a property appraisal.**

4. Douglas County Engineering Services provided comments on the applicant's traffic study that will need to be addressed. The applicant may wish to contact Al Peterson at 303-660-7490 or apeterso@douglas.co.us to discuss the comments.

**Response: A revised Traffic Study is included with this submittal which addresses the comments provided.**

5. In your response letter to referral comments, please also respond or acknowledge the outstanding referral comments not summarized above from CDOT, the Colorado Division of Water Resources, Douglas County Health Department, Highlands Ranch Metro District / Highlands Ranch Water, and Xcel Energy.

**Response: Comment noted; applicant is working with CDOT, Xcel Energy and Highlands Ranch Metro District/Water on the project and will continue to do so with future steps in the project's life cycle.**

6. Douglas County encourages community outreach with abutting property owners, nearby neighbors, and homeowners' associations, as these groups may have interest in the proposed PD amendment. If any correspondence is generated from future outreach beyond that which has already been provided from HRCA, please provide such documentation to staff.

**Response: A virtual neighborhood meeting was held on April 16, 2025. Other than the**





**development team, no interested stakeholders attended the meeting. A summary of this meeting was included with the 2<sup>nd</sup> Submittal on April 29, 2025.**

7. Next Steps: Please respond to the referral comments and prepare a clean PD exhibit. Douglas County Planning Services reserves the right to provide further comments based upon your resubmittal and referral comment response. It is typical to wait on discussion of potential public hearing dates until a resubmittal has been received, particularly since the traffic study will need to be accepted by Engineering prior to public hearings.

**Response: Comments noted and responses are included with this resubmittal, along with a clean PD exhibit.**

PARKS & PARKWAYS MANAGER (HIGHLANDS RANCH METRO DISTRICT)

1. No comment

**Response: Thank you for your review.**

NATURAL RESOURCE MANAGER (HIGHLANDS RANCH METRO DISTRICT)

1. No comment

**Response: Thank you for your review.**

DIRECTOR OF OPERATIONS & MAINTENANCE (HIGHLANDS RANCH METRO DISTRICT)

1. No comment

**Response: Thank you for your review.**

DIRECTOR OF PARKS, RECREATION & OPEN SPACE (HIGHLANDS RANCH METRO DISTRICT)

1. No response received

**Response: Thank you for your review.**

CONSTRUCTION AND FACILITIES MAINTENANCE – MANAGER (HIGHLANDS RANCH METRO DISTRICT)

1. No response received

**Response: Thank you for your review.**

PUBLIC WORKS MANAGER OF DEVELOPMENT ENGINEERING (HIGHLANDS RANCH METRO DISTRICT)

1. No response received

**Response: Thank you for your review.**

DIRECTOR OF ENGINEERING & PUBLIC WORKS (HIGHLANDS RANCH METRO DISTRICT)

1. No response received

**Response: Thank you for your review.**

PUBLIC WORKS HR WATER – PROJECT ENGINEER (HIGHLANDS RANCH METRO DISTRICT)

1. No response received

**Response: Thank you for your review.**

PUBLIC WORKS HR WATER – PROJECT ENGINEER MANAGER (HIGHLANDS RANCH METRO DISTRICT)

1. Site Civil and ARCH/MEP plans must be submitted to the District for review and approval.

**Response: When site plans are available, they will be submitted for review.**

FINANCE DEPARTMENT (HIGHLANDS RANCH METRO DISTRICT)



1. There are generally three developments fees applicable to residential development in Highlands Ranch: Tap Fees, Meter Fees, System Development Fees (SDF). Information regarding Procedures, Definition of Service, Meter Sizing, Fees and Application for Service can be found in The Highlands Ranch Development Guidelines which can be found on our website

**Response: Comment noted; fees will be paid at the appropriate times.**

**REFERRAL COMMENTS:**

**ADDRESSING ANALYST**

1. No comment

**Response: Thank you for your review.**

**ARAPAHOE COUNTY ENGINEERING**

1. Engineering Services Division of Arapahoe County Public Works and Development (Staff) thanks you for the opportunity to review the outside referral for the proposed project. Staff has no comments regarding the referral at this time based on the information submitted.

**Response: Thank you for your review.**

**ARAPAHOE COUNTY PLANNING**

1. Thank you for the opportunity to review and comment on this project. The Arapahoe County Planning Division has no comments; however, other departments and/or divisions may submit comments.

**Response: Thank you for your review.**

**AT&T**

1. This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near Plaza Dr Circle Highlands Ranch, Colorado. The Earth map shows the project area in red. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Lines, as we do not have facilities in that area.

**Response: Comment noted; thank you for your review.**

**BACKCOUNTRY ASSOCIATION, INC**

1. No response received

**Response: Thank you for your review.**

**BUILDING SERVICES**

1. No comment

**Response: Thank you for your review.**

**CENTURYLINK**

1. No response received

**Response: Thank you for your review.**

**CITY OF CENTENNIAL**

1. No comment

**Response: Thank you for your review.**

**CDOT**

1. Due to the proximity of these developments to C470 we would like to review the drainage report when available in order to ensure there will be no negative impact.



**Response: The drainage report will be provided for review as part of the Site Improvement Plan process.**

2. Any signing for this development that advertises to C470 must comply with CDOT rules pertaining to outdoor advertising per 2 CCR 601-3.

**Response: Comment noted.**

#### COLORADO DIVISION OF WATER RESOURCES

1. Water Supply Demand: According to a letter from the Highlands Ranch Water and Sanitation District ("District") dated April 22, 2025, this amendment will include approximately 234 Single Family Equivalent (SFE) taps. Based on District's water demand requirements, the total demand for this project will be 117 acre-feet per year.

**Response: Thank you for your review.**

2. Source of Water Supply: The proposed water source is the District. A letter of commitment for service from the District was provided in the referral material. According to the Statement of Water Availability dated April 22, 2025 the District currently has 34,137 acre-feet of secure water supplies (approximately 16,420 acre-feet of surface water and 17,717 acre-feet of decreed Denver Basin groundwater). The District also has use of 3,885 acre-feet of storage in McLellan Reservoir, 6,400 acre-feet of storage in the South Platte Reservoir, 205 acre-feet of storage in James Tingle Reservoir, and 6,922 acre-feet storage in the Chatfield Reservoir Reallocation Project. In addition, the District operates an aquifer recharge program that contains approximately 15,300 acre-feet of stored water that is available when needed. According to the District, the projected demand to serve all existing and future customers in its service area is in the range of 19,600 to 22,600 acre-feet per year. The annual demand for the last few years has averaged around 17,000 acre-feet with the service area approximately 95% developed.

The proposed source of water for this subdivision includes bedrock aquifer ground water in the Denver Basin. The State Engineer's Office does not have evidence regarding the length of time for which this source will be a physically and economically viable source of water. According to section 37-90-137(4)(b)(I), C.R.S., "Permits issued pursuant to this subsection (4) shall allow withdrawals on the basis of an aquifer life of one hundred years." Based on this allocation approach, the annual amounts of water decreed by Centennial in the Denver Basin are equal to one percent of the total amount, as determined by rules 8.A and 8.B of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7. Therefore, the water may be withdrawn in those annual amounts for a maximum of 100 years.

**Response: Thank you for your review.**

3. State Engineer's Office Opinion: Based upon the above and pursuant to sections 30-28-136(1)(h)(II) and 30-28-136(1)(h)(II), C.R.S., the State Engineer's office offers the opinion that, with District as the water supplier for the proposed development, the proposed water supply is **adequate and can be provided without causing material injury to existing water rights, so long as Highlands Ranch Water and Sanitation District is committed to supplying all 400 residential units.**

Our opinion that the water supply is **adequate** is based on our determination that the amount of water required annually to serve the subdivision is physically available, based on current conditions.



Our opinion that the water supply can be **provided without causing injury** is based on our determination that the amount of water that is legally available to the District on an annual basis, according to the statutory allocation approach, for the proposed uses is greater than the annual amount of water required to supply the District's water commitments at build-out and the demands of the proposed subdivision.

Our opinion is qualified by the following:

For the decreed Denver Basin water, the Division 1 Water Court has retained jurisdiction over the final amount of water available pursuant to the decrees referenced in District's court cases, pending actual geophysical data from the aquifer.

**The amounts of water in the Denver Basin aquifers, and identified in this letter, are calculated based on estimated current aquifer conditions. The source of water is from a non-renewable aquifer, the allocations of which are based on a 100 year aquifer life. The county should be aware that the economic life of a water supply based on wells in a given Denver Basin aquifer may be less than the 100 years used for allocation due to anticipated water level declines. We recommend that the county determine whether it is appropriate to require development of renewable water resources for this subdivision to provide for a long-term water supply.**

**Response: Thank you for your review.**

4. Additional Comments: The applicant should be aware that any storm water detention structure for this project must meet the requirements of a "storm water detention and infiltration facility" as defined in section 37-92-602(8), C.R.S., otherwise the structure may be subject to administration by this office. The applicant should review DWR's *Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado*, attached, to ensure that the notification, construction and operation of the proposed structure meets statutory and administrative requirements. The applicant is encouraged to use *Colorado Stormwater Detention and Infiltration Facility Notification Portal*, located at to meet the notification requirements, located at:  
<https://maperture.digitaldataservices.com/gvh/?viewer=cswdif>.

**Response: Noted. A drainage report will be prepared as part of the Site Improvement Plan process.**

#### COMCAST

1. No response received

**Response: Thank you for your review.**

#### DOUGLAS COUNTY HEALTH DEPARTMENT

1. Douglas County Health Department (DCHD) staff have reviewed the application for compliance with pertinent environmental and public health regulations. After reviewing the application, DCHD has the following comment(s).
  - a. Fugitive Dust – Recommendations for temporary uses: Exposure to air pollution is associated with a number of health problems including asthma, lung cancer, and heart disease. Development of the land may contribute to increased fugitive dust emissions. We recommend that the applicant utilize all available methods to minimize fugitive dust. Control measures or procedures that may be employed include, but are not limited to, watering, chemical stabilization, carpeting roads with aggregate, and speed restrictions.



**Response: Comment noted; thank you for your review.**

DOUGLAS COUNTY HOUSING PARTNERSHIP

1. No response received

**Response: Thank you for your review.**

DOUGLAS COUNTY PARKS AND TRAILS

1. Applicant would be responsible for meeting park land dedication as outlined in Article 10 of the Douglas County Subdivision Resolution:

103 Parks: Whenever land is proposed for residential or non-residential use, the owner of the land is to provide land or cash-in-lieu of land for active and specialized recreation generated by the proposed use. In general, these lands need to be suitable for the development of active play areas, trails, or in some instances serve to preserve unique landforms or natural areas. Where no suitable land is available in a residential or non-residential development, cash-in-lieu of land or of equivalent value in the donation of recreational facilities may be substituted at the County's discretion. Additional dedication for open land may be required by the Board if deemed necessary to preserve areas of special countywide significance (refer to Sections 1003.11.5 and 1003.12.5 of these regulations).

1003.01 The following formula is used to calculate the minimum amount of land dedication required in residential developments which is deemed necessary to provide the needed parks. This formula is based on 15 acres/1000 population.  
Local Park = Dwelling units x 0.015 acres/unit  
Regional Park = Dwelling units x 0.030 acres/unit  
Total = Dwelling units x 0.045 acres/unit

The Board reserves the right to adjust the acreage requirement between local and regional park categories as deemed necessary to meet specific needs and to determine the amount of developed park acreage required. The Board may also consider alternative park land dedication formulas for multi-family development proposals.

**Response: Comment noted. Park dedication or fee-in-lieu will be calculated and provided at the time of Site Plan.**

DOUGLAS COUNTY SCHOOL DISTRICT

1. It is our understanding that the applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 400 residential units to PA 85. It is also our understanding that the amendment, if approved, would increase the total allowed dwelling units in the PD from 36,068 to 36,468. The property is located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive.

DCSD has calculated the amount of school site land requirement for students generated by the proposed planned development. A total of 20 elementary school students, 3 middle school students, and 7 high school students are expected from the development (as proposed) generating a land dedication requirement of 0.660-acres.

Since this is smaller than DCSD's minimum school site size, DCSD would request cash-in-lieu of land dedication.



**CASH-IN-LIEU CALCULATION  
STUDENT GENERATION**

PROJECT NAME: HIGHLANDS RANCH PLANNED DEVELOPMENT, 80TH AMENDMENT (ZR2025-001)					
<b>DU/</b>	<b>ACRES</b>		<b>DENSITY</b>		
<b>400</b>	<b>14.81</b>		<b>27.01</b>		
			<b>Generation</b>	<b>Number</b>	
<b><u>STUDENT GENERATION RATES</u></b>	<b><u>No. of DU's</u></b>		<b><u>Rate</u></b>	<b><u>of Students</u></b>	
<b>ELEMENTARY</b>	<b>400</b>	<b>X</b>	<b>0.05</b>	<b>20</b>	
<b>MIDDLE SCHOOL</b>	<b>400</b>	<b>X</b>	<b>0.008</b>	<b>3</b>	
<b>HIGH SCHOOL</b>	<b>400</b>	<b>X</b>	<b>0.017</b>	<b>7</b>	
			<b>TOTAL</b>	<b>30</b>	
				<b>Required</b>	
			<b>School</b>	<b>Land</b>	
	<b>Number</b>		<b>Acreage</b>	<b>Dedication</b>	
<b><u>SCHOOL LAND DEDICATION</u></b>	<b><u>of Students</u></b>		<b><u>Per Student</u></b>	<b><u>Acreage</u></b>	
<b>ELEMENTARY</b>	<b>20</b>	<b>X</b>	<b>0.018</b>	<b>0.360</b>	
<b>MIDDLE SCHOOL</b>	<b>3</b>	<b>X</b>	<b>0.030</b>	<b>0.096</b>	
<b>HIGH SCHOOL</b>	<b>7</b>	<b>X</b>	<b>0.030</b>	<b>0.204</b>	
			<b>TOTAL</b>	<b>0.660</b>	

As per Article 1004.05.3 of the Douglas County Subdivision Regulations, "The cash-in-lieu fee shall be equivalent to the full market value of the acreage required for school land dedication. Value shall be based on anticipated market value after completion of platting. The applicant shall submit a proposal for the cash-in-lieu fee and supply the information necessary for the Board to evaluate the adequacy of the proposal. This information shall include at least one appraisal of the property by a qualified appraiser." And as per Article 1004.06, "The conveyance of land or payment of fees obtained through the County's dedication requirement shall be required prior to the recordation of the first final plat for the subdivision. The conveyance of dedicated school land to Douglas County shall be by warranty deed and the title shall be free and clear of all liens and encumbrances, including real property taxes prorated to the time of conveyance. The applicant shall provide a title insurance policy in the County's name and a certified survey at the time of conveyance."

**Response: Comment noted; fee-in-lieu will be paid at the time of final plat recordation. Value will be determined with the school district at the time of Site Plan and Subdivision.**

**DOUGLAS COUNTY WATER COMMISSION**

1. No comment

**Response: Thank you for your review.**

**DOUGLAS COUNTY ENGINEERING SERVICES(Chris Martin / Al Peterson)**

1. Section 3.4 Unspecified Development Traffic Growth
  - a. In addition to establishing an annual growth rate, this section needs to include narrative related to the remaining undeveloped adjacent land that will assumably also take access to Plaza Cir in the future. Items to be discussed would include but not be limited to the type and intensity of the potential development of this land.

**Response: Understood. However, it is believed that a site-specific traffic study will**





be completed with the future anticipated RTD station. The current traffic study for Lucent Station is not intended to include all potential future developments, as that would be the requirement of those future traffic studies to determine those project's impacts.

- b. Its not clear if this property (currently owned by RTD) and its potential traffic impacts have been accounted for in this study

**Response: Understood. However, it is believed that a site-specific traffic study will be completed with the future anticipated RTD station. The current traffic study for Lucent Station is not intended to include all potential future developments, as that would be the requirement of those future traffic studies to determine those project's impacts.**

2. Section 5.2 Key Intersection Operational Analysis

- a. Plaza Cir & Plaza Drive: the delay shown for the southbound approach at this intersection in the 2045 horizon (>300 sec/veh) warrants discussion. Mitigation of this level of delay should be identified in this study. If there is not potential mitigation, then that should be stated in the study.

**Response: The Plaza Circle and Plaza Drive intersection now includes a recommendation to restrict southbound left turn lanes during the school arrival and dismissal times, same as the Ben Franklin Academy south leg today. Therefore, the southbound left turn volumes have been rerouted to the Plaza Circle and Greensborough Drive intersection during the morning and afternoon school peak hours. The Ben Franklin Academy increases the through traffic along Plaza Drive, especially during the coinciding morning peak hour for student drop-off and affects the peak hour factor at the Plaza Circle and Plaza Drive intersection in the traffic study. Of note, regardless of the project, the southbound left turn movement will experience high delays during the 30 minutes of school arrival and dismissal traffic.**

- b. Project Accesses: Accesses to the western lot are located on curves and roadway ROW is limited. It should be noted that sight-light easement outside of ROW as appropriate will be needed to provide control of the sight distance.

**Response: The Plaza Circle and Plaza Drive intersection now includes a recommendation to restrict southbound left turn lanes during the school arrival and dismissal times, same as the Ben Franklin Academy south leg today. Therefore, the southbound left turn volumes have been rerouted to the Plaza Circle and Greensborough Drive intersection during the morning and afternoon school peak hours. The Ben Franklin Academy increases the through traffic along Plaza Drive, especially during the coinciding morning peak hour for student drop-off and affects the peak hour factor at the Plaza Circle and Plaza Drive intersection in the traffic study. Of note, regardless of the project, the southbound left turn movement will experience high delays during the 30 minutes of school arrival and dismissal traffic.**

3. Section 5.3 Vehicle Queuing Analysis

- a. This section identifies an operational issue that has no mitigation other than limiting the level of development for this project. There is no way to provide the needed southbound left turn lane storage at the Plaza Cir & Plaza Dr intersection due to spacing to the Percy Ln intersection.

**Response: KimleyHorn are now recommending to restrict the southbound left turn**



at the Plaza Drive and Plaza Circle intersection during the school peak hours to mitigate the southbound left turn queue coinciding with the arrival and dismissal hours for the Ben Franklin Academy. Instead, this traffic will use the signalized intersection at the Plaza Drive and Greensborough Drive intersection for left turns to eastbound Plaza Drive. Therefore, by restricting the southbound left turn movement at Plaza Drive and Plaza Circle, the reported queue length during the peak hours will not exist, at zero feet.

- b. This issue will be magnified with development of the RTD site. Queues could potentially prevent vehicles from getting onto Plaza Cir from Percy Ln.  
**Response: Plaza Drive and Plaza Circle intersection during the school peak hours to mitigate the southbound left turn queue coinciding with the arrival and dismissal hours for the Ben Franklin Academy. Instead, this traffic will use the signalized intersection at the Plaza Drive and Greensborough Drive intersection for left turns to eastbound Plaza Drive. Therefore, by restricting the southbound left turn movement at Plaza Drive and Plaza Circle, the reported queue length during the peak hours will not exist, at zero feet.**

#### HIGH LINE CANAL CONSERVANCY

1. No response received  
**Response: Thank you for your review.**

#### HIGHLANDS RANCH COMMUNITY ASSOCIATION

1. I'm pleased to report that the DRC formally APPROVED the application as presented. The Committee looks forward to continued coordination as the project moves through the County's design and review process. We appreciate the opportunity to provide input on the application and remain available to support next steps as needed. Should you have any questions or wish to discuss any of the details further, please don't hesitate to reach out to me at (303) 471-8802 / [commercialreview@hrcaonline.org](mailto:commercialreview@hrcaonline.org), or to John Mezger at (303) 471-8823 / [john.mezger@hrcaonline.org](mailto:john.mezger@hrcaonline.org).  
**Response: Thank you for your review.**

#### HIGHLANDS RANCH GOLF CLUB HOA

1. No response received  
**Response: Thank you for your review.**

#### HIGHLANDS RANCH WATER AND SANITATION DISTRICT

1. Received: See Highlands Ranch Metro District comments  
**Response: Thank you for your review.**

#### JEFFERSON COUNTY PLANNING AND ZONING

1. No response received  
**Response: Thank you for your review.**

#### LITTLETON

1. No response received  
**Response: Thank you for your review.**

#### MILE HIGH FLOOD DISTRICT

1. No response received  
**Response: Thank you for your review.**



OFFICE OF EMERGENCY MANAGEMENT

1. No comment

**Response: Thank you for your review.**

RTD – PLANNING & DEVELOPMENT DEPT

1. No comment

**Response: Thank you for your review.**

SHERIFF'S OFFICE

1. Received: Deputy Jeff Pelle reviewed this regarding security, keeping Crime Prevention Through Environmental Design (CEPTD) concepts in mind. There are no comments or concerns at this time regarding this DCSO request.

**Response: Thank you for your review.**

SHERIFF'S OFFICE E911

2. No response received

**Response: Thank you for your review.**

SOUTH METRO FIRE RESCUE

1. South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed PD amendment. Applicants and designers are encouraged to contact SMFR to ensure the Site Improvement Plans will meet the applicable fire code requirements for the proposed project prior to submitting the SIP.

**Response: Comment noted; thank you for your review. Future site plans will undergo review with South Metro Fire Rescue.**

RTD

1. No comment

**Response: Thank you for your review.**

XCEL ENERGY

1. Public Service Company of Colorado's (PSCo) Right of Way and Permits Referral Desk has reviewed the plan for Highlands Ranch Planned Development, 80th Amendment and currently has no apparent conflict.

**Response: Thank you for your review.**

2. In the future and to ensure that adequate utility easements are available within this development and per state statutes §31-23-214 (3) and 30-28-133(e), PSCo requests that the following language or plat note be placed on the preliminary and final plats for the subdivision:

*Minimum 10-foot-wide dry utility easements are hereby dedicated on private property abutting all public streets, and around the perimeter of each lot in the subdivision or platted area including tracts, parcels and/or open space areas. These easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted*



*within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.*

**Response: Notes will be added to future subdivisions.**

3. The property owner/developer/contractor must complete the application process for any new natural gas or electric service, or modification to existing facilities via [xcelenergy.com/InstallAndConnect](http://xcelenergy.com/InstallAndConnect). It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details.

**Response: Thank you for your review.**

4. Additional easements may need to be acquired by separate document. The Designer must contact the appropriate Right-of-Way Agent.

**Response: Comment noted.**

5. As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.

**Response: Comment noted.**

*End of comment response letter.*

# TRAFFIC IMPACT STUDY

## Lucent Station Douglas County, Colorado

Prepared for:

**Pagewest Acquisitions, LLC**



# T R A F F I C I M P A C T S T U D Y

## **Lucent Station**

Douglas County, Colorado

**Prepared for**  
**Pagewest Acquisitions, LLC**  
2106 W 32<sup>nd</sup> Avenue  
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## 1.0 EXECUTIVE SUMMARY

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Lucent Station is proposed to be located along the north side of Plaza Drive, between Plaza Circle and Kendrick Castillo Way, in Highlands Ranch within unincorporated Douglas County, Colorado. The project is proposed to include 400 multifamily homes. It is expected that the project will be completed in the next several years. Therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with Douglas County standards and requirements:

- Erickson Boulevard/Mill Vista Road and Plaza Drive
- Plaza Circle and Plaza Drive
- Plaza Circle and Percy Lane
- Plaza Circle/Greensborough Drive and Plaza Drive
- Kendrick Castillo Way and Plaza Drive
- Kendrick Castillo Way and C-470 Eastbound Ramps
- Kendrick Castillo Way and C-470 Westbound Ramps

In addition, the three (3) full movement and one (1) right-in/right/out (RI/RO) accesses along Plaza Circle were evaluated. Each development area is proposing two accesses, with one of the access points for the west and east aligning with each other. Therefore, this results in three access intersections evaluated.

Regional access to the project will be provided by C-470 and Santa Fe Drive (US-85). Primary access will be provided by Plaza Drive, Erickson Boulevard, and Kendrick Castillo Way. Direct access to the west lot will be provided by two (2) full movement accesses, one that aligns with Percy Drive at Plaza Circle and one proposed access that aligns with the proposed access to the east lot. In addition, one (1) right-in/right-out access is proposed near the southern edge of the east lot. The southern right-in/right-out access is proposed approximately 240 feet south of the proposed full movement access location for the west lot.

The project is expected to generate approximately 2,696 weekday daily trips, with 160 of these trips occurring during the morning peak hour and 204 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes Lucent Station will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following recommendations:

- It is recommended that the intersection of Plaza Circle/Greensborough Drive and Plaza Drive (#4) be signalized. This signalized intersection will likely also improve existing long southbound left turn delays at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2). Additionally, the southbound left movement at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2) is recommended to be restricted during the arrival and dismissal times at the Ben Franklin Academy. This restriction would match the current restriction on the northbound approach, exiting the academy with a sign restricting the left turn movement onto Plaza Circle between 7:45-8:15 AM and 3:30-4:00 PM.
- It is recommended that the existing 250-foot southbound dual left turn lanes at the Kendrick Castillo Way and Plaza Drive (#5) intersection be extended to 300 feet in the short-term horizon and may need to be extended to 425 feet in 2045. Of note, extension of these dual left turn lanes is independent and not caused by Lucent Station.
- With completion of the Lucent Station project, a full movement access that aligns with the Percy Lane full movement access at Plaza Circle, two (2) full movement accesses in alignment with each other, and a right-in/right-out access will be provided along Plaza Circle. Left turn lanes are recommended to be designated within the double-yellow full lane width median for the Plaza Circle full movement accesses. These left turn lanes are recommended to be striped with lengths of 50 feet as is available. “STOP” (R1-1) signs are recommended to be installed on the approaches of all four (4) accesses, exiting the development. In addition, a R3-2 No Left Turn sign should be placed underneath the R1-1 “STOP” sign for the Plaza Circle right-in/right-out access.

- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the Douglas County and the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

## 2.0 INTRODUCTION

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Kimley-Horn has prepared this report to document the results of a Traffic Impact Study for Lucent Station proposed to be located on the north side of Plaza Drive, between Plaza Circle and Kendrick Castillo Way, within unincorporated Douglas County. A vicinity map illustrating the project development location is shown in **Figure 1**. The project is proposed to include multifamily housing with 400 units. A conceptual site plan is attached in **Appendix A**. It is expected that the project will be completed in the next several years; therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with Douglas County, Colorado standards and requirements:

- Erickson Boulevard/Mill Vista Road and Plaza Drive
- Plaza Circle and Plaza Drive
- Plaza Circle and Percy Lane
- Plaza Circle/Greensborough Drive and Plaza Drive
- Kendrick Castillo Way and Plaza Drive
- Kendrick Castillo Way and C-470 Eastbound Ramps
- Kendrick Castillo Way and C-470 Westbound Ramps

In addition, the three (3) full movement and one (1) right-in/right/out (RI/RO) accesses along Plaza Circle were evaluated. Each development area is proposing two accesses, with one of the access points for the west and east aligning with each other. Therefore, this results in three access intersections evaluated.



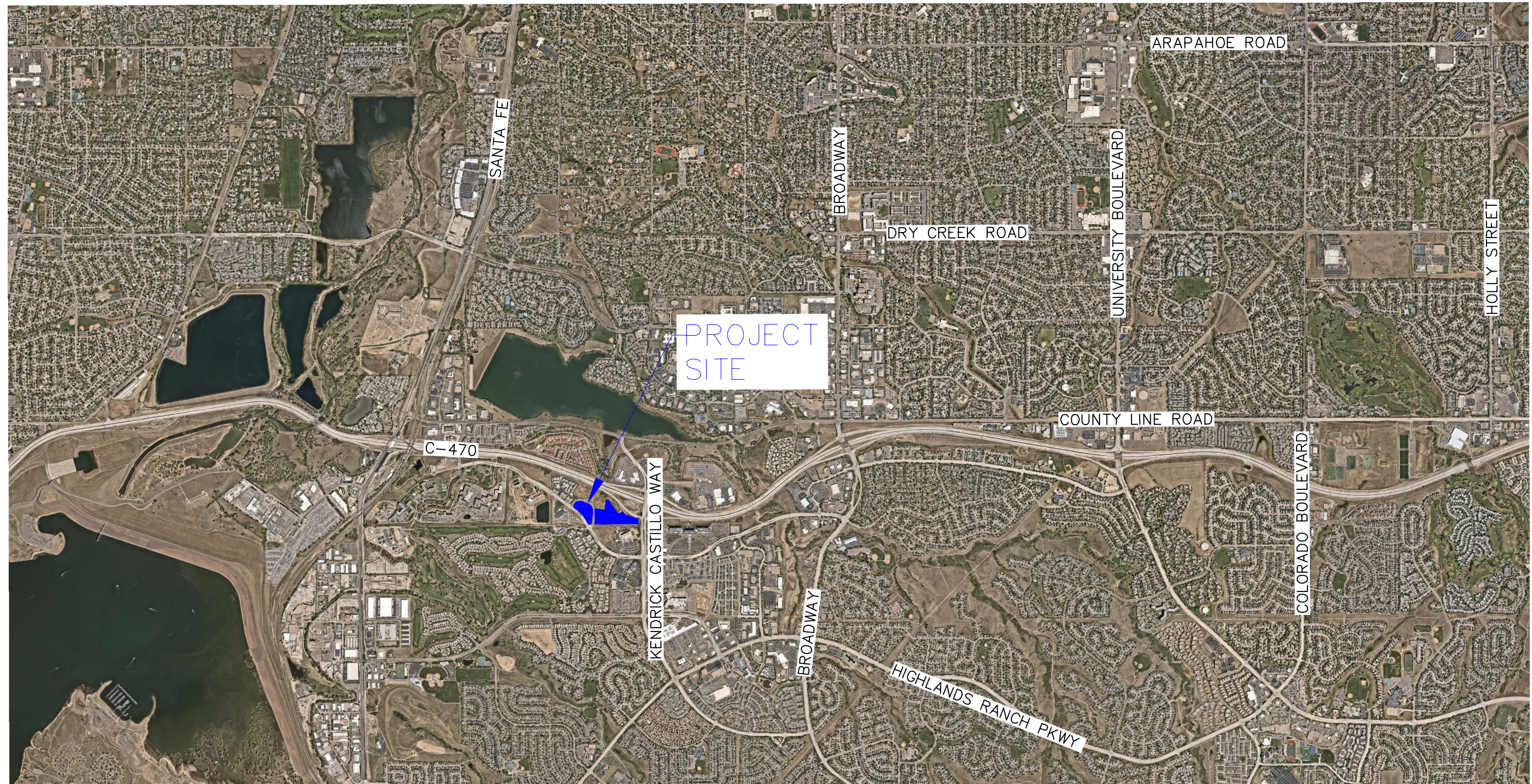
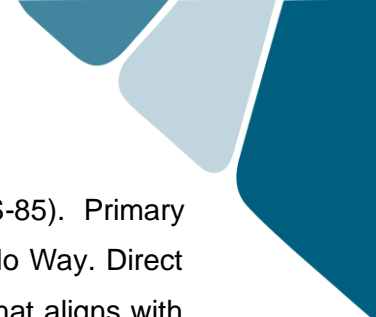


FIGURE 1  
LUCENT STATION  
HIGHLANDS RANCH, COLORADO  
VICINITY MAP





Regional access to the project will be provided by C-470 and Santa Fe Drive (US-85). Primary access will be provided by Plaza Drive, Erickson Boulevard, and Kendrick Castillo Way. Direct access to the west lot will be provided by two (2) full movement accesses, one that aligns with Percy Drive at Plaza Circle and one proposed access that aligns with the proposed access to the east lot. In addition, one (1) right-in/right-out access is proposed near the southern edge of the east lot. The southern right-in/right-out access is proposed approximately 240 feet south of the proposed full movement access location for the west lot.



## 3.0 EXISTING AND FUTURE CONDITIONS

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### 3.1 Existing Study Area

The existing site is vacant land. Directly to the south is Children's Hospital and directly to the north is C-470. Located to the southwest is Ben Franklin Academy. Solana Lucent Station multifamily apartments exist to the west of the site with Centennial Water located further to the west, along the south side of Plaza Drive. Surrounding the site are a mix of multifamily housing and other undeveloped parcels.

### 3.2 Existing Roadway Network

Erickson Boulevard extends north-south as a short section street providing two through lanes in each direction. It connects County Line Road along the north side of C-470 to Plaza Drive along the south side of C-470. The posted speed limit is 30 miles per hour.

Plaza Drive extends east-west with two through lanes in each direction and a raised median. The posted speed limit is 40 miles per hour.

Kendrick Castillo Way extends north-south with three through lanes in each direction with a raised median. The posted speed limit is 40 miles per hour in the study area. Kendrick Castillo Way provides a C-470 interchange and extends from County Line Road to the north to Broadway to the south.

The unsignalized intersection of Erickson Boulevard/Mill Vista Road and Plaza Drive operates with all-way stop control on all four approaches. The westbound Plaza Drive and southbound Erickson Boulevard approaches provide a left turn lane, a through lane, and a right turn lane. The eastbound Plaza Drive approach provides a left turn lane and a shared through/right turn lane. The northbound Mill Vista Road approach provide a single lane shared for all movements. An aerial photo of the existing intersection configuration is below.



*Erickson Boulevard/Mill Vista Road and Plaza Drive (#1)*



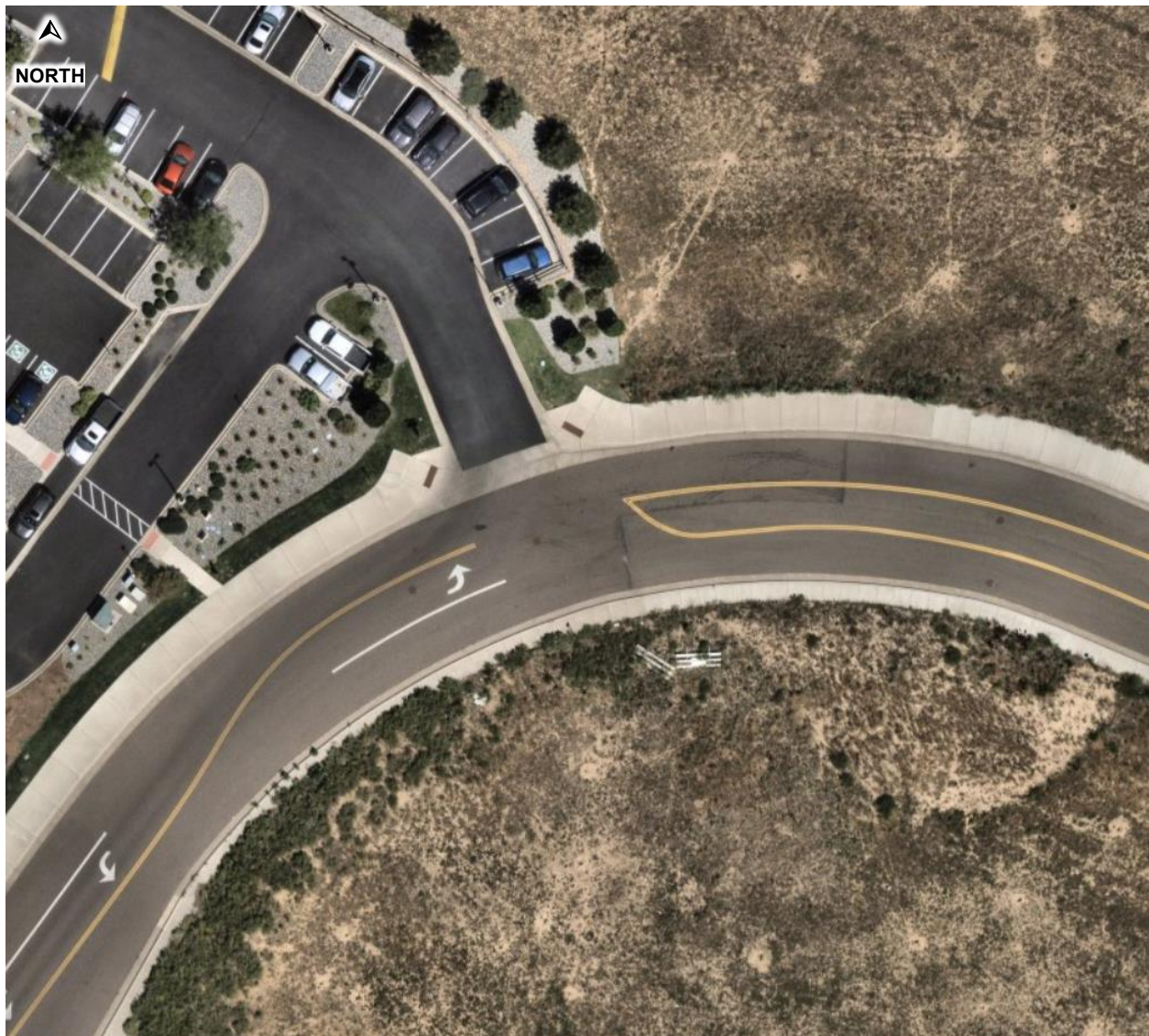
The unsignalized intersection of Plaza Circle and Plaza Drive operates with two-way stop control on the northbound Ben Franklin Academy Access and southbound approaches. The eastbound and westbound Plaza Drive approaches provide a left turn lane, a through lane, and a shared through/right lane. The southbound Plaza Circle approach provides a left turn lane and a shared through/right turn lane. The northbound Ben Franklin Academy approach provide a left turn lane and right turn lane. An aerial photo of the existing intersection configuration is below.



*Plaza Circle and Plaza Drive (#2)*



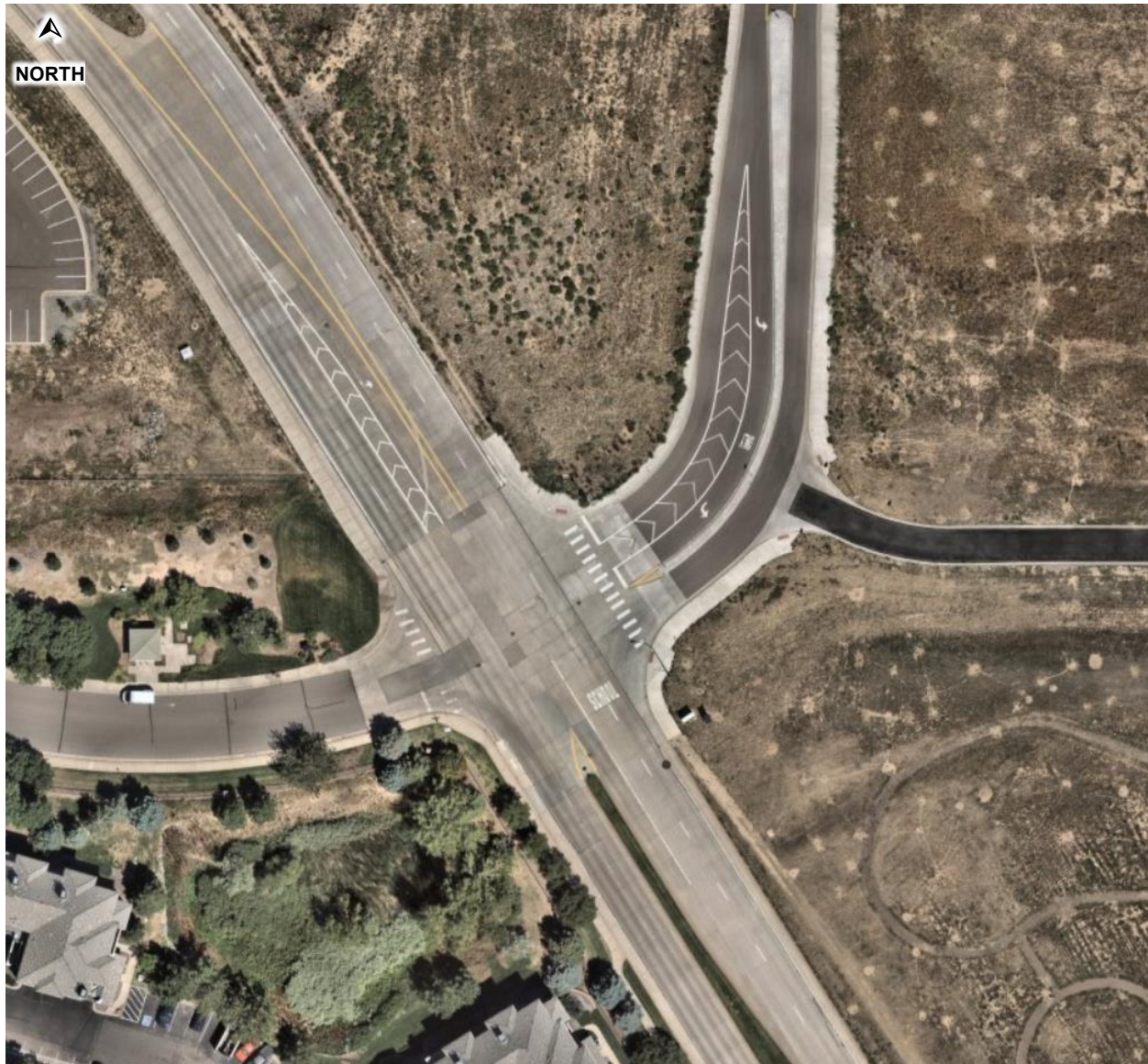
The unsignalized intersection of Plaza Circle and Percy Lane operates with two-way stop control on the eastbound access approach. The eastbound Percy Lane approach provides a single lane shared for all movements. The northbound Plaza Drive approach provides a left turn lane and a through lane. The southbound Plaza Drive approach provides a single lane shared for all movements. An aerial photo of the existing intersection configuration is below.



*Plaza Circle and Percy Lane (#3)*

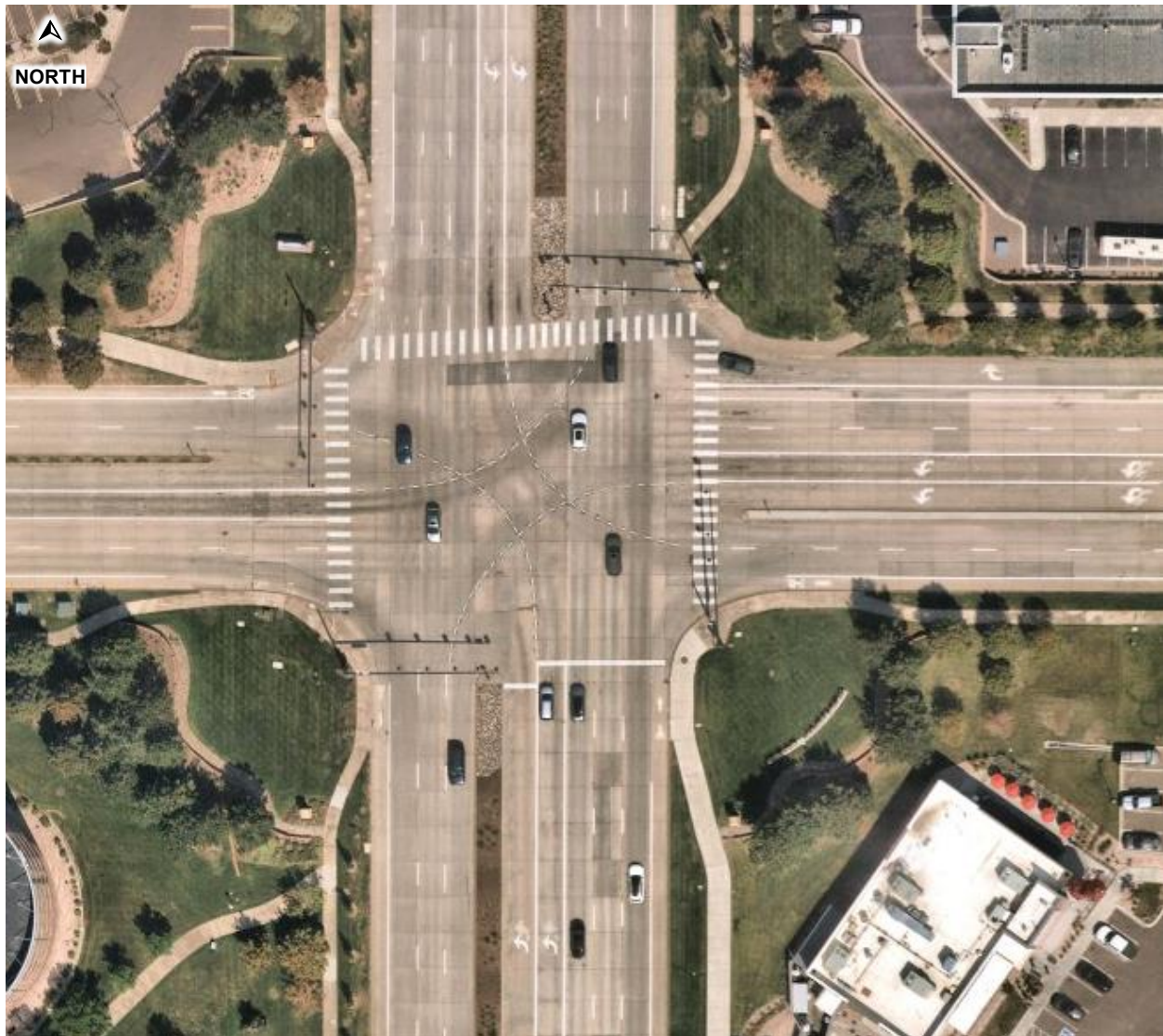


The unsignalized intersection of Plaza Circle/Greensborough Drive and Plaza Drive operates with two-way stop control on the northbound and southbound approaches. The eastbound and westbound Plaza Drive approaches provide a left turn lane, a through lane, and a shared through/right lane. The southbound Plaza Circle approach provides a left turn lane and a shared through/right turn lane. The northbound Greensborough Drive approach provides a single lane shared for all movements. An aerial photo of the existing intersection configuration is below.



*Plaza Circle/Greensborough Drive and Plaza Drive (#4)*

The signalized intersection of Kendrick Castillo Way and Plaza Drive operates with protected-only left turn phasing on all four approaches. The northbound and southbound approaches of Kendrick Castillo Way provide dual left turn lanes and three through lanes with the outside lane being a shared through/right turn. The eastbound approach on Plaza Drive provides dual left turn lanes and two through lanes with the outside lane being a shared through/right turn lane. The westbound approach of Plaza Drive provides dual left turn lanes, two through lanes, and a right turn lane. An aerial photo of the existing intersection configuration is below.



*Kendrick Castillo Way and Plaza Drive (#5)*



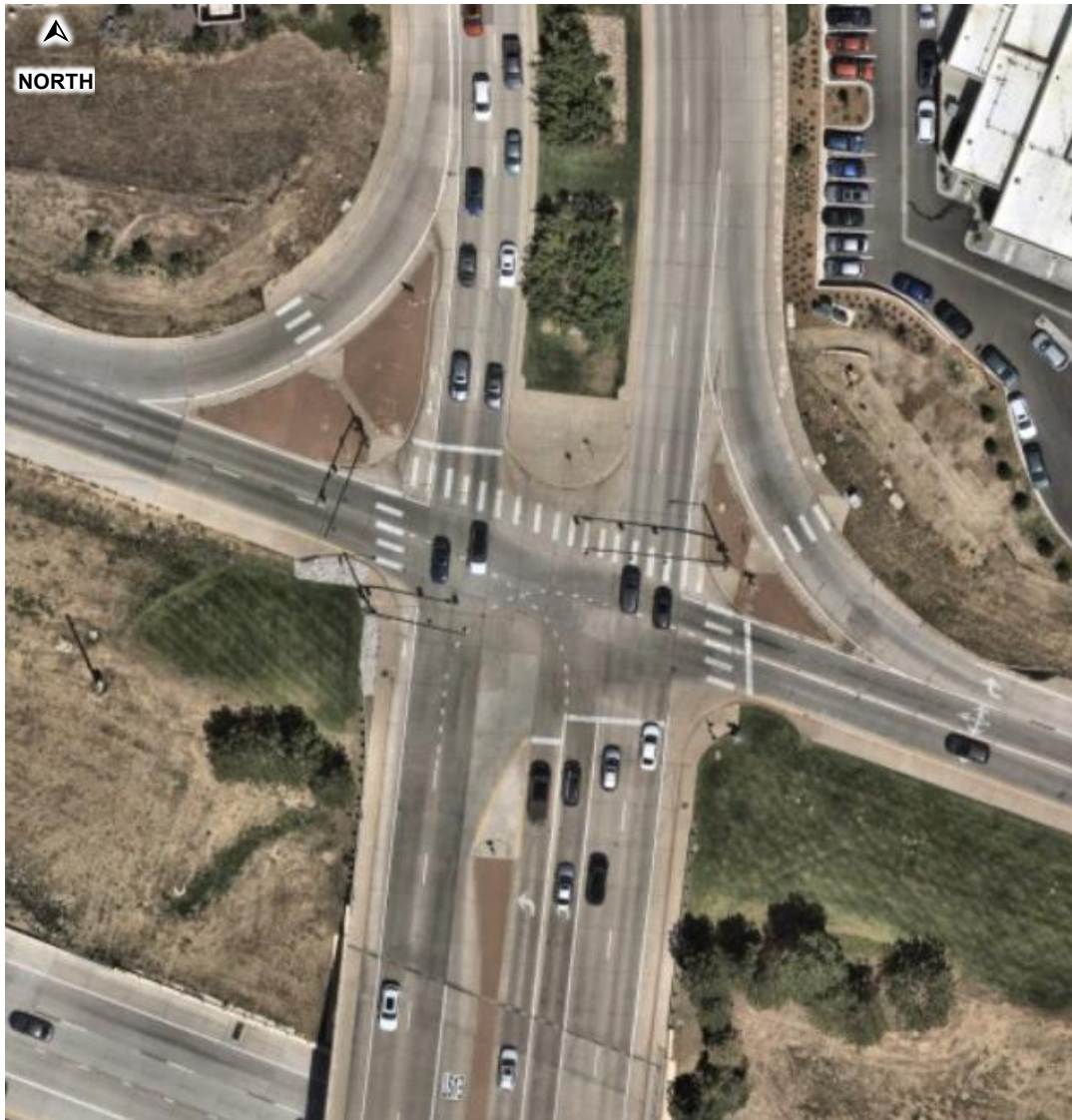
The signalized intersection of Kendrick Castillo Way and C-470 eastbound ramps operates with protected-permissive left turn phasing on the southbound approach. The northbound approach of Kendrick Castillo Way provides three through lanes (with the inside lane becoming a dual left turn lane at the C-470 westbound ramps intersection), and a continuous right turn lane. The southbound approach on Kendrick Castillo Way provides a single left turn lane and two through lanes. The eastbound approach of C-470 provides a dedicated left turn lane, a shared left turn/through/right turn lane, and a free right turn lane. An aerial photo of the existing intersection configuration is below.



*Kendrick Castillo Way and C-470 Eastbound Ramps (#6)*



The signalized intersection of Kendrick Castillo Way and C-470 westbound ramps operates with protected-only left turn phasing on the northbound approach. The northbound approach of Kendrick Castillo Way provides dual left turn lanes and two through lanes. The southbound approach on Kendrick Castillo Way provides two through lanes and a free right turn lane. The westbound approach of C-470 provides a dedicated left turn lane, a shared left turn/through/right turn lane, and a free right turn lane. An aerial photo of the existing intersection configuration is below.



*Kendrick Castillo Way and C-470 Westbound Ramps (#7)*

The intersection lane configuration and control for the study area intersections are shown in **Figure 2**.



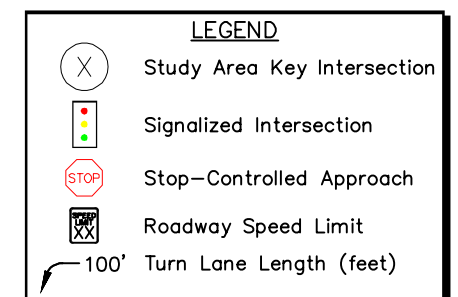
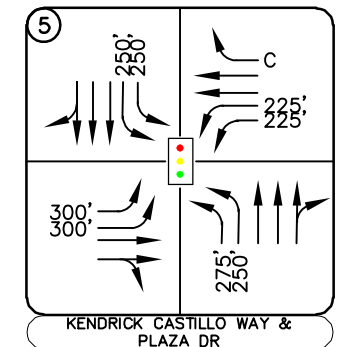
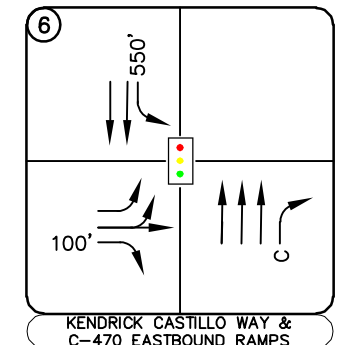
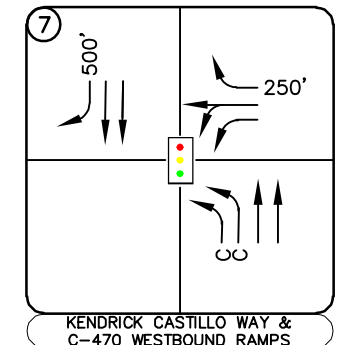
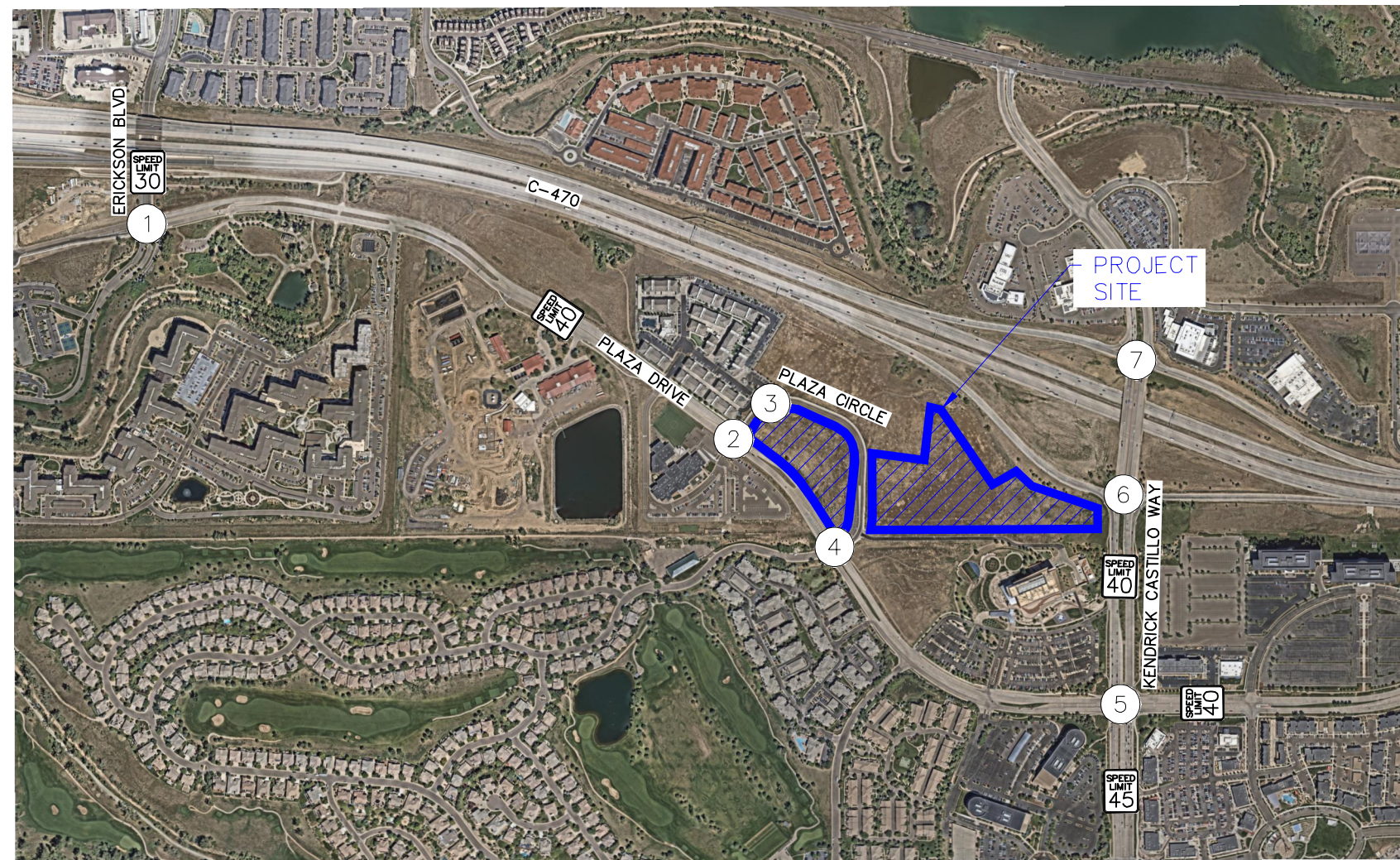
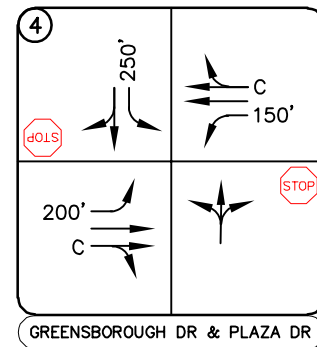
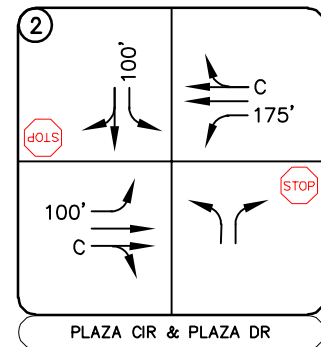
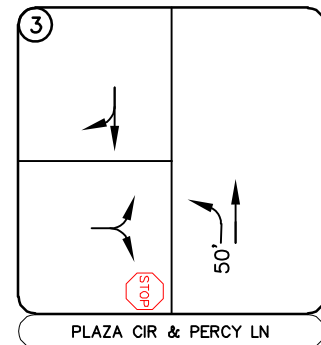
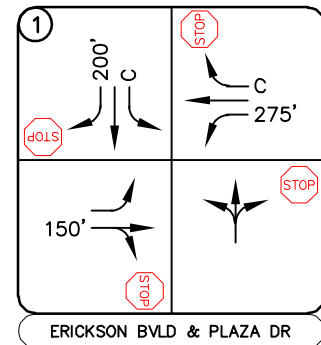


FIGURE 2  
LUCENT STATION  
HIGHLANDS RANCH, COLORADO  
EXISTING GEOMETRY AND CONTROL



### 3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Wednesday, January 22, 2025, and Wednesday, January 29, 2025, during the weekday morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on these count dates. The existing intersection traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix B**.

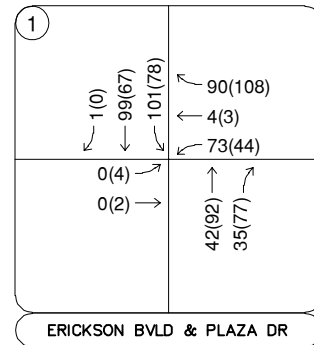
### 3.4 Unspecified Development Traffic Growth

The Douglas County Transportation Plan does not provide existing and future traffic volumes that can be used to calculate an annual growth rate. The surrounding area is mostly developed and according to traffic projections from the Denver Regional Council of Governments (DRCOG) traffic model, an annual growth rate of 0.36 percent was provided for this area. Future traffic volume projections and growth rate calculations are provided in **Appendix C**. To be conservative, a one (1) percent annual growth rate was used to calculate future traffic volumes at the study area intersections. It is understood there may be additional development near the project site; however, it is believed that site-specific traffic studies will be required and prepared for any future development projects. Therefore, the one (1) percent annual growth rate is applicable and sufficient to understand the future traffic conditions. This annual growth rate was used to estimate short-term 2028 and long-term 2045 traffic volume projections at the key intersections. The calculated background traffic volumes for 2028 and 2045 are shown in **Figure 4** and **Figure 5**, respectively.

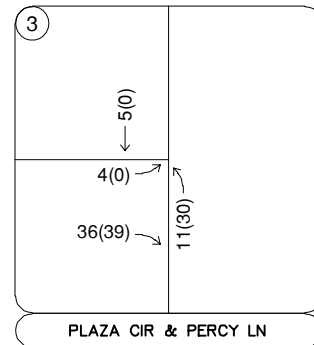




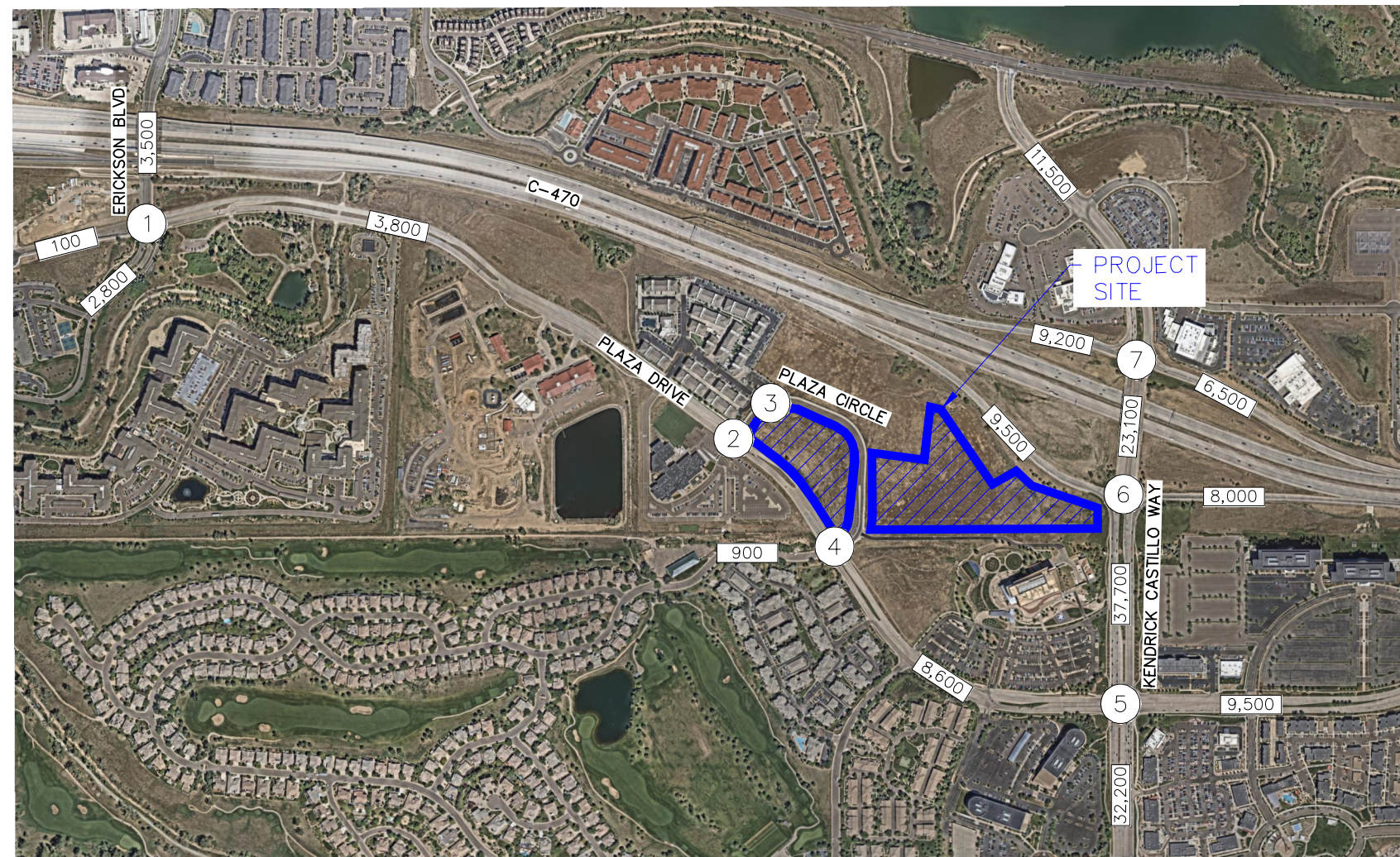
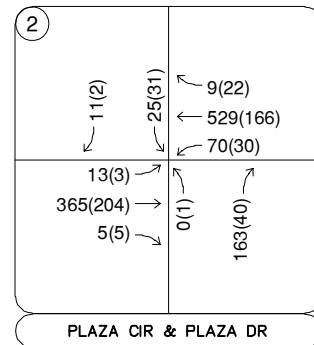
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7:45 to 8:45AM (4:00 to 5:00PM)



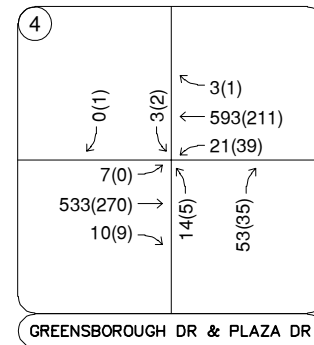
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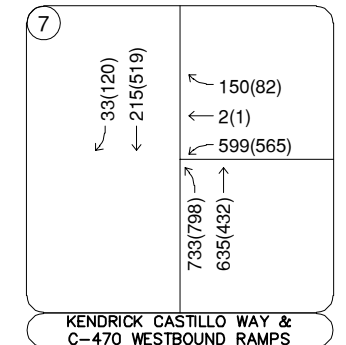
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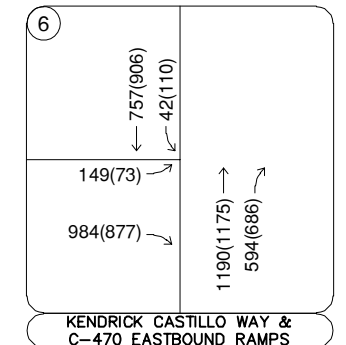
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Wednesday, January 29, 2025  
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Wednesday, January 22, 2025  
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Wednesday, January 29, 2025  
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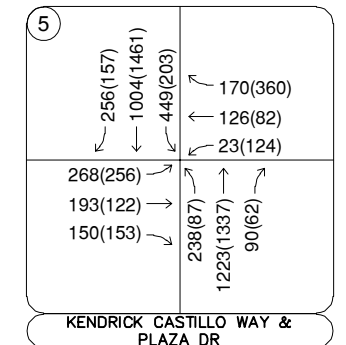
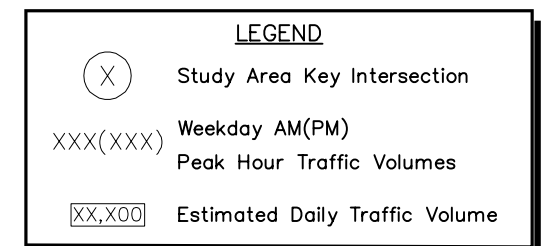


FIGURE 3  
LUCENT STATION  
HIGHLANDS RANCH, COLORADO  
2025 EXISTING TRAFFIC VOLUMES





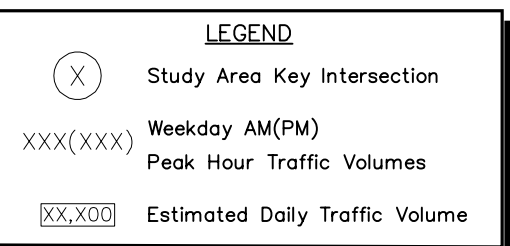
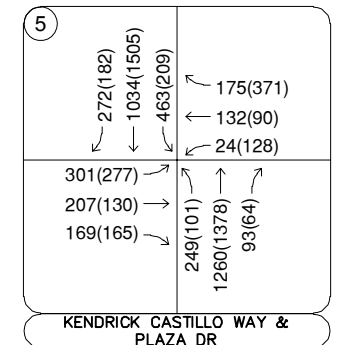
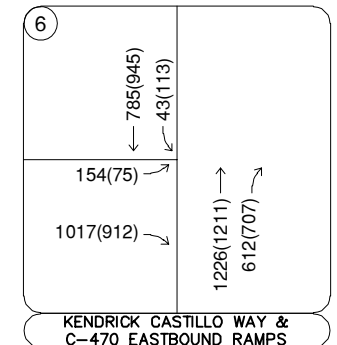
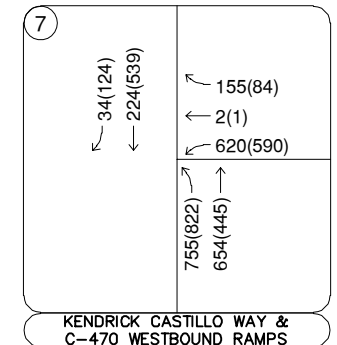
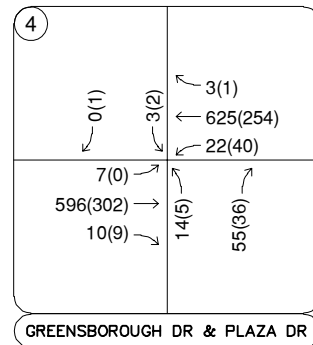
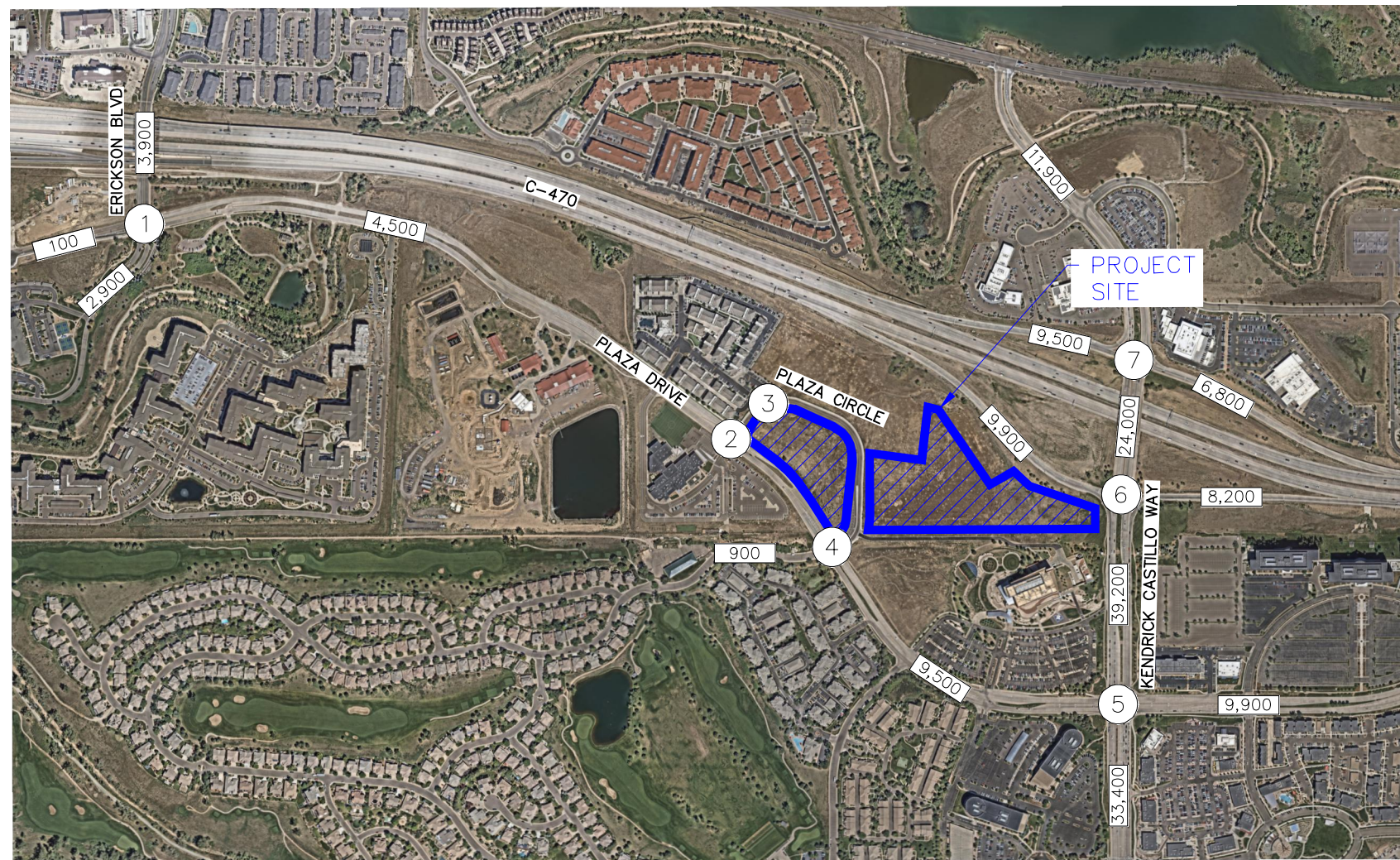
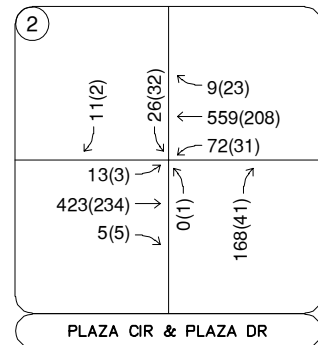
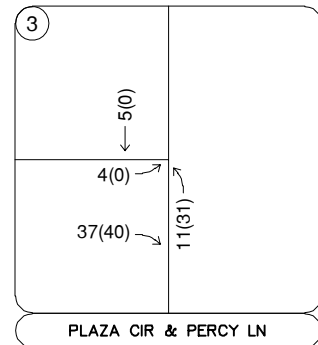
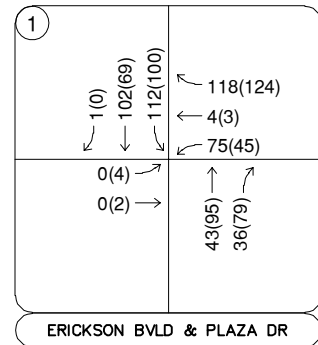


FIGURE 4  
 LUCENT STATION  
 HIGHLANDS RANCH, COLORADO  
 2028 BACKGROUND TRAFFIC VOLUMES



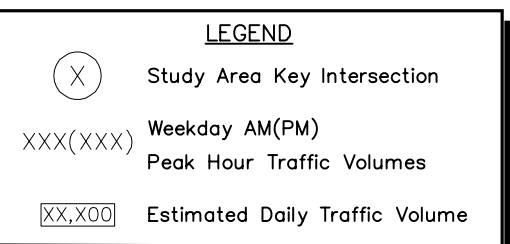
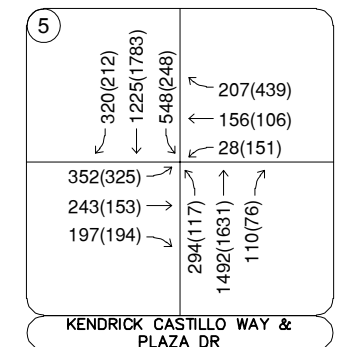
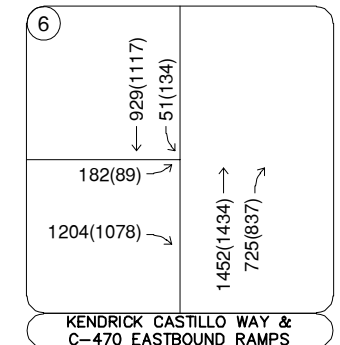
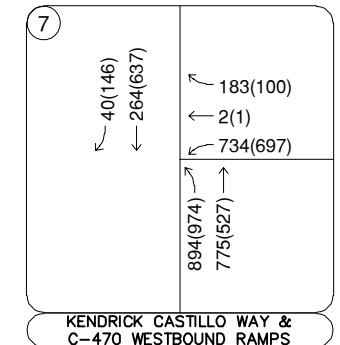
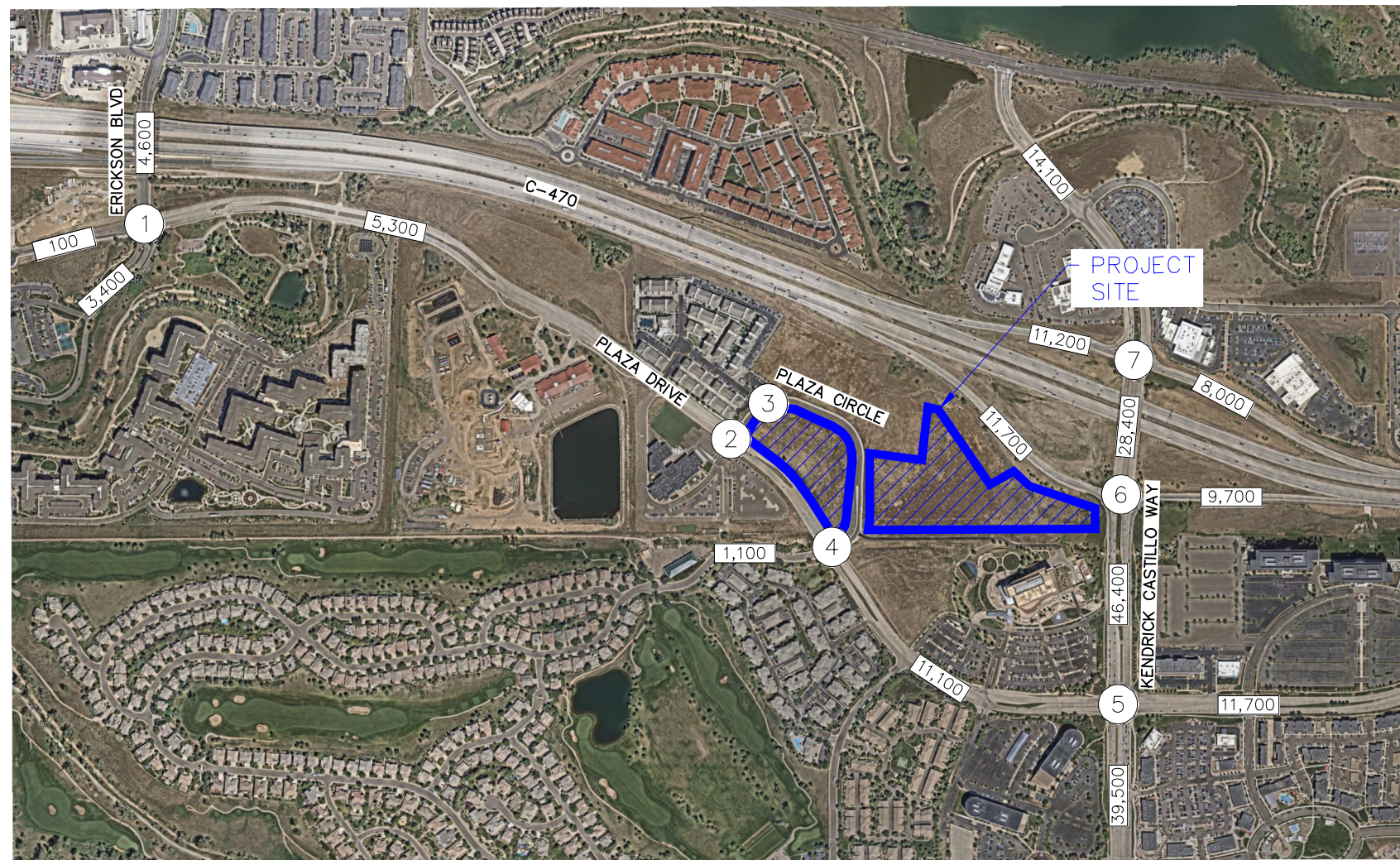
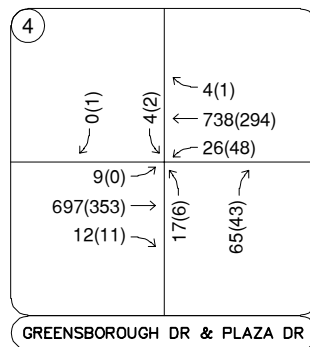
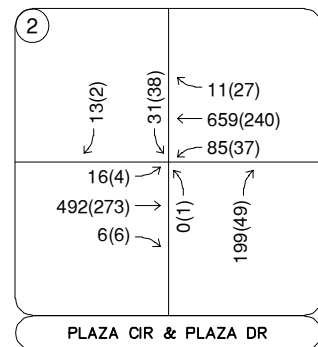
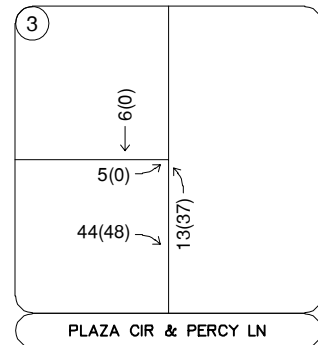
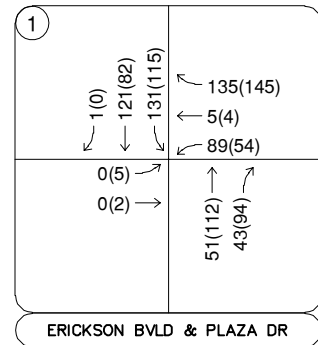


FIGURE 5  
LUCENT STATION  
HIGHLANDS RANCH, COLORADO  
2045 BACKGROUND TRAFFIC VOLUMES



## 4.0 PROJECT TRAFFIC CHARACTERISTICS

### 4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Report fitted curve equations that applies to Multifamily Low-Rise Housing (ITE Land Use Code 220), for traffic associated with the development.

Lucent Station is expected to generate approximately 2,696 weekday daily trips, with 160 of these trips occurring during the morning peak-hour and 204 occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE Trip Generation Manual, 11th Edition – Volume 1: User's Guide and Handbook, 2021. Table 1 summarizes the estimated trip generation for the Lucent Station development. The trip generation worksheets are included in **Appendix D**.

**Table 1 – Lucent Station Traffic Generation**

Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Multifamily Low-Rise Housing (ITE 220) – 400 Dwelling Units	2,696	38	122	160	129	75	204

### 4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6**.





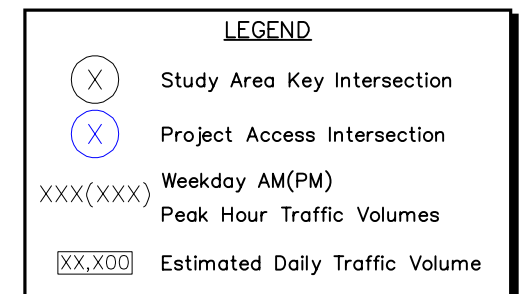
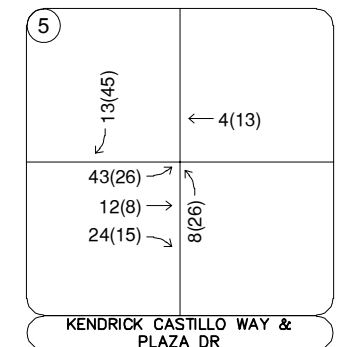
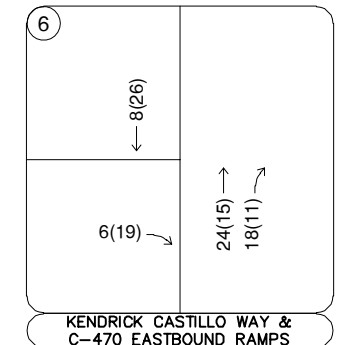
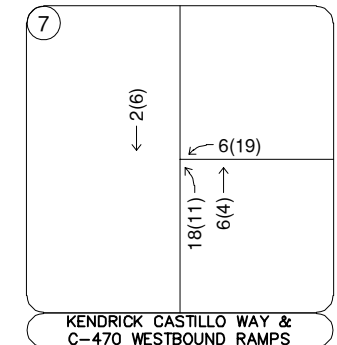
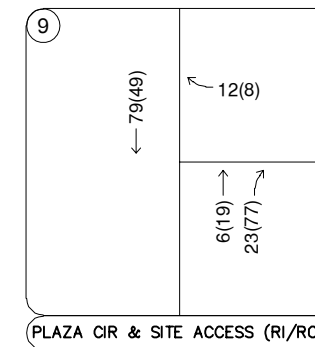
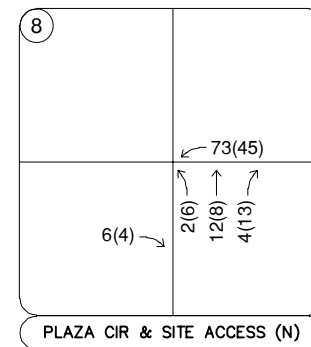
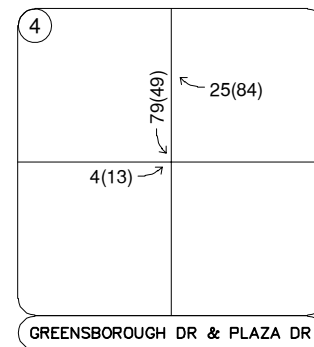
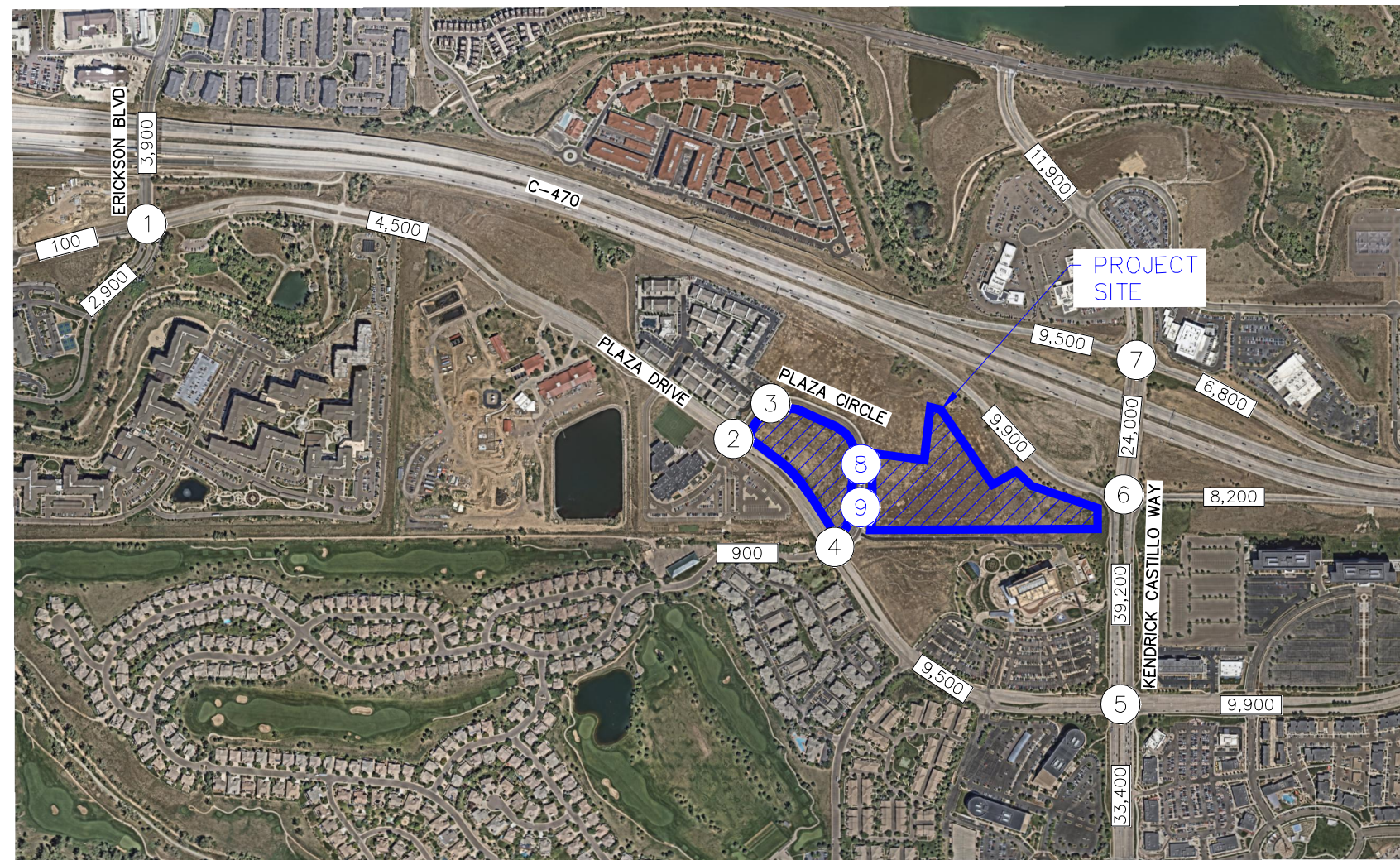
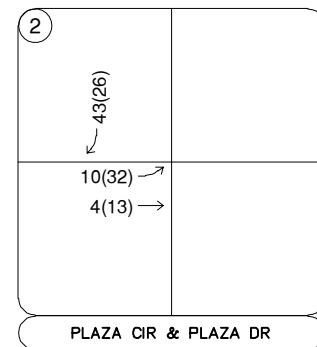
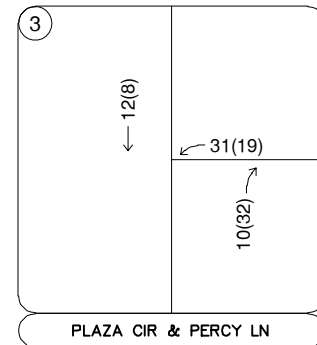
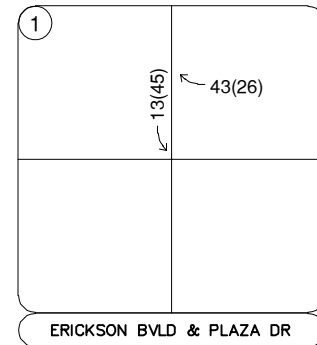
### 4.3 Traffic Assignment

Lucent Station traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7**.

### 4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2028 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2028 and 2045 horizon years in **Figure 8** and **Figure 9**, respectively.





**FIGURE 7**  
**LUCENT STATION**  
**HIGHLANDS RANCH, COLORADO**  
**PROJECT TRAFFIC ASSIGNMENT**



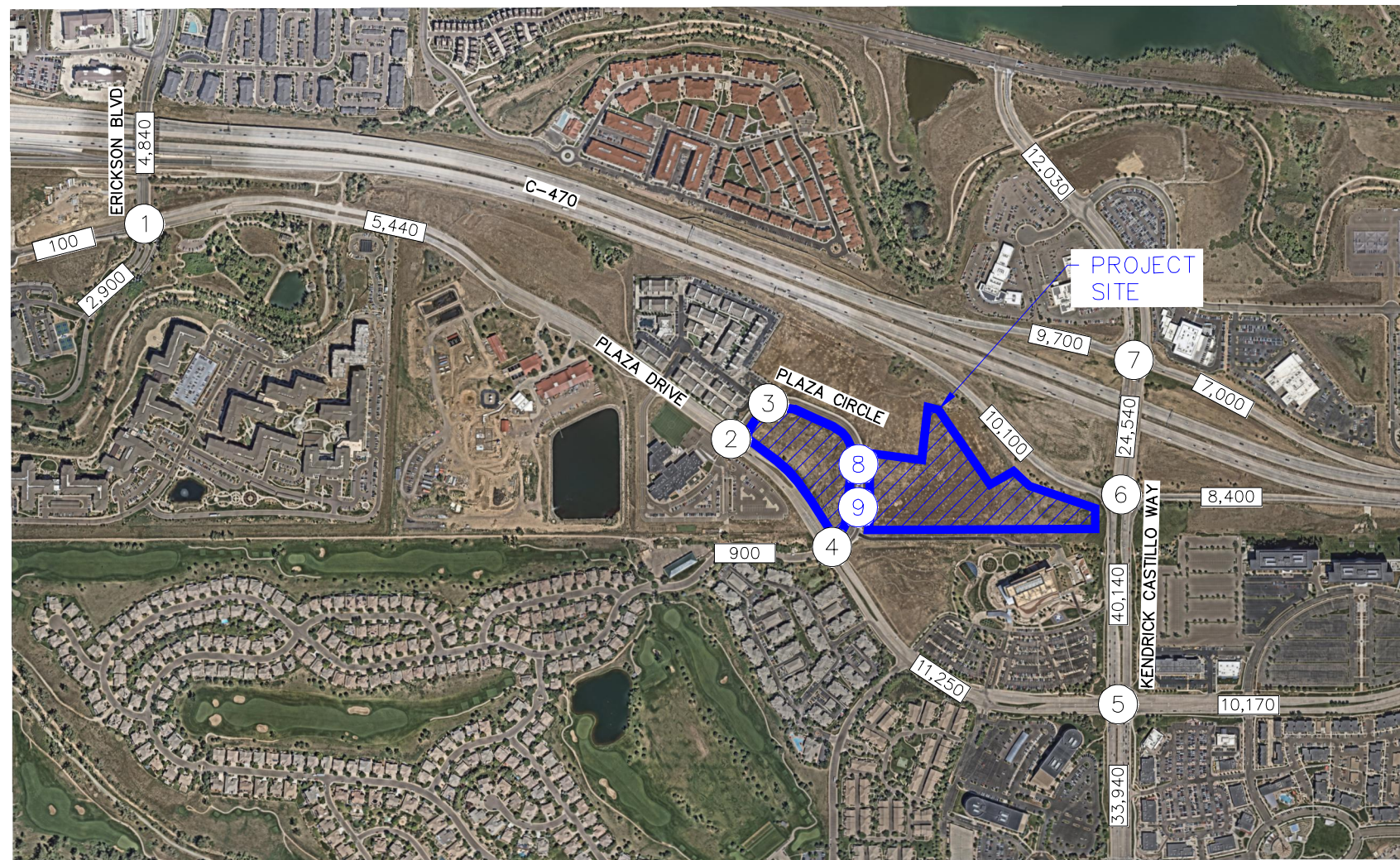
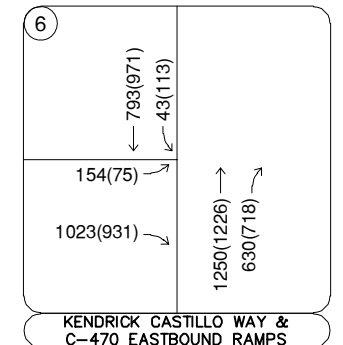
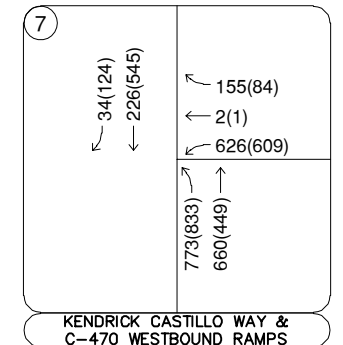
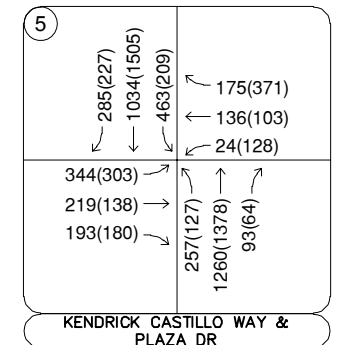
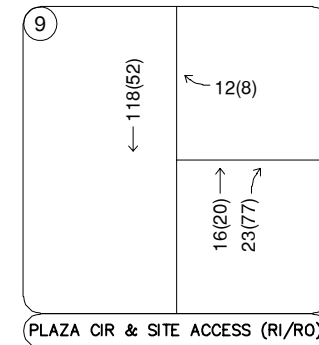
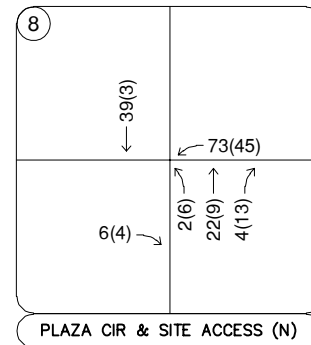
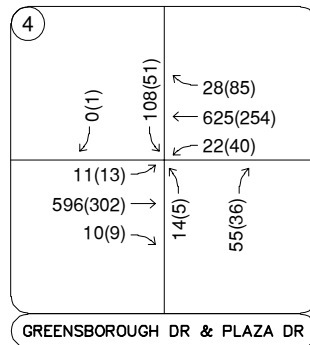
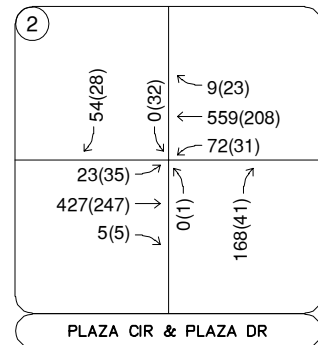
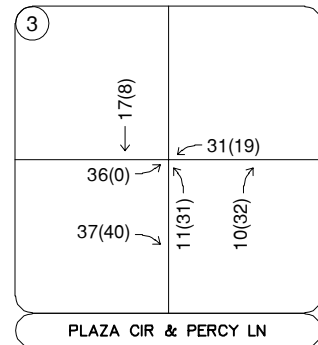
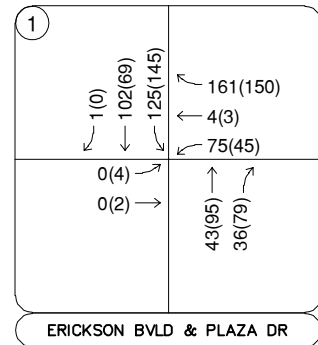
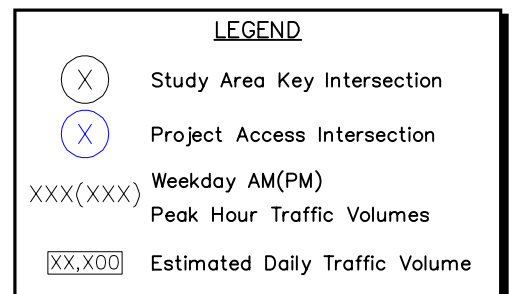


FIGURE 8  
LUCENT STATION  
HIGHLANDS RANCH, COLORADO  
2028 TOTAL TRAFFIC VOLUMES





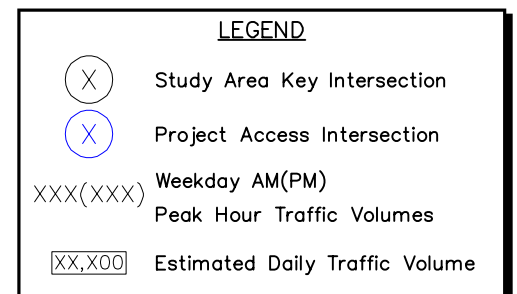
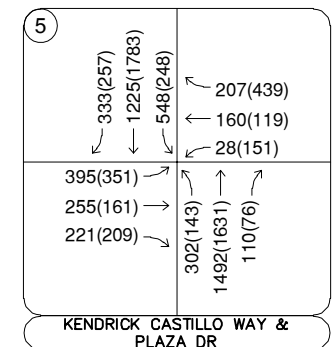
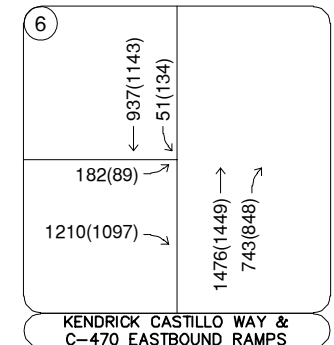
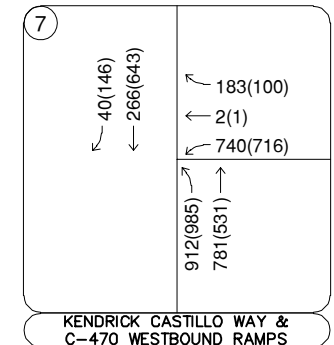
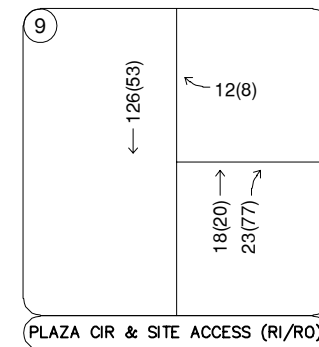
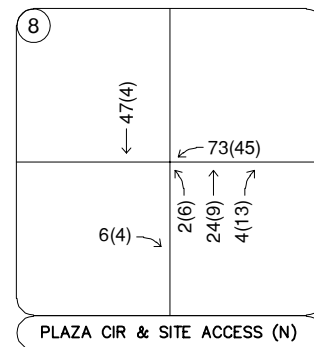
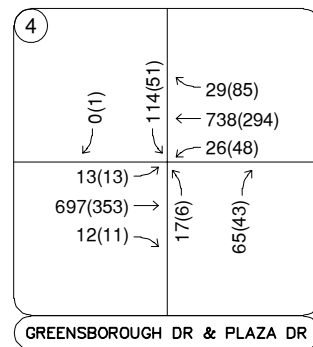
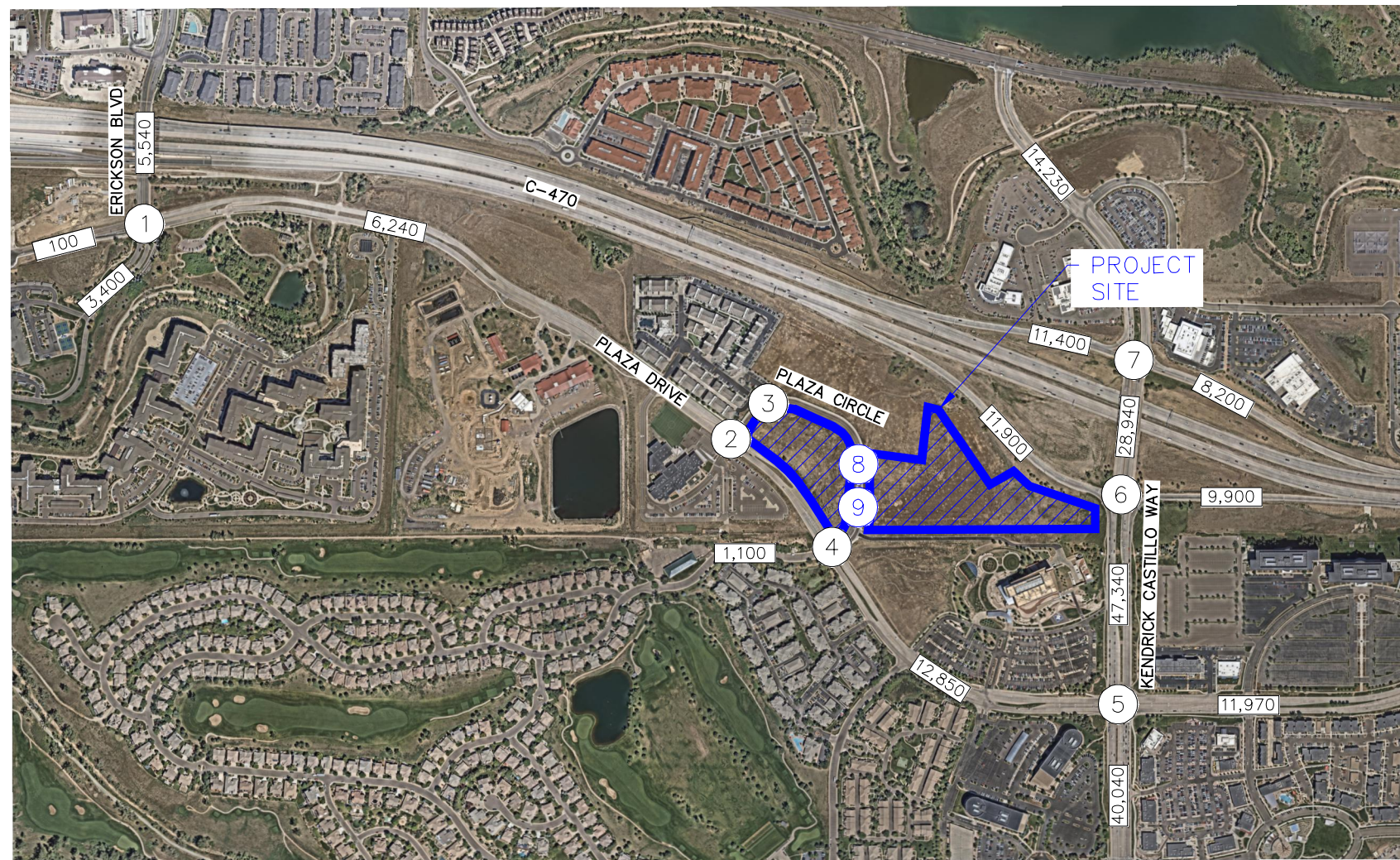
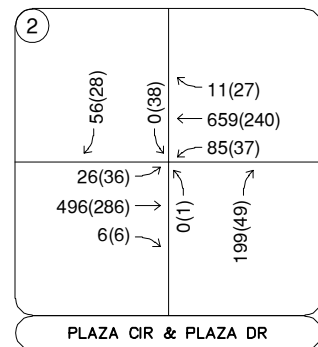
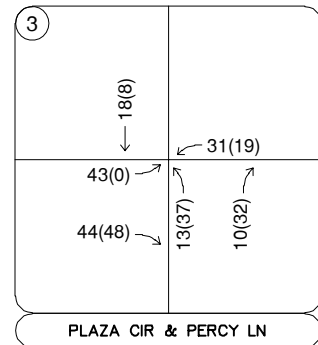
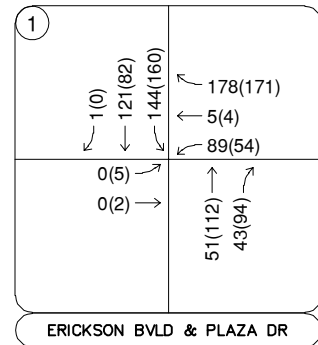


FIGURE 9  
LUCENT STATION  
HIGHLANDS RANCH, COLORADO  
2045 TOTAL TRAFFIC VOLUMES



## 5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2028 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the *Highway Capacity Manual (HCM)*<sup>1</sup>.

### 5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). For intersections and roadways in this study area, standard traffic engineering practice recommends overall intersection LOS D and movement/approach LOS E as the minimum desirable thresholds for acceptable operations. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

**Table 2 – Level of Service Definitions**

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Seventh Edition, Transportation Research Board, 2022.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the whole intersection. LOS for signalized, roundabout, and all-way stop controlled intersections are defined for each approach and for the overall intersection.

<sup>1</sup> Transportation Research Board, *Highway Capacity Manual*, Seventh Edition, Washington DC, 2022.

## 5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix E**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2**. Existing peak hour factors were utilized in the analysis. The existing heavy vehicle percentages obtained from the turning movement counts were also used in each horizon year. The signalized intersection analysis utilizes the observed cycle lengths with optimized phasing and timing. Based on increased national attention given to establishing appropriate yellow and all-red clearance intervals to improve intersection safety, these have been calculated and are applied for approaches at the signalized intersections. The increase in yellow and all red time sacrifices intersection capacity for improved safety. Synchro traffic analysis software was used to analyze the signalized and unsignalized key intersections for HCM level of service.

### Erickson Boulevard/Mill Vista Road and Plaza Drive (#1)

The unsignalized intersection of Erickson Boulevard/Mill Vista Road and Plaza Drive operates with all-way stop control on all four approaches. The intersection operates acceptably at LOS A during both peak hours under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable LOS A in 2028 and LOS B in 2045 during both studied weekday peak hours. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational analysis.

**Table 3** provides the results of the LOS analysis conducted at this intersection.

**Table 3 – Erickson Boulevard/Mill Vista Road & Plaza Drive LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
<b>2025 Existing</b>	<b>9.1</b>	<b>A</b>	<b>8.9</b>	<b>A</b>
Eastbound Approach	0.0	-	8.9	A
Westbound Approach	9.0	A	8.6	A
Northbound Approach	9.0	A	9.4	A
Southbound Approach	9.3	A	8.8	A
<b>2028 Background</b>	<b>9.4</b>	<b>A</b>	<b>9.2</b>	<b>A</b>
Eastbound Approach	0.0	-	9.1	A
Westbound Approach	9.2	A	8.9	A
Northbound Approach	9.2	A	9.7	A
Southbound Approach	9.6	A	9.1	A
<b>2028 Background Plus Project</b>	<b>9.7</b>	<b>A</b>	<b>9.7</b>	<b>A</b>
Eastbound Approach	0.0	-	9.3	A
Westbound Approach	9.6	A	9.3	A
Northbound Approach	9.4	A	10.0	A
Southbound Approach	10.0	A	9.8	A
<b>2045 Background</b>	<b>10.0</b>	<b>A</b>	<b>9.8</b>	<b>A</b>
Eastbound Approach	0.0	-	9.4	A
Westbound Approach	9.8	A	9.3	A
Northbound Approach	9.8	A	10.5	A
Southbound Approach	10.2	A	9.5	A
<b>2045 Background Plus Project</b>	<b>10.4</b>	<b>B</b>	<b>10.4</b>	<b>B</b>
Eastbound Approach	0.0	-	9.7	A
Westbound Approach	10.2	B	10.0	A
Northbound Approach	10.1	B	11.1	B
Southbound Approach	10.6	B	10.3	B

## Plaza Circle and Plaza Drive (#2)

The unsignalized intersection of Plaza Circle and Plaza Drive operates with two-way stop control on the northbound and southbound approaches. All movements currently operate with acceptable level of service with exception of the southbound left turn movement during the morning peak hour. Of note, this poor level of service and need is based on existing traffic, mostly caused by the peaking traffic during the highest 15-minute interval due to Ben Franklin Academy. Although, this southbound left turn movement operates with long delays, the volume isn't high enough to warrant signalization. Therefore, to mitigate the long delay for the southbound left turn movement, a no left turn sign during the arrival and dismissal hours of the Ben Franklin Academy could be placed below the existing R1-1 STOP sign. This restriction would match the current restriction on the northbound approach, exiting the academy with a sign restricting the left turn movement onto Plaza Circle between 7:45-8:15 AM and 3:30-4:00 PM. Additionally, the Plaza Circle/Greensborough Drive (#4) and Plaza Drive intersection is recommended to be signalized. As such, this proposed traffic signal approximately 775 feet to the east of this intersection will provide more gaps in traffic by platooning westbound vehicles along Plaza Drive and can accommodate the rerouted left turning vehicles from Plaza Circle. (#3). Of note, the proposed left turn restriction is only applicable to the morning peak hour since the afternoon peak hour occurs outside of the school's dismissal period. With project traffic, the intersection is anticipated to have all movements operating at an acceptable during the studied weekday morning and afternoon peak hours throughout the 2045 horizon. **Table 4** provides the results of the LOS analysis conducted at this intersection.

**Table 4 – Plaza Circle & Plaza Drive LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
<b>2025 Existing</b>				
Northbound Left	0.0	A	11.0	B
Northbound Right	13.5	B	9.1	A
Eastbound Left	9.9	A	7.6	A
Westbound Left	9.2	A	7.7	A
Southbound Left	48.2	E	11.5	B
Southbound Through/Right	11.6	B	8.8	A
<b>2028 Background</b>				
Northbound Left	0.0	A	11.4	B
Northbound Right	13.5	B	9.2	A
Eastbound Left	9.9	A	7.7	A
Westbound Left	9.2	A	7.8	A
Southbound Left	48.2	E	12.1	B
Southbound Through/Right	11.6	B	9.0	A
<b>2028 Background Plus Project</b>				
Northbound Left	0.0	A	12.3	B
Northbound Right	14.9	B	9.2	A
Eastbound Left	10.2	B	7.8	A
Westbound Left	9.7	A	7.8	A
Southbound Left	0.0	A	12.8	B
Southbound Through/Right	12.9	B	9.1	A
<b>2045 Background</b>				
Northbound Left	0.0	A	11.0	B
Northbound Right	18.5	C	9.1	A
Eastbound Left	11.0	B	7.6	A
Westbound Left	10.4	B	7.7	A
Southbound Left	220.5	F	11.5	B
Southbound Through/Right	12.9	B	8.8	A
<b>2045 Background Plus Project</b>				
Northbound Left	0.0	A	12.3	B
Northbound Right	18.7	C	9.4	A
Eastbound Left	10.3	B	7.7	A
Westbound Left	10.5	B	8.0	A
Southbound Left	0.0	A	12.8	B
Southbound Through/Right	10.0	B	8.6	A

#Restrict SB Left Turn Movement During AM



### Plaza Circle and Percy Lane (#3)

The unsignalized T-intersection of Plaza Circle and Percy Lane operates with stop control on the eastbound Percy Lane approach. The intersection movements operate acceptably at LOS A during both peak hours under existing conditions. With project traffic the east leg of the intersection will be constructed and provide access to the site. As such, the intersection is anticipated to continue operating with all movements at an acceptable LOS A during both studied weekday peak hours throughout the 2045 horizon. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational analysis other than building the access and installing a R1-1 STOP sign for the new driveway approach. **Table 5** provides the results of the LOS analysis conducted at this intersection.

**Table 5 – Plaza Circle & Percy Lane LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
<b>2025 Existing</b>				
Northbound Left	7.3	A	7.3	A
Eastbound Approach	8.6	A	8.5	A
<b>2028 Background</b>				
Northbound Left	7.3	A	7.3	A
Eastbound Approach	8.6	A	8.5	A
<b>2028 Background Plus Project</b>				
Northbound Left	7.4	A	7.3	A
Eastbound Approach	9.2	A	8.5	A
<b>2045 Background</b>				
Northbound Left	7.3	A	7.3	A
Eastbound Approach	8.7	A	8.5	A
<b>2045 Background Plus Project</b>				
Northbound Left	7.4	A	7.3	A
Eastbound Approach	9.4	A	8.5	A

#### **Plaza Circle/Greensborough Drive and Plaza Drive (#4)**

The unsignalized intersection of Greensborough Drive and Plaza Drive operates with two-way stop control on the northbound and southbound approaches. The intersection has all movements operating acceptably during both peak hours under existing conditions. With project traffic and the recommendation to restrict the southbound left turn movement during the arrival and dismissal time period at Plaza Drive and Plaza Circle (#3), the southbound left turn may operate with long delays during the peak hours. The restriction of the southbound left turn at Plaza Drive and Plaza Circle (#3) intersection will reroute traffic to this intersection. With the project traffic and reroute volumes, the intersection is anticipated to continue operating at an acceptable level of service during both studied weekday peak hours throughout the 2045 horizon with exception of the southbound left turn movement. An MUTCD Four Hour Signal Warrant was completed, and it was determined two out of the four hours meet warrant volumes. However, this intersection should be considered for signalization in the future. The signal warrant analysis worksheet is included in **Appendix G**. With signalization, this intersection is expected to operate at an acceptable LOS B or better during the morning and afternoon peak hours throughout 2045. **Table 6** provides the results of the LOS analysis conducted at this intersection.

**Table 6 – Greensborough Drive & Plaza Drive LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
<b>2025 Existing</b>				
Northbound Approach	17.7	C	9.8	A
Eastbound Left	10.3	B	0.0	A
Westbound Left	10.1	B	8.0	A
Southbound Left	28.5	D	12.2	B
Southbound Through/Right	0.0	A	9.0	A
<b>2028 Background</b>				
Northbound Approach	19.7	C	10.0	B
Eastbound Left	10.6	B	0.0	A
Westbound Left	10.6	B	8.1	A
Southbound Left	31.5	D	12.8	B
Southbound Through/Right	0.0	A	9.1	A
<b>2028 Background Plus Project</b>				
Northbound Approach	20.0	C	10.1	B
Eastbound Left	10.9	B	8.1	A
Westbound Left	10.6	B	8.1	A
Southbound Left	258.0	F	14.9	B
Southbound Through/Right	0.0	A	9.4	A
<b>2028 Background Plus Project #</b>	15.7	B	9.9	A
<b>2045 Background</b>				
Northbound Approach	27.8	D	9.8	A
Eastbound Left	11.7	B	0.0	A
Westbound Left	11.7	B	8.0	A
Southbound Left	43.4	E	12.2	B
Southbound Through/Right	0.0	A	9.0	A
<b>2045 Background Plus Project #</b>	17.6	B	9.8	A

# Signalized

### Kendrick Castillo Way & Plaza Drive (#5)

The signalized intersection of Kendrick Castillo Way and Plaza Drive operates with protected-only left turn phasing on all four approaches. The intersection operates acceptably at LOS D during both the morning and afternoon peak hours under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable level of service of D during the two studied peak hours throughout the 2045 horizon. Of note, the future traffic conditions can sometimes report less delays than the existing condition when background and project traffic assignment volumes are added to movements that have less delay than the average intersection delay. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis. **Table 7** provides the results of the LOS analysis conducted at this intersection.

**Table 7 – Kendrick Castillo Way & Plaza Drive LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing	46.1	D	39.2	D
2028 Background	48.7	D	41.1	D
2028 Background Plus Project	46.6	D	42.9	D
2045 Background	53.5	D	49.7	D
2045 Background Plus Project	53.5	D	51.9	D



### Kendrick Castillo Way & C-470 Eastbound Ramps (#6)

The signalized intersection of Kendrick Castillo Way and C-470 eastbound ramps operates with protected-permissive left turn phasing on the southbound approach. The intersection operates acceptably at LOS B during the morning peak hour and LOS A during the afternoon peak hour under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable level of service of B during the morning peak hour and LOS A throughout the 2045 horizon. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis.

**Table 8** provides the results of the LOS analysis conducted at this intersection.

**Table 8 – Kendrick Castillo Way & C-470 Eastbound Ramps LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing	10.6	B	4.2	A
2028 Background	10.7	B	4.2	A
2028 Background Plus Project	10.7	B	4.2	A
2045 Background	17.1	B	4.4	A
2045 Background Plus Project	17.2	B	4.4	A

### Kendrick Castillo Way & C-470 Westbound Ramps (#7)

The signalized intersection of Kendrick Castillo Way and C-470 westbound ramps operates with protected-only left turn phasing on the northbound approach. The intersection operates acceptably at LOS C during both peak hours under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable level of service C during both studied weekday peak hours throughout 2028. In the 2045 horizon, the intersection is anticipated to continue operating at an acceptable level of service of C during the morning peak hour and LOS D. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis. **Table 9** provides the results of the LOS analysis conducted at this intersection.

**Table 9 – Kendrick Castillo Way & C-470 Westbound Ramps LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing	30.0	C	31.8	C
2028 Background	30.0	C	32.0	C
2028 Background Plus Project	30.0	C	32.4	C
2045 Background	30.2	C	33.8	C
2045 Background Plus Project	30.3	C	34.3	C

## Project Accesses

With completion of the Lucent Station project, a full movement access that aligns with the Percy Lane at Plaza Circle, two (2) full movement accesses and a right-in/right-out access will be provided along Plaza Circle. “STOP” (R1-1) signs are recommended to be installed on the exiting approaches of all four (4) accesses, out of the development. In addition, a R3-2 No Left Turn sign should be placed underneath the R1-1 “STOP” sign at the right-in/right-out (RIRO) access to the south of the east lot. A northbound left turn lane is recommended to be designated within the currently striped median of Plaza Circle for the full movement access to the west lot. **Table 10** provides the results of the level of service analysis for these project accesses. As shown in the table, the project access intersections along Plaza Circle are anticipated to have all movements operating with acceptable LOS B or better during the peak hours in both the buildout year 2028 and the 2045 long term horizons.

**Table 10 – Project Access Level of Service Results**

Intersection	2028 Total				2045 Total			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
<b>Site Access (#8)</b>								
Northbound Left	7.3	A	7.2	A	7.3	A	7.2	A
Eastbound Approach	8.5	A	8.3	A	8.6	A	8.3	A
Westbound Approach	9.3	A	8.9	A	9.4	A	8.9	A
Southbound Left	0.0	A	0.0	A	0.0	A	0.0	A
<b>Site Access RI/RO (#9)</b>								
Westbound Right	8.5	A	8.6	A	8.5	A	8.6	A

### 5.3 Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the study area intersections. The queuing analysis was performed using Synchro presenting the results of the 95<sup>th</sup> percentile queue lengths. Results are shown in the following **Table 11** with calculations provided within the level of service operational sheets of **Appendix D** for unsignalized intersections and **Appendix E** for signalized intersections.

**Table 11 – Turn Lane Queuing Analysis Results**

Intersection Turn Lane	Existing Turn Lane Length (feet)	2028 Calculated Queue (feet)	2028 Recommended Length (feet)	2045 Calculated Queue (feet)	2045 Recommended Length (feet)
<b>Erickson Blvd &amp; Plaza Dr (#1)</b>					
Eastbound Through/Right	150'	25'	150'	25'	150'
Westbound Left	275'	25'	275'	25'	275'
Westbound Right	C	50'	C	50'	C
Southbound Left	C	25'	C	50'	C
Southbound Right	200'	25'	200'	25'	200'
<b>Plaza Circle &amp; Plaza Dr (#2)</b>					
Eastbound Left	100'	25'	100'	25'	100'
Westbound Left	175'	25'	175'	25'	175'
Northbound Left	C/75'	75'	C/75'	100'	C/75'
Southbound Left	100'	25'	100'	25'	100'
<b>Plaza Circle &amp; Percy Ln (#3)</b>					
Northbound Left	50'	25'	50'	25'	50'
Southbound Left	DNE	25'	50'	25'	50'
<b>Greensborough Dr &amp; Plaza Dr (#4)</b>					
Eastbound Left	200'	25'	200'	25'	200'
Westbound Left	150'	25'	150'	25'	150'
Southbound Left	250'	81'	250'	126'	250'
<b>Kendrick Castillo Way &amp; Plaza Dr (#5)</b>					
Eastbound Left	300' DL	265'	300' DL	256'	300' DL
Westbound Left	225' DL	101'	225' DL	116'	225' DL
Westbound Right	C	335'	C	440'	C
Northbound Left	250'/275'	152'	250'/275'	212'	250'/275'
Southbound Left	250' DL	279' DL	300' DL	414' DL	425' DL
<b>Kendrick Castillo Way &amp; C-470 EB Ramp (#6)</b>					
Eastbound Right	100'	Free	100'	Free	100'
Northbound Right	C/975'	480'	C	319'	C
Southbound Left	550'	111'	550'	129'	550'
<b>Kendrick Castillo Way &amp; C-470 EB Ramp (#7)</b>					
Westbound Right	250'	Free	250'	Free	250'
Northbound Left	C/625'	455'	C/625'	528'	C/625'
Southbound Right	500'	Free	500'	Free	500'
<b>Plaza Circle Full Access (#8)</b>					
Northbound Left	DNE	25'	50'	25'	50'
Southbound Left	DNE	25'	50'	25'	50'

DNE = Does Not Exist; C = Continuous; DL = Dual Lefts; **Red** Text = Storage Deficiency; **Blue** Text = Recommendation

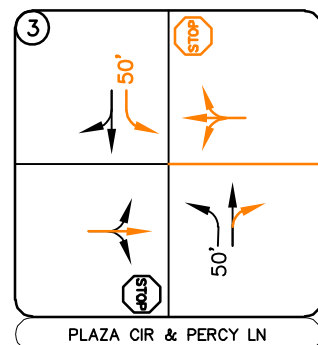
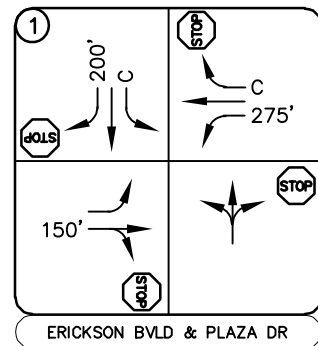
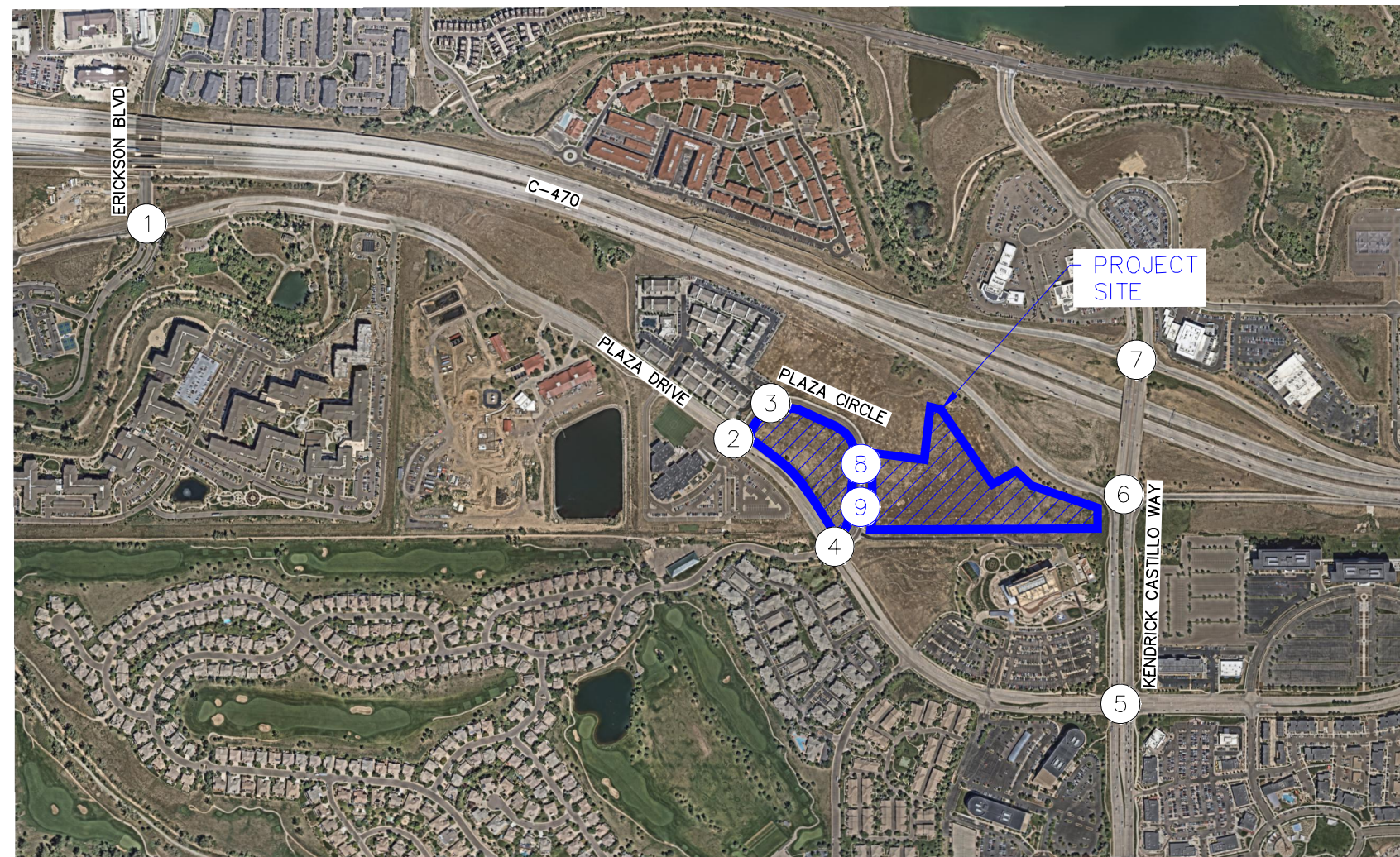
All queues are anticipated to remain within the existing or recommended turn lane lengths with exception of the southbound left turns at the Kendrick Castillo Way & Plaza Drive (#5) intersection. The dual southbound left turn lanes are recommended to be extended from 250 feet to 300 feet.



This extension will require a median modification and may require additional length in 2045. Of note, extension of these dual left turn lanes is independent and not caused by Lucent Station. The new left turn lanes along Plaza Circle for the full movement accesses are recommended to provide a length of 50 feet by restriping the existing double-yellow median.

#### 5.4 Improvement Summary

Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 10** with the conclusion recommendations provided in the next section.



Restrict Left Turn  
Movement 7:45-8:15 AM  
and 3:30-4:00 PM

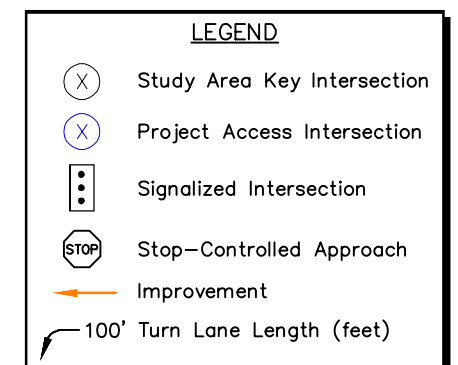
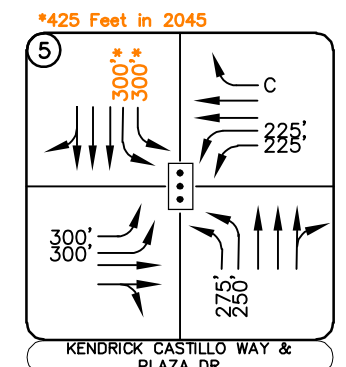
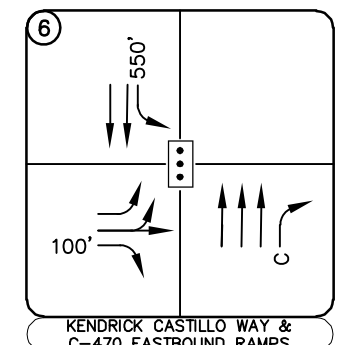
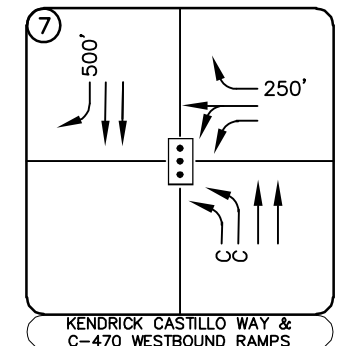
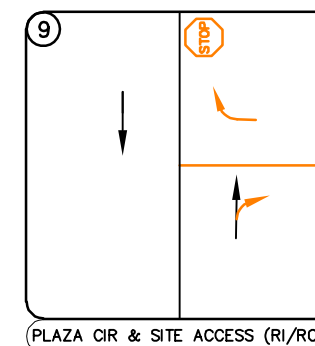
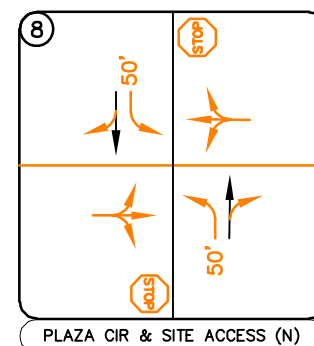
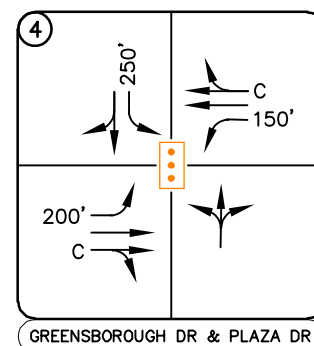
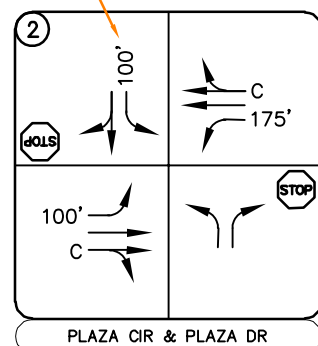


FIGURE 10  
LUCENT STATION  
HIGHLANDS RANCH, COLORADO  
RECOMMENDED GEOMETRY AND CONTROL



## 6.0 CONCLUSIONS AND RECOMMENDATIONS

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Based on the analysis presented in this report, Kimley-Horn believes Lucent Station will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following recommendations:

- It is recommended that the intersection of Plaza Circle/Greensborough Drive and Plaza Drive (#4) be signalized. This signalized intersection will likely also improve existing long southbound left turn delays at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2). With signalization of the Plaza Circle/Greensborough Drive and Plaza Drive (#4) intersection, the southbound left movement at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2) is recommended to be restricted during the arrival and dismissal times at the Ben Franklin Academy. This restriction would match the current restriction on the northbound approach, exiting the academy with a sign restricting the left turn movement onto Plaza Circle between 7:45-8:15 AM and 3:30-4:00 PM.
- It is recommended that the existing 250-foot southbound dual left turn lanes at the Kendrick Castillo Way and Plaza Drive (#5) intersection be extended to 300 feet in the short-term horizon and may need to be extended to 425 feet in 2045. Of note, extension of these dual left turn lanes is independent and not caused by Lucent Station.
- With completion of the Lucent Station project, a full movement access that aligns with the Percy Lane full movement access at Plaza Circle, two (2) full movement accesses in alignment with each other, and a right-in/right-out access will be provided along Plaza Circle. Left turn lanes are recommended to be designated within the double-yellow full lane width median for the Plaza Circle full movement accesses. These left turn lanes are recommended to be striped with lengths of 50 feet as is available. “STOP” (R1-1) signs are recommended to be installed on the approaches of all four (4) accesses, exiting the development. In addition, a R3-2 No Left Turn sign should be placed underneath the R1-1 “STOP” sign for the Plaza Circle right-in/right-out access.

- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the Douglas County and the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).



## Appendix A: Conceptual Site Plan



0 100'



## SITE PLAN - HIGHLANDS RANCH APARTMENTS

HIGHLANDS RANCH, CO - MORGAN GROUP

MECKS PARTNERS

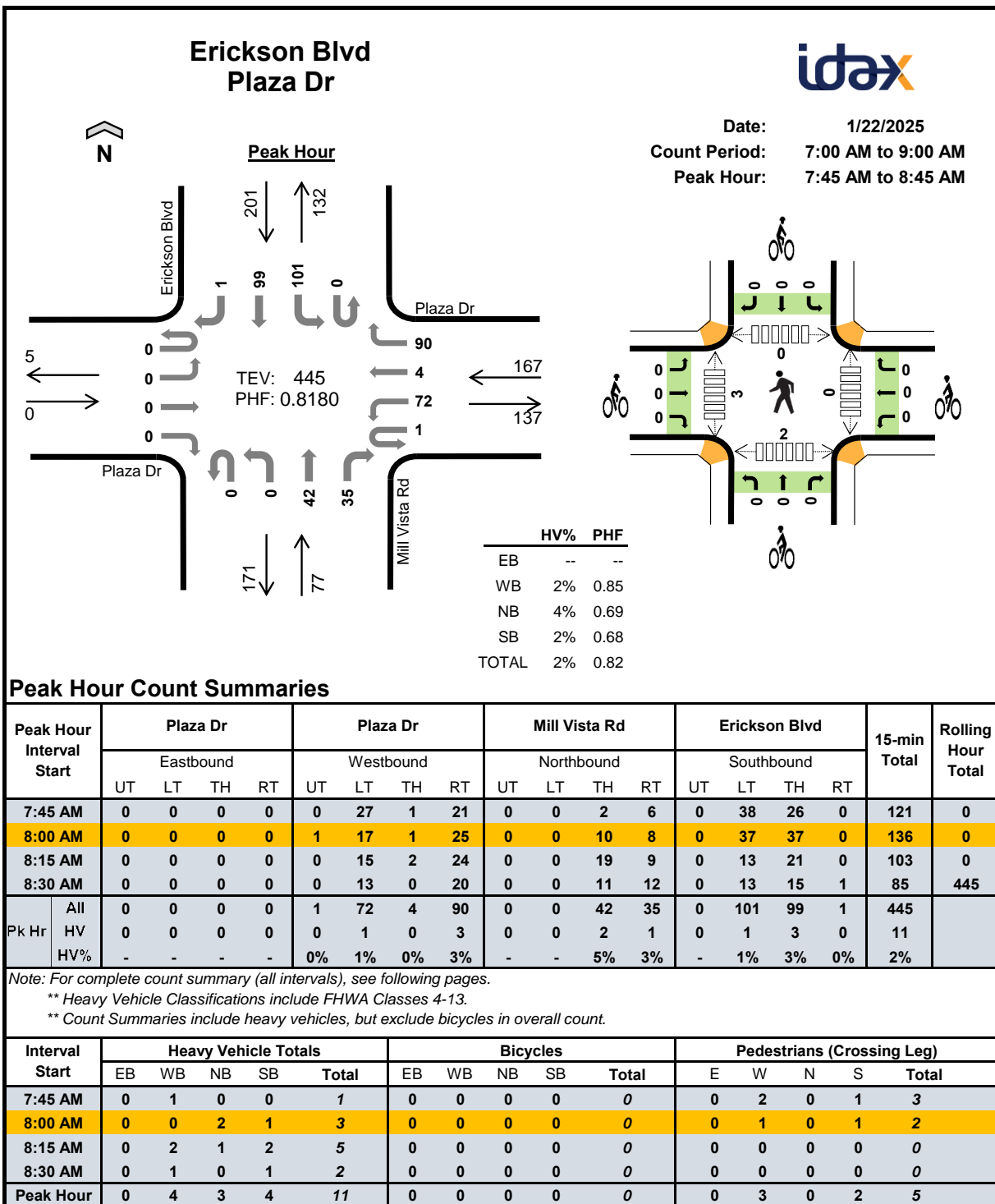
19000 Memorial Drive  
Suite 100  
Houston, Texas 77079  
281.555.5577

12.10.2024

A-01

JOB NO. 23095

## Appendix B: Intersection Count Sheets





**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	12	0	20	0	0	5	8	0	12	24	0	81	0
7:15 AM		0	0	0	0	0	14	1	27	0	0	4	8	0	14	12	0	80	0
7:30 AM		0	0	1	0	0	12	1	17	0	0	6	8	0	16	19	1	81	0
7:45 AM		0	0	0	0	0	27	1	21	0	0	2	6	0	38	26	0	121	363
8:00 AM		0	0	0	0	1	17	1	25	0	0	10	8	0	37	37	0	136	418
8:15 AM		0	0	0	0	0	15	2	24	0	0	19	9	0	13	21	0	103	441
8:30 AM		0	0	0	0	0	13	0	20	0	0	11	12	0	13	15	1	85	445
8:45 AM		0	0	0	0	0	17	0	17	0	0	15	10	0	24	31	0	114	438
Count Total		0	0	1	0	1	127	6	171	0	0	72	69	0	167	185	2	801	
Pk Hr	All	0	0	0	0	1	72	4	90	0	0	42	35	0	101	99	1	445	
	HV	0	0	0	0	0	1	0	3	0	0	2	1	0	1	3	0	11	
	HV%	-	-	-	-	0%	1%	0%	3%	-	-	5%	3%	-	1%	3%	0%	2%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	1	1	2	4	0	0	0	0	0	0	0	0	1	1
7:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	1	1	2	4	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	1	3
8:00 AM	0	0	2	1	3	0	0	0	0	0	0	1	0	1	2
8:15 AM	0	2	1	2	5	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	2	0	1	3	0	0	0	0	0	0	0	0	2	2
Count Total	0	10	5	9	24	0	0	0	0	0	0	3	0	6	9
Peak Hour	0	4	3	4	11	0	0	0	0	0	0	3	0	2	5

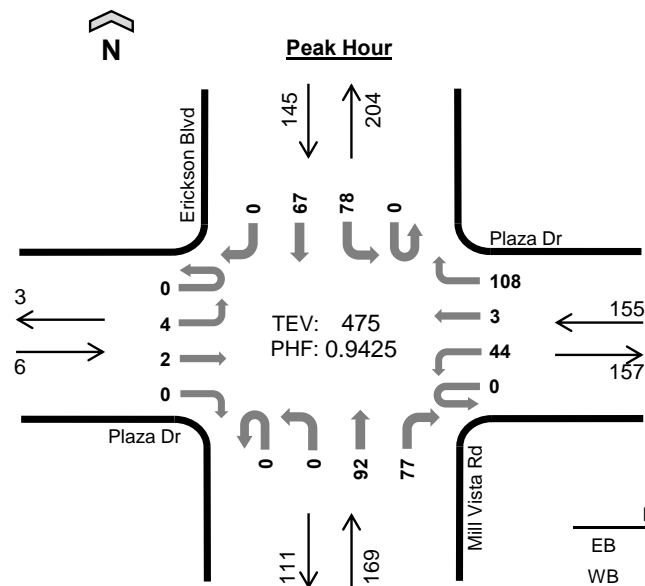
**Count Summaries - Heavy Vehicles**

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2	0	4	0
7:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	0	4	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	11
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	3	10
8:15 AM	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	5	13
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	11
8:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	3	13
Count Total	0	0	0	0	0	5	0	5	0	0	2	3	0	2	7	0	24	
Pk Hr Heavy	0	0	0	0	0	1	0	3	0	0	2	1	0	1	3	0	11	

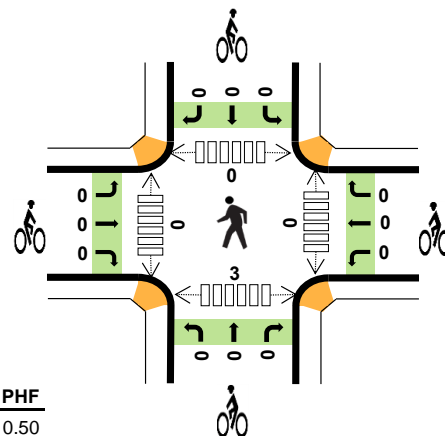
**Count Summaries - Bikes**

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

## Erickson Blvd Plaza Dr



	HV%	PHF
EB	0%	0.50
WB	1%	0.86
NB	1%	0.77
SB	1%	0.81
TOTAL	1%	0.94



### Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	13	0	28	0	0	32	23	0	12	18	0	126	0
4:15 PM		0	3	0	0	0	16	1	28	0	0	12	16	0	21	17	0	114	0
4:30 PM		0	1	0	0	0	5	1	27	0	0	23	22	0	20	12	0	111	0
4:45 PM		0	0	2	0	0	10	1	25	0	0	25	16	0	25	20	0	124	475
Pk Hr	All	0	4	2	0	0	44	3	108	0	0	92	77	0	78	67	0	475	
	HV	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	5	
	HV%	-	0%	0%	-	-	0%	0%	2%	-	-	0%	3%	-	0%	1%	-	1%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1
Peak Hour	0	2	2	1	5	0	0	0	0	0	0	0	0	3	3

**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	13	0	28	0	0	32	23	0	12	18	0	126	0
4:15 PM		0	3	0	0	0	16	1	28	0	0	12	16	0	21	17	0	114	0
4:30 PM		0	1	0	0	0	5	1	27	0	0	23	22	0	20	12	0	111	0
4:45 PM		0	0	2	0	0	10	1	25	0	0	25	16	0	25	20	0	124	475
5:00 PM		0	0	1	0	0	9	0	29	0	0	24	18	0	12	16	0	109	458
5:15 PM		0	0	0	0	0	10	1	24	0	0	19	20	0	15	8	0	97	441
5:30 PM		0	0	1	0	0	5	0	31	0	0	15	11	0	12	16	0	91	421
5:45 PM		0	0	0	0	0	6	0	18	0	0	14	15	0	15	11	0	79	376
Count Total		0	4	4	0	0	74	4	210	0	0	164	141	0	132	118	0	851	
Pk Hr	All	0	4	2	0	0	44	3	108	0	0	92	77	0	78	67	0	475	
	HV	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	5	
	HV%	-	0%	0%	-	-	0%	0%	2%	-	-	0%	3%	-	0%	1%	-	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	3	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	3	6
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	2	2	1	5	0	0	0	0	0	0	6	0	9	15
Peak Hour	0	2	2	1	5	0	0	0	0	0	0	0	0	3	3

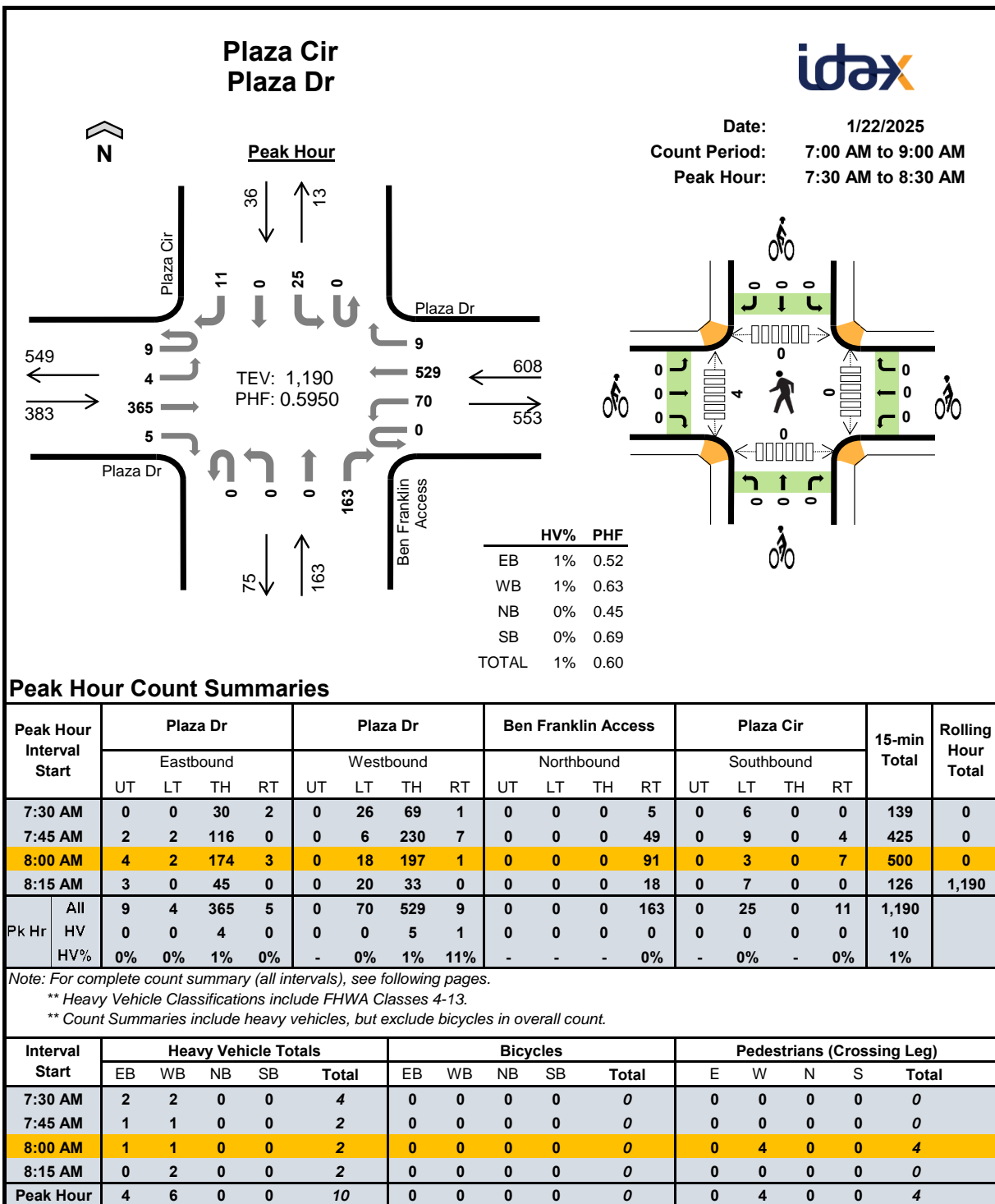


**Count Summaries - Heavy Vehicles**

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	5
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	5	
Pk Hr Heavy	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	5	

**Count Summaries - Bikes**

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	24	2	0	13	33	0	0	1	0	4	0	7	0	1	85	0
7:15 AM		0	0	20	1	0	19	40	0	0	0	0	1	0	15	0	0	96	0
7:30 AM		0	0	30	2	0	26	69	1	0	0	0	5	0	6	0	0	139	0
7:45 AM		2	2	116	0	0	6	230	7	0	0	0	49	0	9	0	4	425	745
8:00 AM		4	2	174	3	0	18	197	1	0	0	0	91	0	3	0	7	500	1,160
8:15 AM		3	0	45	0	0	20	33	0	0	0	0	18	0	7	0	0	126	1,190
8:30 AM		0	0	21	2	0	7	41	2	0	0	0	1	0	7	0	0	81	1,132
8:45 AM		0	0	26	0	0	10	30	1	0	1	0	2	0	11	0	1	82	789
Count Total		9	4	456	10	0	119	673	12	0	2	0	171	0	65	0	13	1,534	
Pk Hr	All	9	4	365	5	0	70	529	9	0	0	0	163	0	25	0	11	1,190	
	HV	0	0	4	0	0	0	5	1	0	0	0	0	0	0	0	0	10	
	HV%	0%	0%	1%	0%	-	0%	1%	11%	-	-	-	0%	-	0%	-	0%	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	1	0	0	2	0	0	0	0	0	0	4	0	0	4
8:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	1	0	0	0	0	0	2	0	1	0	3
8:45 AM	0	4	0	0	4	0	0	0	0	0	0	0	1	0	1
Count Total	4	13	0	0	17	0	0	0	0	0	2	4	2	0	8
Peak Hour	4	6	0	0	10	0	0	0	0	0	0	4	0	0	4

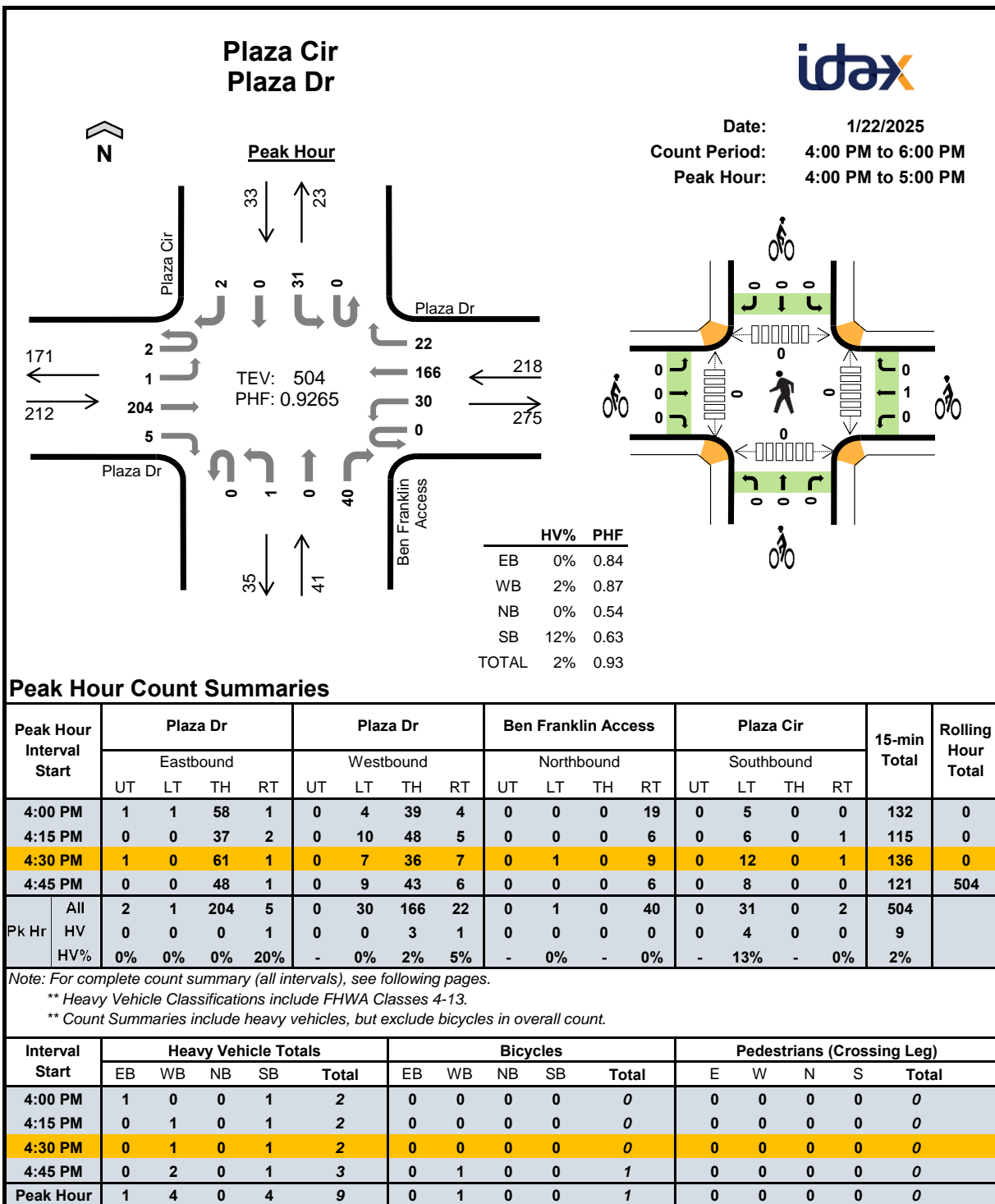
**Count Summaries - Heavy Vehicles**

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0
7:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	8
8:00 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	9
8:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	10
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	7
8:45 AM	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	4	9
Count Total	0	0	4	0	0	2	9	2	0	0	0	0	0	0	0	0	17	
Pk Hr Heavy	0	0	4	0	0	0	5	1	0	0	0	0	0	0	0	0	10	

**Count Summaries - Bikes**

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		





**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		1	1	58	1	0	4	39	4	0	0	0	19	0	5	0	0	132	0
4:15 PM		0	0	37	2	0	10	48	5	0	0	0	6	0	6	0	1	115	0
4:30 PM		1	0	61	1	0	7	36	7	0	1	0	9	0	12	0	1	136	0
4:45 PM		0	0	48	1	0	9	43	6	0	0	0	6	0	8	0	0	121	504
5:00 PM		0	0	42	0	0	2	39	8	0	1	0	7	0	11	0	0	110	482
5:15 PM		0	0	33	2	0	6	45	7	0	2	0	3	0	8	1	0	107	474
5:30 PM		0	0	25	0	0	9	37	9	0	3	0	12	0	2	0	0	97	435
5:45 PM		0	1	32	2	0	2	28	6	0	0	0	1	0	6	0	1	79	393
Count Total		2	2	336	9	0	49	315	52	0	7	0	63	0	58	1	3	897	
Pk Hr	All	2	1	204	5	0	30	166	22	0	1	0	40	0	31	0	2	504	
	HV	0	0	0	1	0	0	3	1	0	0	0	0	0	4	0	0	9	
	HV%	0%	0%	0%	20%	-	0%	2%	5%	-	0%	-	0%	-	13%	-	0%	2%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	1	3	0	1	0	0	1	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Count Total	2	4	0	4	10	0	1	0	0	1	0	1	0	1	2
Peak Hour	1	4	0	4	9	0	1	0	0	1	0	0	0	0	0

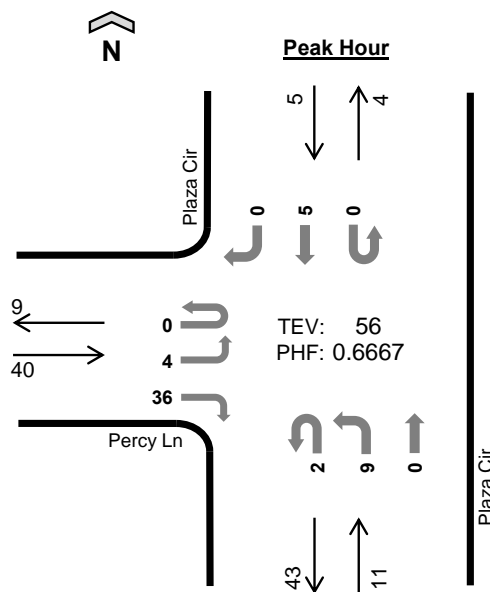
**Count Summaries - Heavy Vehicles**

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2	0
4:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	3	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Count Total	0	0	1	1	0	0	3	1	0	0	0	0	0	4	0	0	10	
Pk Hr Heavy	0	0	0	1	0	0	3	1	0	0	0	0	0	4	0	0	9	

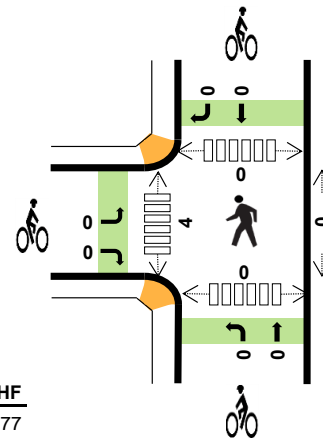
**Count Summaries - Bikes**

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
Pk Hr Bike	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	

## Plaza Cir Percy Ln



Date: 1/22/2025  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:15 AM to 8:15 AM



	HV%	PHF
EB	3%	0.77
WB	--	--
NB	9%	0.34
SB	0%	0.31
TOTAL	4%	0.67

### Peak Hour Count Summaries

Peak Hour Interval Start		Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM		0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	13	0
7:30 AM		0	0	0	8	0	0	0	0	0	1	0	0	0	0	0	0	9	0
7:45 AM		0	2	0	10	0	0	0	0	2	6	0	0	0	0	1	0	21	0
8:00 AM		0	2	0	5	0	0	0	0	0	2	0	0	0	0	4	0	13	56
Pk Hr	All	0	4	0	36	0	0	0	0	2	9	0	0	0	0	5	0	56	
	HV	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	
	HV%	-	25%	-	0%	-	-	-	-	0%	11%	-	-	-	-	0%	-	4%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
Peak Hour	1	0	1	0	2	0	0	0	0	0	0	4	0	0	4



**Count Summaries - All Vehicles**

Interval Start		Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	1	0	9	0	0	0	0	0	0	0	0	0	0	1	0	11	0
7:15 AM		0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	13	0
7:30 AM		0	0	0	8	0	0	0	0	0	1	0	0	0	0	0	0	9	0
7:45 AM		0	2	0	10	0	0	0	0	2	6	0	0	0	0	1	0	21	54
8:00 AM		0	2	0	5	0	0	0	0	0	2	0	0	0	0	4	0	13	56
8:15 AM		0	0	0	6	0	0	0	0	1	0	0	0	0	0	0	0	7	50
8:30 AM		0	0	0	7	0	0	0	0	0	2	0	0	0	0	0	0	9	50
8:45 AM		0	0	0	10	0	0	0	0	0	1	0	0	0	0	1	0	12	41
Count Total		0	5	0	68	0	0	0	0	3	12	0	0	0	0	7	0	95	
Pk Hr	All	0	4	0	36	0	0	0	0	2	9	0	0	0	0	5	0	56	
	HV	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	
	HV%	-	25%	-	0%	-	-	-	-	0%	11%	-	-	-	-	0%	-	4%	

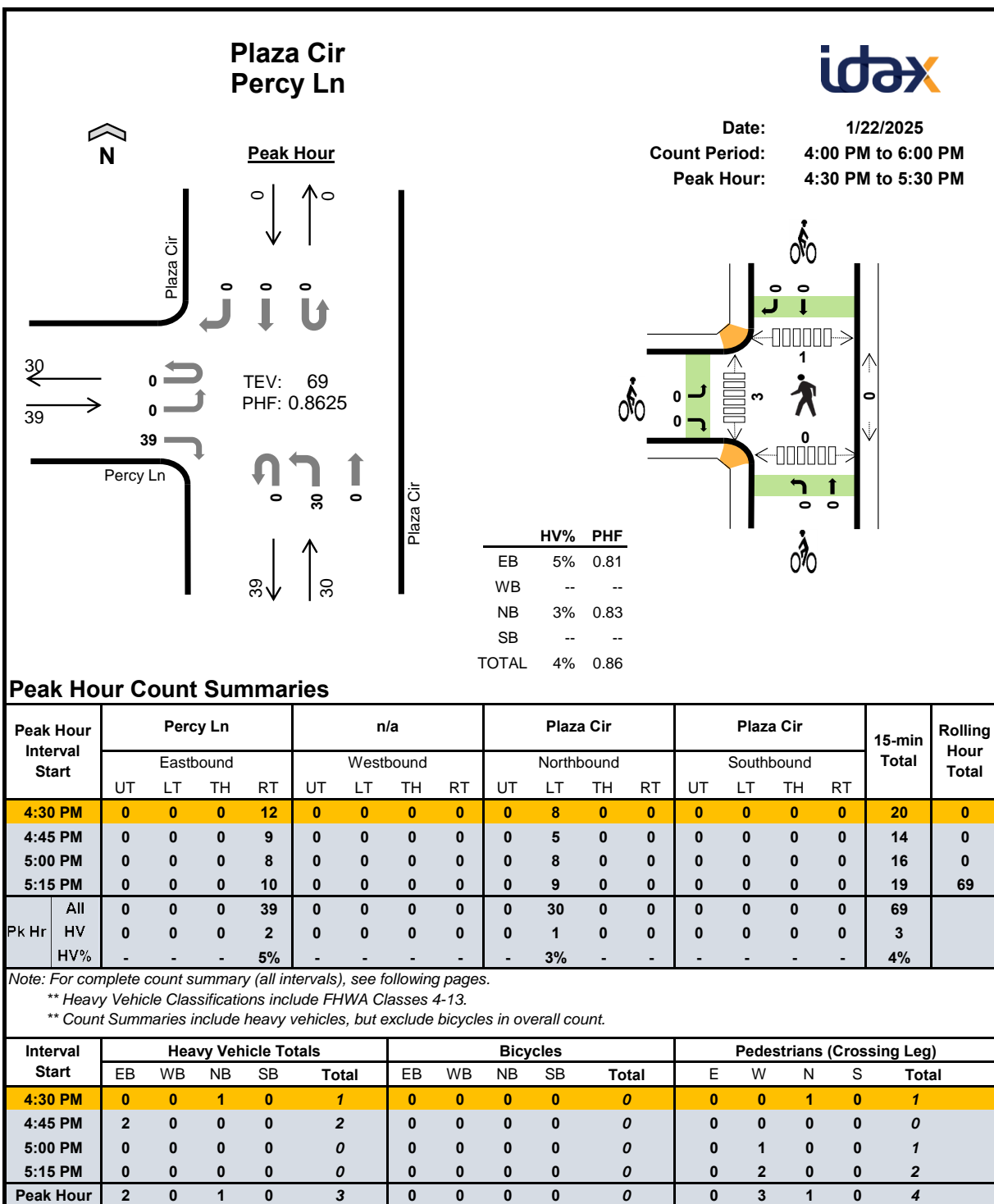
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Count Total	1	0	2	0	3	0	0	0	0	0	0	5	0	0	5
Peak Hour	1	0	1	0	2	0	0	0	0	0	0	4	0	0	4

**Count Summaries - Heavy Vehicles**

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
Count Total	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	
Pk Hr Heavy	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	

**Count Summaries - Bikes**

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



**Count Summaries - All Vehicles**

Interval Start		Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total	
		Eastbound				Westbound				Northbound				Southbound						
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM		0	0	0	5	0	0	0	0	0	5	0	0	0	0	0	2	0	12	0
4:15 PM		0	0	0	5	0	0	0	0	0	4	0	0	0	0	0	1	0	10	0
4:30 PM		0	0	0	12	0	0	0	0	0	8	0	0	0	0	0	0	0	20	0
4:45 PM		0	0	0	9	0	0	0	0	0	5	0	0	0	0	0	0	0	14	56
5:00 PM		0	0	0	8	0	0	0	0	0	8	0	0	0	0	0	0	0	16	60
5:15 PM		0	0	0	10	0	0	0	0	0	9	0	0	0	0	0	0	0	19	69
5:30 PM		0	0	0	3	0	0	0	0	0	9	0	0	0	0	0	0	0	12	61
5:45 PM		0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	12	59
Count Total		0	0	0	58	0	0	0	0	0	54	0	0	0	0	0	3	0	115	
Pk Hr	All	0	0	0	39	0	0	0	0	0	30	0	0	0	0	0	0	0	69	
	HV	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	3	
	HV%	-	-	-	5%	-	-	-	-	-	3%	-	-	-	-	-	-	-	4%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
<b>4:30 PM</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>
4:45 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Count Total	2	0	1	2	5	0	0	0	0	0	0	8	1	0	9
<b>Peak Hour</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>



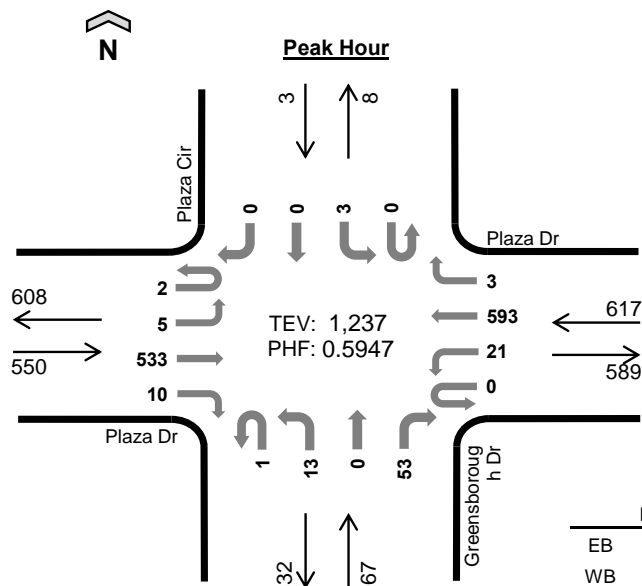
**Count Summaries - Heavy Vehicles**

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	5
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	2	0	0	0	0	0	1	0	0	0	0	2	0	5	
Pk Hr Heavy	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	3	

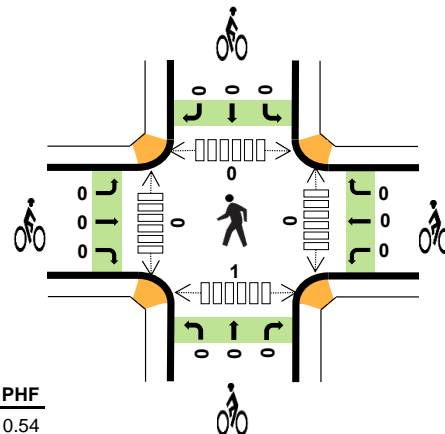
**Count Summaries - Bikes**

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

## Greensborough Dr Plaza Dr



Date: 1/22/2025  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:30 AM to 8:30 AM



	HV%	PHF
EB	1%	0.54
WB	1%	0.65
NB	0%	0.58
SB	0%	0.38
TOTAL	1%	0.59

### Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	0	33	2	0	2	85	0	1	0	0	9	0	0	0	0	132	0
7:45 AM		0	1	154	3	0	8	229	1	0	4	0	14	0	2	0	0	416	0
8:00 AM		2	4	245	4	0	7	227	1	0	8	0	21	0	1	0	0	520	0
8:15 AM		0	0	101	1	0	4	52	1	0	1	0	9	0	0	0	0	169	1,237
Pk Hr	All	2	5	533	10	0	21	593	3	1	13	0	53	0	3	0	0	1,237	
	HV	0	0	3	0	0	0	6	1	0	0	0	0	0	0	0	0	10	
	HV%	0%	0%	1%	0%	-	0%	1%	33%	0%	0%	-	0%	-	0%	-	-	1%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	2	0	0	3	0	0	0	0	0	0	0	0	1	1
Peak Hour	3	7	0	0	10	0	0	0	0	0	0	0	0	1	1

**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	36	0	0	6	46	0	0	3	0	16	0	1	0	0	108	0
7:15 AM		0	0	37	0	0	0	55	0	0	4	0	16	0	0	0	0	112	0
7:30 AM		0	0	33	2	0	2	85	0	1	0	0	9	0	0	0	0	132	0
7:45 AM		0	1	154	3	0	8	229	1	0	4	0	14	0	2	0	0	416	768
8:00 AM		2	4	245	4	0	7	227	1	0	8	0	21	0	1	0	0	520	1,180
8:15 AM		0	0	101	1	0	4	52	1	0	1	0	9	0	0	0	0	169	1,237
8:30 AM		0	0	33	0	1	3	46	2	0	2	1	7	0	0	1	0	96	1,201
8:45 AM		0	1	33	1	0	8	39	2	0	2	0	18	0	0	0	0	104	889
Count Total		2	6	672	11	1	38	779	7	1	24	1	110	0	4	1	0	1,657	
Pk Hr	All	2	5	533	10	0	21	593	3	1	13	0	53	0	3	0	0	1,237	
	HV	0	0	3	0	0	0	6	1	0	0	0	0	0	0	0	0	10	
	HV%	0%	0%	1%	0%	-	0%	1%	33%	0%	0%	-	0%	-	0%	-	-	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	2	0	0	3	0	0	0	0	0	0	0	0	1	1
8:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	6	0	0	7	0	0	0	0	0	0	0	0	1	1
Count Total	4	16	0	0	20	0	0	0	0	0	0	0	0	3	3
Peak Hour	3	7	0	0	10	0	0	0	0	0	0	0	0	1	1

**Count Summaries - Heavy Vehicles**

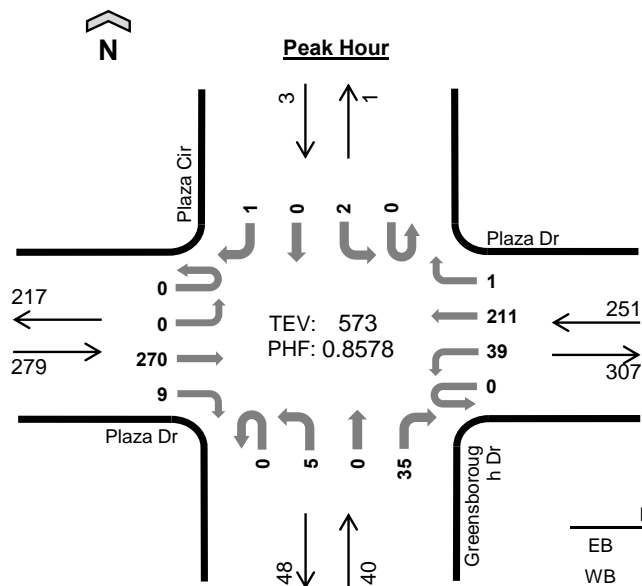
Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0
7:45 AM	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	3	6
8:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	8
8:15 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	10
8:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	10
8:45 AM	0	0	1	0	0	0	5	1	0	0	0	0	0	0	0	0	7	14
Count Total	0	0	4	0	0	0	13	3	0	0	0	0	0	0	0	0	20	
Pk Hr Heavy	0	0	3	0	0	0	6	1	0	0	0	0	0	0	0	0	10	

**Count Summaries - Bikes**

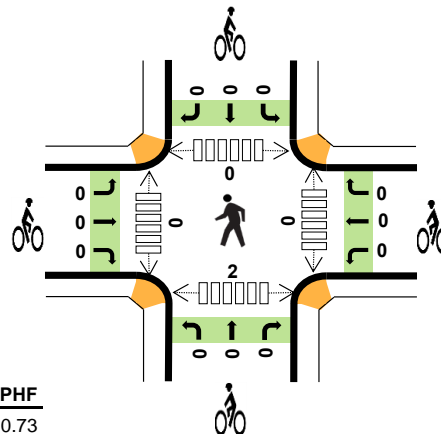
Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		



## Greensborough Dr Plaza Dr



Date: 1/22/2025  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:00 PM to 5:00 PM



	HV%	PHF
EB	1%	0.73
WB	2%	0.92
NB	0%	0.67
SB	0%	0.38
TOTAL	1%	0.86

### Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	93	2	0	13	47	1	0	2	0	9	0	0	0	0	167	0
4:15 PM		0	0	45	3	0	8	60	0	0	1	0	7	0	1	0	0	125	0
4:30 PM		0	0	76	1	0	11	48	0	0	2	0	13	0	0	0	0	151	0
4:45 PM		0	0	56	3	0	7	56	0	0	0	0	6	0	1	0	1	130	573
Pk Hr	All	0	0	270	9	0	39	211	1	0	5	0	35	0	2	0	1	573	
	HV	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	7	
	HV%	-	-	1%	0%	-	0%	2%	0%	-	0%	-	0%	-	0%	-	0%	1%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	2	2
Peak Hour	3	4	0	0	7	0	0	0	0	0	0	0	0	2	2

**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	93	2	0	13	47	1	0	2	0	9	0	0	0	0	167	0
4:15 PM		0	0	45	3	0	8	60	0	0	1	0	7	0	1	0	0	125	0
4:30 PM		0	0	76	1	0	11	48	0	0	2	0	13	0	0	0	0	151	0
4:45 PM		0	0	56	3	0	7	56	0	0	0	0	6	0	1	0	1	130	573
5:00 PM		0	0	57	4	0	11	47	0	1	2	0	3	0	0	0	0	125	531
5:15 PM		0	0	46	2	0	12	57	1	0	3	0	9	0	0	0	0	130	536
5:30 PM		0	0	36	2	0	8	54	1	0	1	0	8	0	0	0	0	110	495
5:45 PM		0	0	35	1	0	7	35	0	0	1	0	8	0	0	0	0	87	452
Count Total		0	0	444	18	0	77	404	3	1	12	0	63	0	2	0	1	1,025	
Pk Hr	All	0	0	270	9	0	39	211	1	0	5	0	35	0	2	0	1	573	
	HV	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	7	
	HV%	-	-	1%	0%	-	0%	2%	0%	-	0%	-	0%	-	0%	-	0%	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	2	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Count Total	4	5	0	0	9	0	0	0	0	0	1	0	0	3	4
Peak Hour	3	4	0	0	7	0	0	0	0	0	0	0	0	2	2

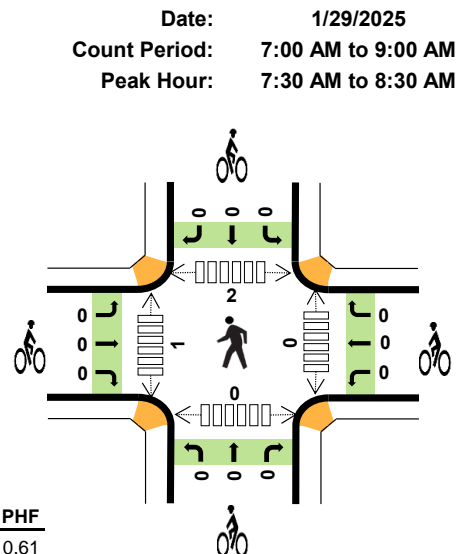
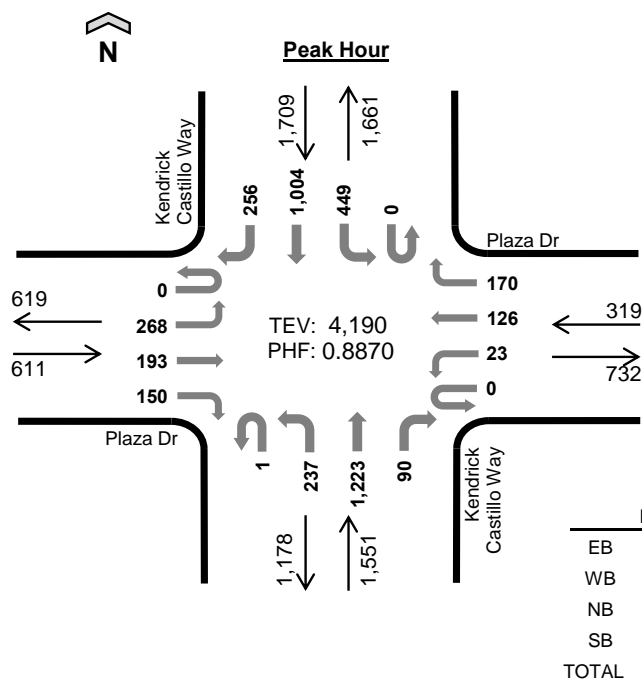
**Count Summaries - Heavy Vehicles**

Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	7
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	4
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Count Total	0	0	4	0	0	1	4	0	0	0	0	0	0	0	0	0	9	
Pk Hr Heavy	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	7	

**Count Summaries - Bikes**

Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

## Kendrick Castillo Way Plaza Dr



### Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	38	21	7	0	3	13	49	1	25	395	26	0	133	242	40	993	0
7:45 AM		0	81	44	43	0	3	44	41	0	101	268	21	0	109	254	68	1,077	0
8:00 AM		0	98	82	71	0	9	53	41	0	85	265	20	0	121	227	109	1,181	0
8:15 AM		0	51	46	29	0	8	16	39	0	26	295	23	0	86	281	39	939	4,190
Pk Hr	All	0	268	193	150	0	23	126	170	1	237	1,223	90	0	449	1,004	256	4,190	
	HV	0	2	0	1	0	0	3	2	0	0	13	0	0	1	20	5	47	
	HV%	-	1%	0%	1%	-	0%	2%	1%	0%	0%	1%	0%	-	0%	2%	2%	1%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:30 AM	1	0	4	5	10	0	0	0	0	0	0	1	2	0	3
7:45 AM	1	2	2	6	11	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	2	3	4	10	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	4	11	16	0	0	0	0	0	0	0	0	0	0
Peak Hour	3	5	13	26	47	0	0	0	0	0	0	1	2	0	3



**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	40	8	12	0	3	10	24	0	16	324	11	0	73	184	24	729	0
7:15 AM		0	65	21	18	0	3	8	45	0	21	335	20	0	125	214	37	912	0
7:30 AM		0	38	21	7	0	3	13	49	1	25	395	26	0	133	242	40	993	0
7:45 AM		0	81	44	43	0	3	44	41	0	101	268	21	0	109	254	68	1,077	3,711
8:00 AM		0	98	82	71	0	9	53	41	0	85	265	20	0	121	227	109	1,181	4,163
8:15 AM		0	51	46	29	0	8	16	39	0	26	295	23	0	86	281	39	939	4,190
8:30 AM		0	38	26	14	0	10	14	27	0	31	334	17	0	78	238	45	872	4,069
8:45 AM		0	32	28	22	0	10	10	24	0	15	305	30	0	103	244	31	854	3,846
Count Total		0	443	276	216	0	49	168	290	1	320	2,521	168	0	828	1,884	393	7,557	
Pk Hr	All	0	268	193	150	0	23	126	170	1	237	1,223	90	0	449	1,004	256	4,190	
	HV	0	2	0	1	0	0	3	2	0	0	13	0	0	1	20	5	47	
	HV%	-	1%	0%	1%	-	0%	2%	1%	0%	0%	1%	0%	-	0%	2%	2%	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	0	3	3	6	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	6	5	12	0	0	0	0	0	0	2	1	0	3
7:30 AM	1	0	4	5	10	0	0	0	0	0	0	1	2	0	3
7:45 AM	1	2	2	6	11	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	2	3	4	10	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	4	11	16	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	0	4	11	16	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	8	11	20	0	0	0	0	0	1	0	0	0	1
Count Total	5	6	34	56	101	0	0	0	0	0	1	3	3	0	7
Peak Hour	3	5	13	26	47	0	0	0	0	0	0	1	2	0	3

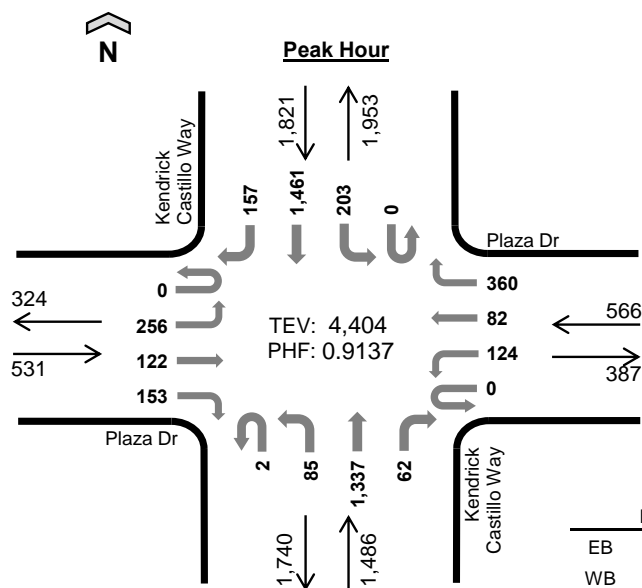
**Count Summaries - Heavy Vehicles**

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	1	1	1	6	0
7:15 AM	0	0	0	0	0	0	0	1	0	1	4	1	0	1	3	1	12	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	4	0	0	0	5	0	10	0
7:45 AM	0	1	0	0	0	0	1	1	0	0	2	0	0	1	4	1	11	39
8:00 AM	0	0	0	1	0	0	1	1	0	0	3	0	0	0	3	1	10	43
8:15 AM	0	0	0	0	0	0	1	0	0	0	4	0	0	0	8	3	16	47
8:30 AM	0	1	0	0	0	0	0	0	0	0	4	0	0	0	8	3	16	53
8:45 AM	0	0	0	1	0	0	0	0	0	0	7	1	0	0	7	4	20	62
Count Total	0	3	0	2	0	0	3	3	0	1	31	2	0	3	39	14	101	
Pk Hr Heavy	0	2	0	1	0	0	3	2	0	0	13	0	0	1	20	5	47	

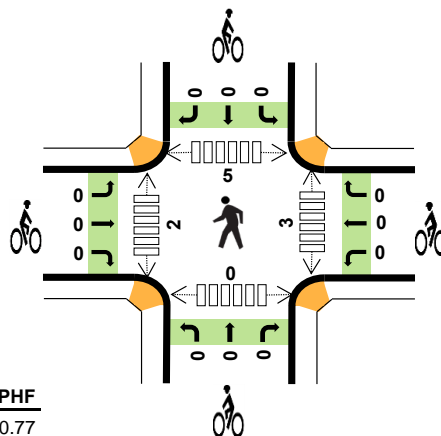
**Count Summaries - Bikes**

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

## Kendrick Castillo Way Plaza Dr



Date: 1/29/2025  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:00 PM to 5:00 PM



	HV%	PHF
EB	1%	0.77
WB	1%	0.88
NB	1%	0.88
SB	0%	0.91
TOTAL	1%	0.91

### Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	71	47	54	0	32	23	105	0	23	383	14	0	56	363	34	1,205	0
4:15 PM		0	66	27	30	0	32	24	102	0	18	359	13	0	38	332	40	1,081	0
4:30 PM		0	60	25	38	0	28	18	82	1	30	312	15	0	58	391	49	1,107	0
4:45 PM		0	59	23	31	0	32	17	71	1	14	283	20	0	51	375	34	1,011	4,404
Pk Hr	All	0	256	122	153	0	124	82	360	2	85	1,337	62	0	203	1,461	157	4,404	
	HV	0	3	1	0	0	0	0	3	0	2	15	2	0	1	6	1	34	
	HV%	-	1%	1%	0%	-	0%	0%	1%	0%	2%	1%	3%	-	0%	0%	1%	1%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	1	2	7	1	11	0	0	0	0	0	2	1	3	0	6
4:15 PM	2	1	4	3	10	0	0	0	0	0	0	1	1	0	2
4:30 PM	0	0	5	2	7	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	3	2	6	0	0	0	0	0	1	0	1	0	2
Peak Hour	4	3	19	8	34	0	0	0	0	0	3	2	5	0	10

**Count Summaries - All Vehicles**

Interval Start		Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	71	47	54	0	32	23	105	0	23	383	14	0	56	363	34	1,205	0
4:15 PM		0	66	27	30	0	32	24	102	0	18	359	13	0	38	332	40	1,081	0
4:30 PM		0	60	25	38	0	28	18	82	1	30	312	15	0	58	391	49	1,107	0
4:45 PM		0	59	23	31	0	32	17	71	1	14	283	20	0	51	375	34	1,011	4,404
5:00 PM		1	60	32	23	0	21	18	102	1	22	289	13	0	58	399	49	1,088	4,287
5:15 PM		0	47	17	26	0	37	35	65	1	17	231	22	0	46	373	45	962	4,168
5:30 PM		0	40	22	25	0	39	17	69	2	27	174	19	0	43	376	38	891	3,952
5:45 PM		0	39	15	11	0	25	10	70	0	18	189	16	0	41	295	29	758	3,699
Count Total		1	442	208	238	0	246	162	666	6	169	2,220	132	0	391	2,904	318	8,103	
Pk Hr	All	0	256	122	153	0	124	82	360	2	85	1,337	62	0	203	1,461	157	4,404	
	HV	0	3	1	0	0	0	0	3	0	2	15	2	0	1	6	1	34	
	HV%	-	1%	1%	0%	-	0%	0%	1%	0%	2%	1%	3%	-	0%	0%	1%	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	1	2	7	1	11	0	0	0	0	0	2	1	3	0	6
4:15 PM	2	1	4	3	10	0	0	0	0	0	0	1	1	0	2
4:30 PM	0	0	5	2	7	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	3	2	6	0	0	0	0	0	1	0	1	0	2
5:00 PM	1	1	4	2	8	0	0	0	0	0	0	0	1	0	1
5:15 PM	3	0	1	4	8	0	0	0	0	0	0	1	0	0	1
5:30 PM	1	1	2	3	7	0	0	0	0	0	1	1	0	0	2
5:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Count Total	9	5	26	18	58	0	0	0	0	0	4	4	6	0	14
Peak Hour	4	3	19	8	34	0	0	0	0	0	3	2	5	0	10



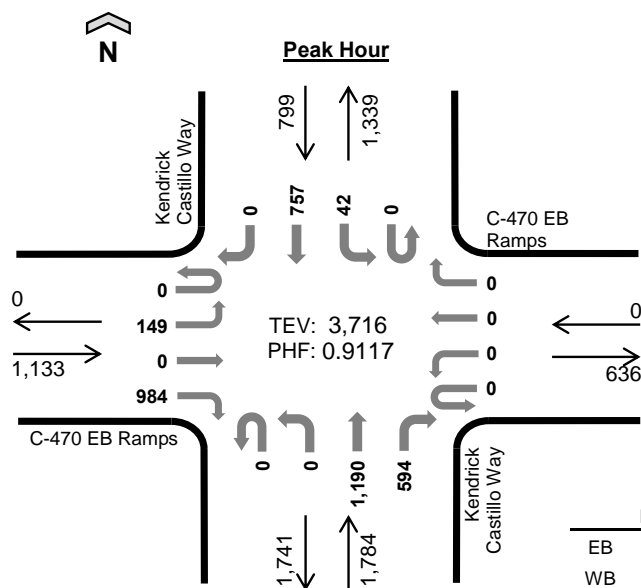
**Count Summaries - Heavy Vehicles**

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	0	0	0	0	2	0	1	4	2	0	1	0	0	11	0
4:15 PM	0	1	1	0	0	0	0	1	0	1	3	0	0	0	2	1	10	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	3	0	0	0	2	0	6	34
5:00 PM	0	0	1	0	0	0	1	0	0	0	4	0	0	0	2	0	8	31
5:15 PM	0	2	1	0	0	0	0	0	0	0	1	0	0	0	4	0	8	29
5:30 PM	0	0	1	0	0	1	0	0	0	0	2	0	0	0	3	0	7	29
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	24
Count Total	0	5	4	0	0	1	1	3	0	2	22	2	0	1	16	1	58	
Pk Hr Heavy	0	3	1	0	0	0	0	3	0	2	15	2	0	1	6	1	34	

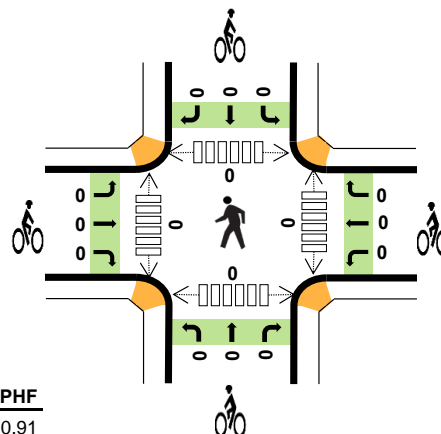
**Count Summaries - Bikes**

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

## Kendrick Castillo Way C-470 EB Ramps



Date: 1/22/2025  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:15 AM to 8:15 AM



	HV%	PHF
EB	1%	0.91
WB	--	--
NB	1%	0.92
SB	2%	0.87
TOTAL	1%	0.91

### Peak Hour Count Summaries

Peak Hour Interval Start		C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM		0	36	0	209	0	0	0	0	0	0	286	160	0	7	145	0	843	0
7:30 AM		0	37	0	236	0	0	0	0	0	0	303	150	0	20	182	0	928	0
7:45 AM		0	44	0	261	0	0	0	0	0	0	335	150	0	9	220	0	1,019	0
8:00 AM		0	32	0	278	0	0	0	0	0	0	266	134	0	6	210	0	926	3,716
Pk Hr	All	0	149	0	984	0	0	0	0	0	0	1,190	594	0	42	757	0	3,716	
	HV	0	2	0	10	0	0	0	0	0	0	7	3	0	7	12	0	41	
	HV%	-	1%	-	1%	-	-	-	-	-	-	1%	1%	-	17%	2%	-	1%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:15 AM	4	0	1	3	8	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	7	8	0	0	0	0	0	0	0	0	0	0
7:45 AM	4	0	6	5	15	0	0	0	0	0	0	0	0	0	0
8:00 AM	3	0	3	4	10	0	0	0	0	0	0	0	0	0	0
Peak Hour	12	0	10	19	41	0	0	0	0	0	0	0	0	0	0

**Count Summaries - All Vehicles**

Interval Start		C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	19	0	155	0	0	0	0	0	0	239	151	0	12	149	0	725	0
7:15 AM		0	36	0	209	0	0	0	0	0	0	286	160	0	7	145	0	843	0
7:30 AM		0	37	0	236	0	0	0	0	0	0	303	150	0	20	182	0	928	0
7:45 AM		0	44	0	261	0	0	0	0	0	0	335	150	0	9	220	0	1,019	3,515
8:00 AM		0	32	0	278	0	0	0	0	0	0	266	134	0	6	210	0	926	3,716
8:15 AM		0	30	0	202	0	0	0	0	0	0	219	143	0	13	174	0	781	3,654
8:30 AM		0	21	0	187	0	0	0	0	0	0	211	151	0	16	176	0	762	3,488
8:45 AM		0	28	0	218	0	0	0	0	0	0	214	143	0	16	159	0	778	3,247
Count Total		0	247	0	1,746	0	0	0	0	0	0	2,073	1,182	0	99	1,415	0	6,762	
Pk Hr	All	0	149	0	984	0	0	0	0	0	0	1,190	594	0	42	757	0	3,716	
	HV	0	2	0	10	0	0	0	0	0	0	7	3	0	7	12	0	41	
	HV%	-	1%	-	1%	-	-	-	-	-	-	1%	1%	-	17%	2%	-	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	1	0	0	3	4	0	0	0	0	0	0	0	0	0	0
7:15 AM	4	0	1	3	8	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	7	8	0	0	0	0	0	0	0	0	0	0
7:45 AM	4	0	6	5	15	0	0	0	0	0	0	0	0	0	0
8:00 AM	3	0	3	4	10	0	0	0	0	0	0	0	0	0	0
8:15 AM	4	0	5	4	13	0	0	0	0	0	0	0	0	0	0
8:30 AM	5	0	7	3	15	0	0	0	0	0	0	0	0	0	0
8:45 AM	6	0	8	9	23	0	0	0	0	0	0	0	0	0	0
Count Total	28	0	30	38	96	0	0	0	0	0	0	0	0	0	0
Peak Hour	12	0	10	19	41	0	0	0	0	0	0	0	0	0	0

**Count Summaries - Heavy Vehicles**

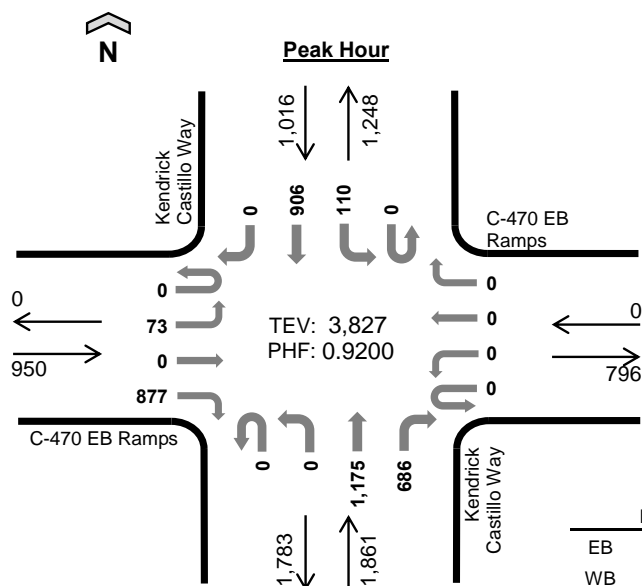
Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	4	0
7:15 AM	0	1	0	3	0	0	0	0	0	0	0	1	0	0	1	2	8	0
7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	3	8	0
7:45 AM	0	0	0	4	0	0	0	0	0	0	0	4	2	0	1	4	15	35
8:00 AM	0	1	0	2	0	0	0	0	0	0	0	2	1	0	1	3	10	41
8:15 AM	0	0	0	4	0	0	0	0	0	0	0	3	2	0	1	3	13	46
8:30 AM	0	0	0	5	0	0	0	0	0	0	0	3	4	0	0	3	15	53
8:45 AM	0	0	0	6	0	0	0	0	0	0	0	5	3	0	0	9	23	61
Count Total	0	2	0	26	0	0	0	0	0	0	0	18	12	0	8	30	96	
Pk Hr Heavy	0	2	0	10	0	0	0	0	0	0	0	7	3	0	7	12	41	

**Count Summaries - Bikes**

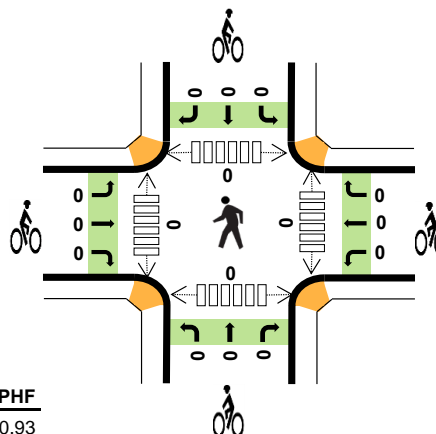
Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		



## Kendrick Castillo Way C-470 EB Ramps



Date: 1/22/2025  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:30 PM to 5:30 PM



	HV%	PHF
EB	1%	0.93
WB	--	--
NB	0%	0.88
SB	1%	0.90
TOTAL	1%	0.92

### Peak Hour Count Summaries

Peak Hour Interval Start		C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	20	0	236	0	0	0	0	0	0	287	172	0	19	198	0	932	0
4:45 PM		0	13	0	212	0	0	0	0	0	0	256	156	0	25	220	0	882	0
5:00 PM		0	19	0	210	0	0	0	0	0	0	324	206	0	44	237	0	1,040	0
5:15 PM		0	21	0	219	0	0	0	0	0	0	308	152	0	22	251	0	973	3,827
Pk Hr	All	0	73	0	877	0	0	0	0	0	0	1,175	686	0	110	906	0	3,827	
	HV	0	4	0	3	0	0	0	0	0	0	5	3	0	1	9	0	25	
	HV%	-	5%	-	0%	-	-	-	-	-	-	0%	0%	-	1%	1%	-	1%	

Note: For complete count summary (all intervals), see following pages.

\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.

\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:30 PM	2	0	1	2	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	3	4	8	0	0	0	0	0	0	0	0	0	0
5:00 PM	2	0	2	2	6	0	0	0	0	0	0	0	0	0	0
5:15 PM	2	0	2	2	6	0	0	0	0	0	0	0	0	0	0
Peak Hour	7	0	8	10	25	0	0	0	0	0	0	0	0	0	0

**Count Summaries - All Vehicles**

Interval Start		C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	13	0	178	0	0	0	0	0	0	274	174	0	41	194	0	874	0
4:15 PM		0	21	0	223	0	0	0	0	0	0	282	195	0	27	204	0	952	0
4:30 PM		0	20	0	236	0	0	0	0	0	0	287	172	0	19	198	0	932	0
4:45 PM		0	13	0	212	0	0	0	0	0	0	256	156	0	25	220	0	882	3,640
5:00 PM		0	19	0	210	0	0	0	0	0	0	324	206	0	44	237	0	1,040	3,806
5:15 PM		0	21	0	219	0	0	0	0	0	0	308	152	0	22	251	0	973	3,827
5:30 PM		0	6	0	205	0	0	0	0	0	0	219	144	0	15	249	0	838	3,733
5:45 PM		0	7	0	199	0	0	0	0	0	0	204	135	0	18	224	0	787	3,638
Count Total		0	120	0	1,682	0	0	0	0	0	0	2,154	1,334	0	211	1,777	0	7,278	
Pk Hr	All	0	73	0	877	0	0	0	0	0	0	1,175	686	0	110	906	0	3,827	
	HV	0	4	0	3	0	0	0	0	0	0	5	3	0	1	9	0	25	
	HV%	-	5%	-	0%	-	-	-	-	-	-	0%	0%	-	1%	1%	-	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	2	0	3	4	9	0	0	0	0	0	0	0	0	0	0
4:15 PM	4	0	7	2	13	0	0	0	0	0	0	0	0	0	0
4:30 PM	2	0	1	2	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	3	4	8	0	0	0	0	0	0	0	0	0	0
5:00 PM	2	0	2	2	6	0	0	0	0	0	0	0	0	0	0
5:15 PM	2	0	2	2	6	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
Count Total	13	0	19	17	49	0	0	0	0	0	0	0	0	0	0
Peak Hour	7	0	8	10	25	0	0	0	0	0	0	0	0	0	0

**Count Summaries - Heavy Vehicles**

Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	3	0	0	4	0	9	0
4:15 PM	0	4	0	0	0	0	0	0	0	0	4	3	0	1	1	0	13	0
4:30 PM	0	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	5	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	2	1	0	0	4	0	8	35
5:00 PM	0	2	0	0	0	0	0	0	0	0	1	1	0	0	2	0	6	32
5:15 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	0	2	0	6	25
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	14
Count Total	0	10	0	3	0	0	0	0	0	0	10	9	0	2	15	0	49	
Pk Hr Heavy	0	4	0	3	0	0	0	0	0	0	5	3	0	1	9	0	25	

**Count Summaries - Bikes**

Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		



**Count Summaries - All Vehicles**

Interval Start		C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	106	0	17	0	180	71	0	0	0	37	13	424	0
7:15 AM		0	0	0	0	0	155	0	25	0	194	97	0	0	0	47	9	527	0
7:30 AM		0	0	0	0	0	130	0	29	0	221	148	0	0	0	41	7	576	0
7:45 AM		0	0	0	0	0	182	0	46	0	167	171	0	0	0	50	6	622	2,149
8:00 AM		0	0	0	0	0	141	2	37	0	186	164	0	0	0	65	13	608	2,333
8:15 AM		0	0	0	0	0	146	0	38	0	159	152	0	0	0	59	7	561	2,367
8:30 AM		0	0	0	0	0	127	1	41	0	180	155	0	0	0	58	13	575	2,366
8:45 AM		0	0	0	0	0	119	0	44	2	127	151	0	1	0	47	27	518	2,262
Count Total		0	0	0	0	0	1,106	3	277	2	1,414	1,109	0	1	0	404	95	4,411	
Pk Hr	All	0	0	0	0	0	599	2	150	0	733	635	0	0	0	215	33	2,367	
	HV	0	0	0	0	0	15	0	1	0	3	5	0	0	0	4	2	30	
	HV%	-	-	-	-	-	3%	0%	1%	-	0%	1%	-	-	-	2%	6%	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	1	0	3	4	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	3	1	1	5	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	3	1	1	5	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	3	2	3	8	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	6	3	2	11	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	8	2	3	13	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	7	4	1	12	0	0	0	0	0	0	0	0	0	0
Count Total	0	35	15	14	64	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	16	8	6	30	0	0	0	0	0	0	0	0	0	0

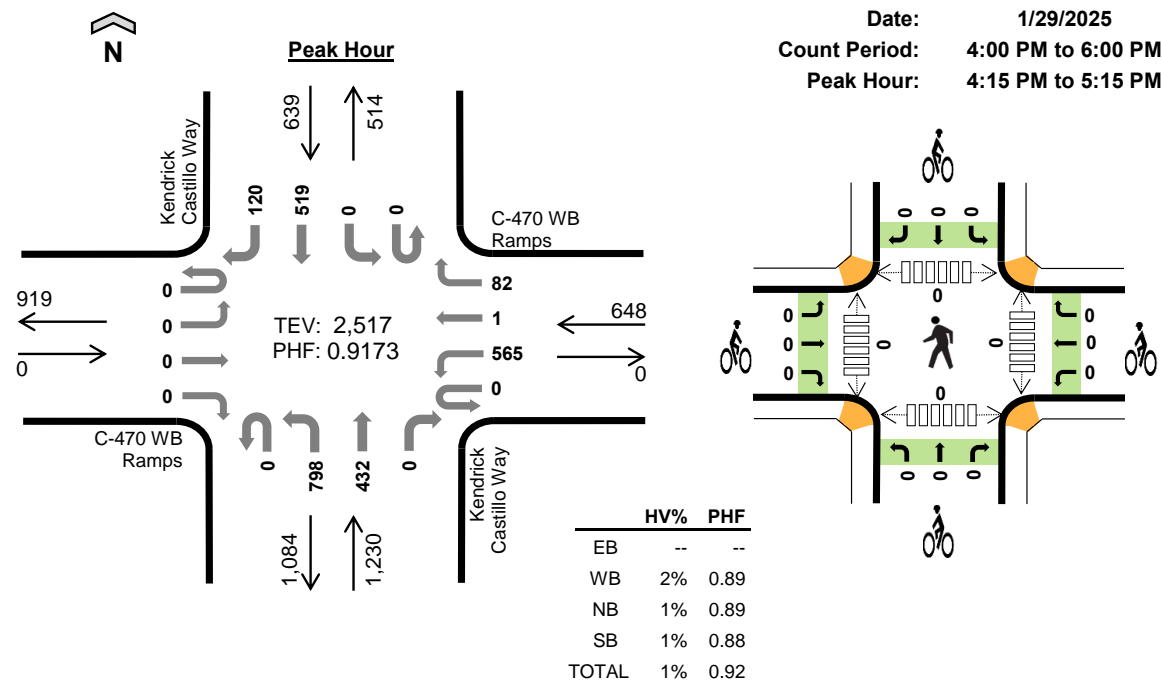


**Count Summaries - Heavy Vehicles**

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	4	0
7:15 AM	0	0	0	0	0	1	0	2	0	1	0	0	0	0	1	0	5	0
7:30 AM	0	0	0	0	0	3	0	0	0	1	0	0	0	0	1	0	5	0
7:45 AM	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	0	6	20
8:00 AM	0	0	0	0	0	2	0	1	0	0	2	0	0	0	1	2	8	24
8:15 AM	0	0	0	0	0	6	0	0	0	0	3	0	0	0	2	0	11	30
8:30 AM	0	0	0	0	0	8	0	0	0	1	1	0	0	0	2	1	13	38
8:45 AM	0	0	0	0	0	7	0	0	0	4	0	0	0	0	1	0	12	44
Count Total	0	0	0	0	0	32	0	3	0	9	6	0	0	0	9	5	64	
Pk Hr Heavy	0	0	0	0	0	15	0	1	0	3	5	0	0	0	4	2	30	

**Count Summaries - Bikes**

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



## Peak Hour Count Summaries

Peak Hour Interval Start		C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:15 PM		0	0	0	0	0	131	0	25	0	187	116	0	0	0	137	20	616	0
4:30 PM		0	0	0	0	0	130	0	19	0	207	105	0	0	0	124	28	613	0
4:45 PM		0	0	0	0	0	163	1	19	0	161	109	0	0	0	124	25	602	0
5:00 PM		0	0	0	0	0	141	0	19	0	243	102	0	0	0	134	47	686	2,517
Pk Hr	All	0	0	0	0	0	565	1	82	0	798	432	0	0	0	519	120	2,517	
	HV	0	0	0	0	0	9	0	2	0	3	7	0	0	0	2	4	27	
	HV%	-	-	-	-	-	2%	0%	2%	-	0%	2%	-	-	-	0%	3%	1%	

Note: For complete count summary (all intervals), see following pages.

**\*\* Heavy Vehicle Classifications include FHWA Classes 4-13.**

**\*\* Count Summaries include heavy vehicles, but exclude bicycles in overall count.**

[illegible]

**Count Summaries - All Vehicles**

Interval Start		C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	132	0	16	0	230	82	0	0	0	126	29	615	0
4:15 PM		0	0	0	0	0	131	0	25	0	187	116	0	0	0	137	20	616	0
4:30 PM		0	0	0	0	0	130	0	19	0	207	105	0	0	0	124	28	613	0
4:45 PM		0	0	0	0	0	163	1	19	0	161	109	0	0	0	124	25	602	2,446
5:00 PM		0	0	0	0	0	141	0	19	0	243	102	0	0	0	134	47	686	2,517
5:15 PM		0	0	0	0	0	165	0	22	0	170	92	0	0	0	136	24	609	2,510
5:30 PM		0	0	0	0	0	113	2	13	0	169	104	0	0	0	107	42	550	2,447
5:45 PM		0	0	0	0	0	131	0	25	0	110	74	0	0	0	115	16	471	2,316
Count Total		0	0	0	0	0	1,106	3	158	0	1,477	784	0	0	0	1,003	231	4,762	
Pk Hr	All	0	0	0	0	0	565	1	82	0	798	432	0	0	0	519	120	2,517	
	HV	0	0	0	0	0	9	0	2	0	3	7	0	0	0	2	4	27	
	HV%	-	-	-	-	-	2%	0%	2%	-	0%	2%	-	-	-	0%	3%	1%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	3	1	6	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	7	4	2	13	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	2	3	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	3	1	5	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	5	1	0	6	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	1	2	1	4	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	19	15	8	42	0	0	0	0	0	0	1	0	0	1
Peak Hour	0	11	10	6	27	0	0	0	0	0	0	0	0	0	0

**Count Summaries - Heavy Vehicles**

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0
4:15 PM	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	1	6	0
4:30 PM	0	0	0	0	0	5	0	2	0	2	2	0	0	0	0	2	13	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	3	24
5:00 PM	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	1	5	27
5:15 PM	0	0	0	0	0	4	0	1	0	1	0	0	0	0	0	0	6	27
5:30 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	4	18
5:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3	18
Count Total	0	0	0	0	0	16	0	3	0	7	8	0	0	0	4	4	42	
Pk Hr Heavy	0	0	0	0	0	9	0	2	0	3	7	0	0	0	2	4	27	

**Count Summaries - Bikes**

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

## Appendix C: Future Traffic Projections



DRCOG Traffic Projections:

Lucent Station

Location	2020	2050	Growth Factor	Annual Growth
County Line E/O Erickson Dr	11,000	12,000	1.09	0.29%
Kendrick Castillo Way N/O Plaza Dr	41,000	43,000	1.05	0.16%
Total	52,000	55,000	1.06	0.19%

## Appendix D: Trip Generation Worksheets

Project Lucent Station  
 Subject Trip Generation for Multifamily Housing (Low-Rise)  
 Designed by JMM (EVT) Date March 10, 2025 Job No. 296078001  
 Checked by \_\_\_\_\_ Date \_\_\_\_\_ Sheet No. 1 of 1

## **TRIP GENERATION MANUAL TECHNIQUES**

ITE Trip Generation Manual 11th Edition, Average Rate Equations

Land Use Code - Multifamily Housing (Low-Rise) (220)

Independent Variable - Dwelling Units (X)

$$X = 400$$

T = Average Vehicle Trip Ends

### **Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (200 Series Page 255)**

Average Weekday	Directional Distribution:	24% ent.	76% exit.
(T) = 0.40 (X)	T = 160	Average Vehicle Trip Ends	
(T) = 0.40 * (400.0)	38 entering	122 exiting	
	38 + 122 = 160		

### **Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (200 Series Page 256)**

Average Weekday	Directional Distribution:	63% ent.	37% exit.
(T) = 0.51 (X)	T = 204	Average Vehicle Trip Ends	
(T) = 0.51 * (400.0)	129 entering	75 exiting	
	129 + 75 = 204		

### **Weekday (200 Series Page 254)**

Average Weekday	Directional Distribution:	50% entering, 50% exiting
(T) = 6.74 (X)	T = 2696	Average Vehicle Trip Ends
(T) = 6.74 * (400.0)	1348 entering	1348 exiting
	1348 + 1348 = 2696	










## Appendix E: Intersection Analysis Worksheets

# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2025 EXISTING CONDITIONS

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	73	4	90	0	42	35	101	99	1
Future Vol, veh/h	0	0	0	73	4	90	0	42	35	101	99	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	89	5	110	0	51	43	123	121	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9	9	9.3
HCM LOS	-	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	55%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	45%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	0	0	73	4	90	101	99	1
LT Vol	0	0	0	73	0	0	101	0	0
Through Vol	42	0	0	0	4	0	0	99	0
RT Vol	35	0	0	0	0	90	0	0	1
Lane Flow Rate	94	0	0	89	5	110	123	121	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.139	0	0	0.148	0.007	0.145	0.193	0.172	0.002
Departure Headway (Hd)	5.327	5.87	5.87	5.972	5.471	4.769	5.641	5.139	4.437
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	670	0	0	599	653	750	636	697	804
Service Time	3.085	3.645	3.645	3.718	3.217	2.515	3.383	2.881	2.179
HCM Lane V/C Ratio	0.14	0	0	0.149	0.008	0.147	0.193	0.174	0.001
HCM Control Delay, s/veh	9	8.6	8.6	9.8	8.3	8.3	9.7	9	7.2
HCM Lane LOS	A	N	N	A	A	A	A	A	A
HCM 95th-tile Q	0.5	0	0	0.5	0	0.5	0.7	0.6	0

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]

AM PEAK HOUR  
Synchro 12 Report












# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2025 EXISTING CONDITIONS

Intersection												
Intersection Delay, s/veh	8.9											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	0	44	3	108	0	92	77	78	67	0
Future Vol, veh/h	4	2	0	44	3	108	0	92	77	78	67	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	4	2	0	47	3	115	0	98	82	83	71	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	8.9	8.6	9.4	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	169	4	2	44	3	108	78	67	0
LT Vol	0	4	0	44	0	0	78	0	0
Through Vol	92	0	2	0	3	0	0	67	0
RT Vol	77	0	0	0	0	108	0	0	0
Lane Flow Rate	180	4	2	47	3	115	83	71	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.249	0.007	0.003	0.078	0.005	0.152	0.129	0.101	0
Departure Headway (Hd)	4.986	6.289	5.784	5.975	5.472	4.767	5.598	5.096	5.096
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	719	566	615	599	653	750	640	702	0
Service Time	2.728	4.058	3.553	3.721	3.217	2.512	3.336	2.835	2.835
HCM Lane V/C Ratio	0.25	0.007	0.003	0.078	0.005	0.153	0.13	0.101	0
HCM Control Delay, s/veh	9.4	9.1	8.6	9.2	8.2	8.4	9.2	8.4	7.8
HCM Lane LOS	A	A	A	A	A	A	A	A	N
HCM 95th-tile Q	1	0	0	0.3	0	0.5	0.4	0.3	0

# HCM 7th AWSC










## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2028 BACKGROUND CONDITIONS

### Intersection

Intersection Delay, s/veh 9.4

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	75	4	118	0	43	36	112	102	1
Future Vol, veh/h	0	0	0	75	4	118	0	43	36	112	102	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	91	5	144	0	52	44	137	124	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9.2	9.2	9.6
HCM LOS	-	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	0	0	75	4	118	112	102	1
LT Vol	0	0	0	75	0	0	112	0	0
Through Vol	43	0	0	0	4	0	0	102	0
RT Vol	36	0	0	0	0	118	0	0	1
Lane Flow Rate	96	0	0	91	5	144	137	124	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.146	0	0	0.153	0.007	0.193	0.218	0.181	0.002
Departure Headway (Hd)	5.461	6.005	6.005	6.035	5.534	4.832	5.735	5.233	4.53
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	652	0	0	593	644	738	624	683	786
Service Time	3.232	3.795	3.795	3.792	3.29	2.588	3.485	2.983	2.28
HCM Lane V/C Ratio	0.147	0	0	0.153	0.008	0.195	0.22	0.182	0.001
HCM Control Delay, s/veh	9.2	8.8	8.8	9.9	8.3	8.8	10.1	9.1	7.3
HCM Lane LOS	A	N	N	A	A	A	B	A	A
HCM 95th-tile Q	0.5	0	0	0.5	0	0.7	0.8	0.7	0

LUCENT STATION

KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]










AM PEAK HOUR

Synchro 12 Report

**Intersection**

Intersection Delay, s/veh 9.2

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	0	45	3	124	0	95	79	100	69	0
Future Vol, veh/h	4	2	0	45	3	124	0	95	79	100	69	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	4	2	0	48	3	132	0	101	84	106	73	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.1	8.9	9.7	9.1
HCM LOS	A	A	A	A










Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	55%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	45%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	174	4	2	45	3	124	100	69	0
LT Vol	0	4	0	45	0	0	100	0	0
Through Vol	95	0	2	0	3	0	0	69	0
RT Vol	79	0	0	0	0	124	0	0	0
Lane Flow Rate	185	4	2	48	3	132	106	73	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.262	0.008	0.004	0.081	0.005	0.178	0.167	0.105	0
Departure Headway (Hd)	5.097	6.431	5.925	6.076	5.572	4.866	5.655	5.154	5.154
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	702	553	600	588	640	733	633	693	0
Service Time	2.85	4.211	3.704	3.83	3.325	2.619	3.405	2.904	2.904
HCM Lane V/C Ratio	0.264	0.007	0.003	0.082	0.005	0.18	0.167	0.105	0
HCM Control Delay, s/veh	9.7	9.3	8.7	9.4	8.4	8.7	9.5	8.5	7.9
HCM Lane LOS	A	A	A	A	A	A	A	A	N
HCM 95th-tile Q	1	0	0	0.3	0	0.6	0.6	0.4	0

# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2028 TOTAL CONDITIONS

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	75	4	161	0	43	36	125	102	1
Future Vol, veh/h	0	0	0	75	4	161	0	43	36	125	102	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	91	5	196	0	52	44	152	124	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9.6	9.4	10
HCM LOS	-	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	0	0	75	4	161	125	102	1
LT Vol	0	0	0	75	0	0	125	0	0
Through Vol	43	0	0	0	4	0	0	102	0
RT Vol	36	0	0	0	0	161	0	0	1
Lane Flow Rate	96	0	0	91	5	196	152	124	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.151	0	0	0.155	0.008	0.267	0.248	0.185	0.002
Departure Headway (Hd)	5.634	6.276	6.276	6.096	5.595	4.893	5.859	5.357	4.653
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	630	0	0	585	636	728	610	665	762
Service Time	3.427	3.976	3.976	3.861	3.36	2.657	3.628	3.125	2.422
HCM Lane V/C Ratio	0.152	0	0	0.156	0.008	0.269	0.249	0.186	0.001
HCM Control Delay, s/veh	9.4	9	9	10	8.4	9.5	10.6	9.4	7.4
HCM Lane LOS	A	N	N	A	A	A	B	A	A
HCM 95th-tile Q	0.5	0	0	0.5	0	1.1	1	0.7	0

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]










AM PEAK HOUR  
Synchro 12 Report

# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2028 TOTAL CONDITIONS

Intersection												
Intersection Delay, s/veh	9.7											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	0	45	3	150	0	95	79	145	69	0
Future Vol, veh/h	4	2	0	45	3	150	0	95	79	145	69	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	4	2	0	48	3	160	0	101	84	154	73	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.3	9.3	10	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	55%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	45%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	174	4	2	45	3	150	145	69	0
LT Vol	0	4	0	45	0	0	145	0	0
Through Vol	95	0	2	0	3	0	0	69	0
RT Vol	79	0	0	0	0	150	0	0	0
Lane Flow Rate	185	4	2	48	3	160	154	73	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.272	0.008	0.004	0.083	0.005	0.222	0.246	0.107	0
Departure Headway (Hd)	5.282	6.758	6.25	6.229	5.725	5.018	5.735	5.234	5.234
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	676	533	576	572	621	710	623	680	0
Service Time	3.057	4.458	3.95	4.002	3.497	2.79	3.502	3	3
HCM Lane V/C Ratio	0.274	0.008	0.003	0.084	0.005	0.225	0.247	0.107	0
HCM Control Delay, s/veh	10	9.5	9	9.6	8.5	9.2	10.4	8.6	8
HCM Lane LOS	A	A	A	A	A	A	B	A	N
HCM 95th-tile Q	1.1	0	0	0.3	0	0.8	1	0.4	0

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]

PM PEAK HOUR  
Synchro 12 Report












# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2045 BACKGROUND CONDITIONS

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	89	5	135	0	51	43	131	121	1
Future Vol, veh/h	0	0	0	89	5	135	0	51	43	131	121	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	109	6	165	0	62	52	160	148	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9.8	9.8	10.2
HCM LOS	-	A	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	0	0	89	5	135	131	121	1
LT Vol	0	0	0	89	0	0	131	0	0
Through Vol	51	0	0	0	5	0	0	121	0
RT Vol	43	0	0	0	0	135	0	0	1
Lane Flow Rate	115	0	0	109	6	165	160	148	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.184	0	0	0.188	0.01	0.229	0.26	0.22	0.002
Departure Headway (Hd)	5.777	6.412	6.412	6.22	5.718	5.016	5.868	5.366	4.662
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	625	0	0	573	621	708	607	664	760
Service Time	3.477	4.118	4.118	4.004	3.502	2.799	3.646	3.143	2.44
HCM Lane V/C Ratio	0.184	0	0	0.19	0.01	0.233	0.264	0.223	0.001
HCM Control Delay, s/veh	9.8	9.1	9.1	10.5	8.6	9.3	10.7	9.7	7.4
HCM Lane LOS	A	N	N	B	A	A	B	A	A
HCM 95th-tile Q	0.7	0	0	0.7	0	0.9	1	0.8	0

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]










AM PEAK HOUR  
Synchro 12 Report

# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2045 BACKGROUND CONDITIONS

Intersection												
Intersection Delay, s/veh	9.8											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	0	54	4	145	0	112	94	115	82	0
Future Vol, veh/h	5	2	0	54	4	145	0	112	94	115	82	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	2	0	57	4	154	0	119	100	122	87	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.4	9.3	10.5	9.5
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	5	2	54	4	145	115	82	0
LT Vol	0	5	0	54	0	0	115	0	0
Through Vol	112	0	2	0	4	0	0	82	0
RT Vol	94	0	0	0	0	145	0	0	0
Lane Flow Rate	219	5	2	57	4	154	122	87	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.32	0.01	0.004	0.1	0.007	0.217	0.197	0.128	0
Departure Headway (Hd)	5.262	6.82	6.312	6.266	5.761	5.054	5.794	5.292	5.292
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	677	528	570	568	616	703	615	673	0
Service Time	3.041	4.52	4.012	4.046	3.541	2.833	3.567	3.064	3.064
HCM Lane V/C Ratio	0.323	0.009	0.004	0.1	0.006	0.219	0.198	0.129	0
HCM Control Delay, s/veh	10.5	9.6	9	9.7	8.6	9.2	10	8.8	8.1
HCM Lane LOS	B	A	A	A	A	A	A	A	N
HCM 95th-tile Q	1.4	0	0	0.3	0	0.8	0.7	0.4	0

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]










PM PEAK HOUR  
Synchro 12 Report

# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2045 TOTAL CONDITIONS

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	89	5	178	0	51	43	144	121	1
Future Vol, veh/h	0	0	0	89	5	178	0	51	43	144	121	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	109	6	217	0	62	52	176	148	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	10.2	10.1	10.6
HCM LOS	-	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	0	0	89	5	178	144	121	1
LT Vol	0	0	0	89	0	0	144	0	0
Through Vol	51	0	0	0	5	0	0	121	0
RT Vol	43	0	0	0	0	178	0	0	1
Lane Flow Rate	115	0	0	109	6	217	176	148	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.19	0	0	0.19	0.01	0.306	0.292	0.225	0.002
Departure Headway (Hd)	5.974	6.598	6.598	6.286	5.784	5.081	5.995	5.492	4.788
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	604	0	0	567	613	699	594	646	737
Service Time	3.674	4.306	4.306	4.078	3.576	2.873	3.792	3.289	2.585
HCM Lane V/C Ratio	0.19	0	0	0.192	0.01	0.31	0.296	0.229	0.001
HCM Control Delay, s/veh	10.1	9.3	9.3	10.6	8.6	10.1	11.3	9.9	7.6
HCM Lane LOS	B	N	N	B	A	B	B	A	A
HCM 95th-tile Q	0.7	0	0	0.7	0	1.3	1.2	0.9	0

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]










AM PEAK HOUR  
Synchro 12 Report

# HCM 7th AWSC

## 1: Mill Vista Rd/S Erickson Blvd & Plaza Dr

2045 TOTAL CONDITIONS

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	0	54	4	171	0	112	94	160	82	0
Future Vol, veh/h	5	2	0	54	4	171	0	112	94	160	82	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	2	0	57	4	182	0	119	100	170	87	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.7	10	11.1	10.3
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	5	2	54	4	171	160	82	0
LT Vol	0	5	0	54	0	0	160	0	0
Through Vol	112	0	2	0	4	0	0	82	0
RT Vol	94	0	0	0	0	171	0	0	0
Lane Flow Rate	219	5	2	57	4	182	170	87	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.338	0.01	0.004	0.104	0.007	0.269	0.278	0.13	0
Departure Headway (Hd)	5.552	7.075	6.565	6.532	6.026	5.318	5.99	5.487	5.487
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	651	507	546	552	597	680	604	658	0
Service Time	3.267	4.799	4.29	4.232	3.726	3.018	3.69	3.187	3.187
HCM Lane V/C Ratio	0.336	0.01	0.004	0.103	0.007	0.268	0.281	0.132	0
HCM Control Delay, s/veh	11.1	9.9	9.3	10	8.8	10	11	9	8.2
HCM Lane LOS	B	A	A	A	A	A	B	A	N
HCM 95th-tile Q	1.5	0	0	0.3	0	1.1	1.1	0.4	0

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]

PM PEAK HOUR  
Synchro 12 Report

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰		↱	↰	↱	
Traffic Vol, veh/h	13	365	5	70	529	9	0	0	163	25	0	11
Future Vol, veh/h	13	365	5	70	529	9	0	0	163	25	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	22	608	8	117	882	15	0	0	272	42	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	897	0	0	617	0	0	1330	-	308	1470	1783	448
Stage 1	-	-	-	-	-	-	656	-	-	1123	1123	-
Stage 2	-	-	-	-	-	-	674	-	-	348	660	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	759	-	-	966	-	-	115	0	694	90	83	563
Stage 1	-	-	-	-	-	-	426	0	-	223	283	-
Stage 2	-	-	-	-	-	-	415	0	-	647	463	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	759	-	-	966	-	-	95	-	694	47	71	563
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	-	-	124	162	-
Stage 1	-	-	-	-	-	-	414	-	-	196	249	-
Stage 2	-	-	-	-	-	-	353	-	-	382	450	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.34	1.06	13.49	37.02
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	694	759	-	-	966	-	-	124	563
HCM Lane V/C Ratio	-	0.392	0.029	-	-	0.121	-	-	0.337	0.033
HCM Ctrl Dly (s/v)	0	13.5	9.9	-	-	9.2	-	-	48.2	11.6
HCM Lane LOS	A	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	-	1.9	0.1	-	-	0.4	-	-	1.3	0.1



Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↑		↰		↰	↰	↰	
Traffic Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Future Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	219	5	32	178	24	1	0	43	33	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	202	0	0	225	0	0	382	-	112	371	486	101
Stage 1	-	-	-	-	-	-	228	-	-	255	255	-
Stage 2	-	-	-	-	-	-	154	-	-	116	231	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1382	-	-	1356	-	-	555	0	926	566	484	941
Stage 1	-	-	-	-	-	-	759	0	-	733	700	-
Stage 2	-	-	-	-	-	-	839	0	-	882	717	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1382	-	-	1356	-	-	540	-	926	525	472	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	603	-	-	583	527	-
Stage 1	-	-	-	-	-	-	758	-	-	716	683	-
Stage 2	-	-	-	-	-	-	817	-	-	839	715	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.11	1.06	9.13	11.38
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	603	926	1382	-	-	1356	-	-	583	941
HCM Lane V/C Ratio	0.002	0.046	0.002	-	-	0.024	-	-	0.057	0.002
HCM Ctrl Dly (s/v)	11	9.1	7.6	-	-	7.7	-	-	11.5	8.8
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.1	0	-	-	0.1	-	-	0.2	0









Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰		↱	↰	↱	
Traffic Vol, veh/h	13	423	5	72	559	9	0	0	168	26	0	11
Future Vol, veh/h	13	423	5	72	559	9	0	0	168	26	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	22	705	8	120	932	15	0	0	280	43	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	947	0	0	713	0	0	1458	-	357	1575	1936	473
Stage 1	-	-	-	-	-	-	753	-	-	1179	1179	-
Stage 2	-	-	-	-	-	-	706	-	-	396	757	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	727	-	-	889	-	-	92	0	646	76	66	543
Stage 1	-	-	-	-	-	-	373	0	-	206	267	-
Stage 2	-	-	-	-	-	-	397	0	-	606	419	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	727	-	-	889	-	-	75	-	646	~ 36	56	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	-	-	105	142	-
Stage 1	-	-	-	-	-	-	362	-	-	178	231	-
Stage 2	-	-	-	-	-	-	332	-	-	333	406	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.3	1.09	14.78	46.92
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	646	727	-	-	889	-	-	105	543
HCM Lane V/C Ratio	-	0.434	0.03	-	-	0.135	-	-	0.414	0.034
HCM Ctrl Dly (s/v)	0	14.8	10.1	-	-	9.7	-	-	61.8	11.9
HCM Lane LOS	A	B	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	2.2	0.1	-	-	0.5	-	-	1.7	0.1

Notes	
-: Volume exceeds capacity	\$. Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	234	5	31	208	23	1	0	41	32	0	2
Future Vol, veh/h	3	234	5	31	208	23	1	0	41	32	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	252	5	33	224	25	1	0	44	34	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	248	0	0	257	0	0	439	-	128	435	566	124
Stage 1	-	-	-	-	-	-	261	-	-	303	303	-
Stage 2	-	-	-	-	-	-	178	-	-	132	263	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1329	-	-	1320	-	-	506	0	904	510	436	910
Stage 1	-	-	-	-	-	-	727	0	-	687	667	-
Stage 2	-	-	-	-	-	-	812	0	-	863	694	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1329	-	-	1320	-	-	491	-	904	471	424	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	567	-	-	541	492	-
Stage 1	-	-	-	-	-	-	725	-	-	670	651	-
Stage 2	-	-	-	-	-	-	789	-	-	819	692	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.1	0.92	9.24	11.92
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	567	904	1329	-	-	1320	-	-	541	910
HCM Lane V/C Ratio	0.002	0.049	0.002	-	-	0.025	-	-	0.064	0.002
HCM Ctrl Dly (s/v)	11.4	9.2	7.7	-	-	7.8	-	-	12.1	9
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0.1	-	-	0.2	0

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰		↱	↰	↱	
Traffic Vol, veh/h	23	427	5	72	559	9	0	0	168	0	0	54
Future Vol, veh/h	23	427	5	72	559	9	0	0	168	0	0	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	38	712	8	120	932	15	0	0	280	0	0	90

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	947	0	0	720	0	0	1498	-	360	1612	1976	473
Stage 1	-	-	-	-	-	-	793	-	-	1179	1179	-
Stage 2	-	-	-	-	-	-	706	-	-	433	797	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	727	-	-	884	-	-	86	0	642	71	63	543
Stage 1	-	-	-	-	-	-	353	0	-	206	267	-
Stage 2	-	-	-	-	-	-	397	0	-	577	402	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	727	-	-	884	-	-	59	-	642	33	51	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	156	-	-	98	135	-
Stage 1	-	-	-	-	-	-	334	-	-	178	230	-
Stage 2	-	-	-	-	-	-	287	-	-	308	380	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.52	1.09	14.86	12.95
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	642	727	-	-	884	-	-	-	543
HCM Lane V/C Ratio	-	0.436	0.053	-	-	0.136	-	-	-	0.166
HCM Ctrl Dly (s/v)	0	14.9	10.2	-	-	9.7	-	-	0	12.9
HCM Lane LOS	A	B	B	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	-	2.2	0.2	-	-	0.5	-	-	-	0.6

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰		↱	↰	↱	
Traffic Vol, veh/h	35	247	5	31	208	23	1	0	41	32	0	28
Future Vol, veh/h	35	247	5	31	208	23	1	0	41	32	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	38	266	5	33	224	25	1	0	44	34	0	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	248	0	0	271	0	0	522	-	135	511	649	124
Stage 1	-	-	-	-	-	-	344	-	-	303	303	-
Stage 2	-	-	-	-	-	-	178	-	-	208	346	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1329	-	-	1304	-	-	442	0	895	450	391	910
Stage 1	-	-	-	-	-	-	651	0	-	687	667	-
Stage 2	-	-	-	-	-	-	812	0	-	780	639	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1329	-	-	1304	-	-	405	-	895	405	371	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	491	-	-	495	450	-
Stage 1	-	-	-	-	-	-	632	-	-	670	650	-
Stage 2	-	-	-	-	-	-	765	-	-	721	621	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.95			0.93			9.31			11.08		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	491	895	1329	-	-	1304	-	-	495	910
HCM Lane V/C Ratio	0.002	0.049	0.028	-	-	0.026	-	-	0.07	0.033
HCM Ctrl Dly (s/v)	12.3	9.2	7.8	-	-	7.8	-	-	12.8	9.1
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0.1	-	-	0.1	-	-	0.2	0.1



Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰		↱	↰	↱	
Traffic Vol, veh/h	16	492	6	85	659	11	0	0	199	31	0	13
Future Vol, veh/h	16	492	6	85	659	11	0	0	199	31	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	27	820	10	142	1098	18	0	0	332	52	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1117	0	0	830	0	0	1711	-	415	1854	2274	558
Stage 1	-	-	-	-	-	-	878	-	-	1391	1391	-
Stage 2	-	-	-	-	-	-	833	-	-	463	883	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	627	-	-	804	-	-	60	0	592	~ 47	41	478
Stage 1	-	-	-	-	-	-	313	0	-	152	211	-
Stage 2	-	-	-	-	-	-	334	0	-	553	366	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	627	-	-	804	-	-	45	-	592	~ 16	32	478
Mov Cap-2 Maneuver	-	-	-	-	-	-	141	-	-	55	101	-
Stage 1	-	-	-	-	-	-	300	-	-	125	174	-
Stage 2	-	-	-	-	-	-	262	-	-	233	351	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.34	1.17	18.55	159.14
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	592	627	-	-	804	-	-	55	478
HCM Lane V/C Ratio	-	0.56	0.043	-	-	0.176	-	-	0.932	0.045
HCM Ctrl Dly (s/v)	0	18.5	11	-	-	10.4	-	-	220.5	12.9
HCM Lane LOS	A	C	B	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	-	3.5	0.1	-	-	0.6	-	-	4.2	0.1









Notes	
-: Volume exceeds capacity	\$. Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↑		↰		↰	↰	↰	
Traffic Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Future Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	219	5	32	178	24	1	0	43	33	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	202	0	0	225	0	0	382	-	112	371	486	101
Stage 1	-	-	-	-	-	-	228	-	-	255	255	-
Stage 2	-	-	-	-	-	-	154	-	-	116	231	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1382	-	-	1356	-	-	555	0	926	566	484	941
Stage 1	-	-	-	-	-	-	759	0	-	733	700	-
Stage 2	-	-	-	-	-	-	839	0	-	882	717	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1382	-	-	1356	-	-	540	-	926	525	472	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	603	-	-	583	527	-
Stage 1	-	-	-	-	-	-	758	-	-	716	683	-
Stage 2	-	-	-	-	-	-	817	-	-	839	715	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.11	1.06	9.13	11.38
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	603	926	1382	-	-	1356	-	-	583	941
HCM Lane V/C Ratio	0.002	0.046	0.002	-	-	0.024	-	-	0.057	0.002
HCM Ctrl Dly (s/v)	11	9.1	7.6	-	-	7.7	-	-	11.5	8.8
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.1	0	-	-	0.1	-	-	0.2	0

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	496	6	85	659	11	0	0	199	0	0	56
Future Vol, veh/h	26	496	6	85	659	11	0	0	199	0	0	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	43	827	10	142	1098	18	0	0	332	0	0	93

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1117	0	0	837	0	0	1751	-	418	1891	2314	558
Stage 1	-	-	-	-	-	-	918	-	-	1391	1391	-
Stage 2	-	-	-	-	-	-	833	-	-	500	923	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	722	-	-	800	-	-	71	0	589	53	39	812
Stage 1	-	-	-	-	-	-	296	0	-	199	249	-
Stage 2	-	-	-	-	-	-	499	0	-	527	351	-
Platoon blocked, %	0	-	-	-	-	-	0	-	-	0	0	0
Mov Cap-1 Maneuver	722	-	-	800	-	-	49	-	589	18	30	812
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	-	-	54	103	-
Stage 1	-	-	-	-	-	-	278	-	-	164	205	-
Stage 2	-	-	-	-	-	-	364	-	-	216	330	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.51			1.18			18.69			10.01		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	589	722	-	-	800	-	-	-	812
HCM Lane V/C Ratio	-	0.563	0.06	-	-	0.177	-	-	-	0.115
HCM Ctrl Dly (s/v)	0	18.7	10.3	-	-	10.5	-	-	0	10
HCM Lane LOS	A	C	B	-	-	B	-	-	A	B
HCM 95th %tile Q(veh)	-	3.5	0.2	-	-	0.6	-	-	-	0.4

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↱	↱↱		↱	↱↱		↱		↱	↱	↱	
Traffic Vol, veh/h	36	286	6	37	240	27	1	0	49	38	0	28
Future Vol, veh/h	36	286	6	37	240	27	1	0	49	38	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	39	308	6	40	258	29	1	0	53	41	0	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	287	0	0	314	0	0	597	-	157	583	744	144
Stage 1	-	-	-	-	-	-	388	-	-	352	352	-
Stage 2	-	-	-	-	-	-	209	-	-	231	391	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1381	-	-	1258	-	-	460	0	867	470	385	*1035
Stage 1	-	-	-	-	-	-	613	0	-	740	696	-
Stage 2	-	-	-	-	-	-	905	0	-	757	610	-
Platoon blocked, %	0	-	-	-	-	-	0	-	-	0	0	0
Mov Cap-1 Maneuver	1381	-	-	1258	-	-	420	-	867	416	363	*1035
Mov Cap-2 Maneuver	-	-	-	-	-	-	494	-	-	500	439	-
Stage 1	-	-	-	-	-	-	596	-	-	717	674	-
Stage 2	-	-	-	-	-	-	851	-	-	691	593	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.84	0.97	9.48	11.03
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	494	867	1381	-	-	1258	-	-	500	1035
HCM Lane V/C Ratio	0.002	0.061	0.028	-	-	0.032	-	-	0.082	0.029
HCM Ctrl Dly (s/v)	12.3	9.4	7.7	-	-	8	-	-	12.8	8.6
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0.1	-	-	0.1	-	-	0.3	0.1





Notes	
-: Volume exceeds capacity	\$. Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

HCM 7th TWSC  
3: Plaza Cir & Percy Ln

2025 EXISTING CONDITIONS

Intersection

Int Delay, s/veh 7.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	36	11	0	5	0
Future Vol, veh/h	4	36	11	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	6	54	16	0	7	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	40	7	7
Stage 1	7	-	-
Stage 2	33	-	-
Critical Hdwy	6.43	6.23	4.19
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.281
Pot Cap-1 Maneuver	969	1072	1568
Stage 1	1013	-	-
Stage 2	987	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	959	1072	1568
Mov Cap-2 Maneuver	891	-	-
Stage 1	1002	-	-
Stage 2	987	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.63	7.32	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1568	-	1050	-	-
HCM Lane V/C Ratio	0.01	-	0.057	-	-
HCM Control Delay (s/veh)	7.3	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-





LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]

AM PEAK HOUR  
Synchro 12 Report



HCM 7th TWSC  
3: Plaza Cir & Percy Ln

2025 EXISTING CONDITIONS

Intersection						
Int Delay, s/veh	7.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	39	30	0	0	0
Future Vol, veh/h	0	39	30	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	5	5	3	3	0	0
Mvmt Flow	0	45	35	0	0	0





Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	71	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	926	1075	1615	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	906	1075	1615	-	-	-
Mov Cap-2 Maneuver	852	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.5	7.28	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1615	-	1075	-	-
HCM Lane V/C Ratio	0.022	-	0.042	-	-
HCM Control Delay (s/veh)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

HCM 7th TWSC  
3: Plaza Cir & Percy Ln






2028 BACKGROUND CONDITIONS

Intersection						
Int Delay, s/veh	7.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	37	11	0	5	0
Future Vol, veh/h	4	37	11	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	6	55	16	0	7	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	40	7	7
Stage 1	7	-	-
Stage 2	33	-	-
Critical Hdwy	6.43	6.23	4.19
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.281
Pot Cap-1 Maneuver	969	1072	1568
Stage 1	1013	-	-
Stage 2	987	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	959	1072	1568
Mov Cap-2 Maneuver	891	-	-
Stage 1	1002	-	-
Stage 2	987	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.64	7.32	0
HCM LOS	A		





Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1568	-	1051	-	-
HCM Lane V/C Ratio	0.01	-	0.058	-	-
HCM Control Delay (s/veh)	7.3	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	7.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	31	0	0	0
Future Vol, veh/h	0	40	31	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	47	36	0	0	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	73	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	936	1089	1635	-	-	-
Stage 1	1027	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	915	1089	1635	-	-	-
Mov Cap-2 Maneuver	861	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.45	7.25	0
HCM LOS	A		





Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1089	-	-
HCM Lane V/C Ratio	0.022	-	0.043	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection						
Int Delay, s/veh	7.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	37	11	0	17	0
Future Vol, veh/h	36	37	11	0	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	54	55	16	0	25	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	58	25	25
Stage 1	25	-	-
Stage 2	33	-	-
Critical Hdwy	6.43	6.23	4.19
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.281
Pot Cap-1 Maneuver	946	1048	1545
Stage 1	995	-	-
Stage 2	987	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	936	1048	1545
Mov Cap-2 Maneuver	877	-	-
Stage 1	984	-	-
Stage 2	987	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.25	7.36	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1545	-	956	-	-
HCM Lane V/C Ratio	0.011	-	0.114	-	-
HCM Ctrl Dly (s/v)	7.4	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection						
Int Delay, s/veh	7.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	31	0	8	0
Future Vol, veh/h	0	40	31	0	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	47	36	0	9	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	81	9	9	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	926	1078	1624	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	905	1078	1624	-	-	-
Mov Cap-2 Maneuver	856	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.49	7.27	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1624	-	1078	-	-
HCM Lane V/C Ratio	0.022	-	0.043	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-







HCM 7th TWSC  
3: Plaza Cir & Percy Ln

2045 BACKGROUND CONDITIONS

Intersection

Int Delay, s/veh 7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	44	13	0	6	0
Future Vol, veh/h	5	44	13	0	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	7	66	19	0	9	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	48	9	9
Stage 1	9	-	-
Stage 2	39	-	-
Critical Hdwy	6.43	6.23	4.19
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.281
Pot Cap-1 Maneuver	959	1070	1566
Stage 1	1011	-	-
Stage 2	981	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	947	1070	1566
Mov Cap-2 Maneuver	883	-	-
Stage 1	999	-	-
Stage 2	981	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.7	7.33	0
HCM LOS	A		





Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1566	-	1047	-	-
HCM Lane V/C Ratio	0.012	-	0.07	-	-
HCM Control Delay (s/veh)	7.3	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

LUCENT STATION  
KIMLEY-HORN & ASSOCIATES INC [JMM 296078001]

AM PEAK HOUR  
Synchro 12 Report

HCM 7th TWSC  
3: Plaza Cir & Percy Ln





2045 BACKGROUND CONDITIONS






Intersection						
Int Delay, s/veh	7.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	37	0	0	0
Future Vol, veh/h	0	48	37	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	5	5	3	3	0	0
Mvmt Flow	0	56	43	0	0	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	87	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	86	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	906	1075	1615	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	882	1075	1615	-	-	-
Mov Cap-2 Maneuver	835	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	930	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.53	7.29	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1615	-	1075	-	-
HCM Lane V/C Ratio	0.027	-	0.052	-	-
HCM Control Delay (s/veh)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection						
Int Delay, s/veh	7.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	44	13	0	18	0
Future Vol, veh/h	43	44	13	0	18	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	64	66	19	0	27	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	66	27	27	0	-	0
Stage 1	27	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.281	-	-	-
Pot Cap-1 Maneuver	937	1046	1543	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	925	1046	1543	-	-	-
Mov Cap-2 Maneuver	870	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.38	7.36		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1543	-	951	-	-	
HCM Lane V/C Ratio	0.013	-	0.137	-	-	
HCM Ctrl Dly (s/v)	7.4	-	9.4	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

Intersection						
Int Delay, s/veh	7.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	37	0	8	0
Future Vol, veh/h	0	48	37	0	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	56	43	0	9	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	95	9	9	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	86	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	909	1078	1624	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	885	1078	1624	-	-	-
Mov Cap-2 Maneuver	842	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.52	7.28	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1624	-	1078	-	-
HCM Lane V/C Ratio	0.026	-	0.052	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↰		↰	↱	
Traffic Vol, veh/h	7	533	10	21	593	3	14	0	53	3	0	0
Future Vol, veh/h	7	533	10	21	593	3	14	0	53	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	12	903	17	36	1005	5	24	0	90	5	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1010	0	0	920	0	0	1509	2017	460	1554	2023	505
Stage 1	-	-	-	-	-	-	936	936	-	1079	1079	-
Stage 2	-	-	-	-	-	-	574	1081	-	475	944	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	688	-	-	744	-	-	85	59	554	78	59	518
Stage 1	-	-	-	-	-	-	289	347	-	237	297	-
Stage 2	-	-	-	-	-	-	476	296	-	544	343	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	688	-	-	744	-	-	79	55	554	61	55	518
Mov Cap-2 Maneuver	-	-	-	-	-	-	192	162	-	158	158	-
Stage 1	-	-	-	-	-	-	284	341	-	225	283	-
Stage 2	-	-	-	-	-	-	453	282	-	448	338	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.13			0.34			17.66			28.53		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	397	688	-	-	744	-	-	158	-
HCM Lane V/C Ratio	0.286	0.017	-	-	0.048	-	-	0.032	-
HCM Ctrl Dly (s/v)	17.7	10.3	-	-	10.1	-	-	28.5	0
HCM Lane LOS	C	B	-	-	B	-	-	D	A
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0.2	-	-	0.1	-



Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱↰		↰	↱↰			↱↰		↰	↱	
Traffic Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Future Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	314	10	45	245	1	6	0	41	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	324	0	0	533	656	162	494	661	123
Stage 1	-	-	-	-	-	-	319	319	-	337	337	-
Stage 2	-	-	-	-	-	-	213	337	-	157	324	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1331	-	-	1247	-	-	434	388	860	463	385	911
Stage 1	-	-	-	-	-	-	672	656	-	657	645	-
Stage 2	-	-	-	-	-	-	775	645	-	835	653	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1331	-	-	1247	-	-	418	373	860	425	371	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	461	-	504	450	-
Stage 1	-	-	-	-	-	-	672	656	-	633	622	-
Stage 2	-	-	-	-	-	-	746	621	-	796	653	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.24	9.82	11.11
HCM LOS			A	B








Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	793	1331	-	-	1247	-	-	504	911
HCM Lane V/C Ratio	0.059	-	-	-	0.036	-	-	0.005	0.001
HCM Ctrl Dly (s/v)	9.8	0	-	-	8	-	-	12.2	9
HCM Lane LOS	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↰		↰	↱	
Traffic Vol, veh/h	7	596	10	22	625	3	14	0	55	3	0	0
Future Vol, veh/h	7	596	10	22	625	3	14	0	55	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	12	1010	17	37	1059	5	24	0	93	5	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1064	0	0	1027	0	0	1647	2181	514	1665	2187	532
Stage 1	-	-	-	-	-	-	1042	1042	-	1136	1136	-
Stage 2	-	-	-	-	-	-	604	1139	-	529	1051	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	656	-	-	678	-	-	67	47	511	65	46	497
Stage 1	-	-	-	-	-	-	249	309	-	218	279	-
Stage 2	-	-	-	-	-	-	457	278	-	506	306	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	656	-	-	678	-	-	62	43	511	49	43	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	145	-	141	140	-
Stage 1	-	-	-	-	-	-	245	304	-	206	264	-
Stage 2	-	-	-	-	-	-	432	263	-	407	301	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.12			0.36			19.71			31.48		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	360	656	-	-	678	-	-	141	-
HCM Lane V/C Ratio	0.325	0.018	-	-	0.055	-	-	0.036	-
HCM Ctrl Dly (s/v)	19.7	10.6	-	-	10.6	-	-	31.5	0
HCM Lane LOS	C	B	-	-	B	-	-	D	A
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.2	-	-	0.1	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	302	9	40	254	1	5	0	36	2	0	1
Future Vol, veh/h	0	302	9	40	254	1	5	0	36	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	351	10	47	295	1	6	0	42	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	297	0	0	362	0	0	597	746	181	565	751	148
Stage 1	-	-	-	-	-	-	356	356	-	389	389	-
Stage 2	-	-	-	-	-	-	241	390	-	176	362	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1276	-	-	1208	-	-	391	344	837	412	342	878
Stage 1	-	-	-	-	-	-	639	632	-	612	612	-
Stage 2	-	-	-	-	-	-	747	611	-	815	629	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1276	-	-	1208	-	-	375	331	837	377	329	878
Mov Cap-2 Maneuver	-	-	-	-	-	-	479	429	-	464	417	-
Stage 1	-	-	-	-	-	-	639	632	-	588	588	-
Stage 2	-	-	-	-	-	-	717	588	-	774	629	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.1	10	11.56
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	767	1276	-	-	1208	-	-	464	878
HCM Lane V/C Ratio	0.062	-	-	-	0.038	-	-	0.005	0.001
HCM Ctrl Dly (s/v)	10	0	-	-	8.1	-	-	12.8	9.1
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0

Intersection												
Int Delay, s/veh	20.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↰		↰	↱	
Traffic Vol, veh/h	11	596	10	22	625	28	14	0	55	108	0	0
Future Vol, veh/h	11	596	10	22	625	28	14	0	55	108	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	19	1010	17	37	1059	47	24	0	93	183	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1107	0	0	1027	0	0	1660	2237	514	1700	2222	553
Stage 1	-	-	-	-	-	-	1056	1056	-	1158	1158	-
Stage 2	-	-	-	-	-	-	604	1181	-	542	1064	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	632	-	-	678	-	-	65	43	511	~ 61	44	482
Stage 1	-	-	-	-	-	-	244	305	-	212	273	-
Stage 2	-	-	-	-	-	-	457	266	-	497	302	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	632	-	-	678	-	-	60	39	511	~ 46	40	482
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	137	-	~ 136	136	-
Stage 1	-	-	-	-	-	-	237	296	-	200	258	-
Stage 2	-	-	-	-	-	-	432	251	-	394	293	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.19	0.35	19.98	257.96
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	356	632	-	-	678	-	-	136	-
HCM Lane V/C Ratio	0.328	0.029	-	-	0.055	-	-	1.346	-
HCM Ctrl Dly (s/v)	20	10.9	-	-	10.6	-	-	258	0
HCM Lane LOS	C	B	-	-	B	-	-	F	A
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.2	-	-	11.7	-

Notes	
-: Volume exceeds capacity	\$. Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↑			↰		↰	↑	
Traffic Vol, veh/h	13	302	9	40	254	85	5	0	36	51	0	1
Future Vol, veh/h	13	302	9	40	254	85	5	0	36	51	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	351	10	47	295	99	6	0	42	59	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	394	0	0	362	0	0	627	874	181	644	830	197
Stage 1	-	-	-	-	-	-	387	387	-	438	438	-
Stage 2	-	-	-	-	-	-	241	487	-	206	392	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1175	-	-	1208	-	-	372	290	837	362	308	817
Stage 1	-	-	-	-	-	-	614	613	-	573	582	-
Stage 2	-	-	-	-	-	-	747	554	-	783	610	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1175	-	-	1208	-	-	352	276	837	326	292	817
Mov Cap-2 Maneuver	-	-	-	-	-	-	456	379	-	424	388	-
Stage 1	-	-	-	-	-	-	606	605	-	551	560	-
Stage 2	-	-	-	-	-	-	717	532	-	734	602	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.33	0.85	10.06	14.75
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	760	1175	-	-	1208	-	-	424	817
HCM Lane V/C Ratio	0.063	0.013	-	-	0.038	-	-	0.14	0.001
HCM Ctrl Dly (s/v)	10.1	8.1	-	-	8.1	-	-	14.9	9.4
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.5	0



# Timings

2028 Total2 AM\_Signalized

## 4: Greensborough Dr/Plaza Cir & Plaza Dr

06/09/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL
Lane Configurations							
Traffic Volume (vph)	11	596	22	625	14	0	108
Future Volume (vph)	11	596	22	625	14	0	108
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8	
Permitted Phases	2		6		8		4
Detector Phase	5	2	1	6	8	8	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0
Total Split (s)	11.0	67.0	12.0	68.0	41.0	41.0	41.0
Total Split (%)	9.2%	55.8%	10.0%	56.7%	34.2%	34.2%	34.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	81.6	77.9	83.4	80.6		22.5	22.5
Actuated g/C Ratio	0.68	0.65	0.70	0.67		0.19	0.19
v/c Ratio	0.06	0.44	0.10	0.46		0.31	0.82
Control Delay (s/veh)	7.2	13.1	9.9	15.7		13.4	72.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	7.2	13.1	9.9	15.7		13.4	72.9
LOS	A	B	A	B		B	E
Approach Delay (s/veh)		13.0		15.6		13.4	
Approach LOS		B		B		B	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 18.6

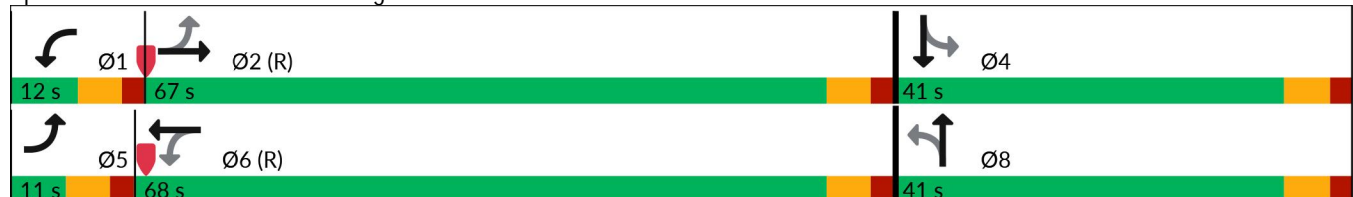
Intersection LOS: B

Intersection Capacity Utilization 40.9%

ICU Level of Service A




















Analysis Period (min) 15

### Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr



# HCM 7th Signalized Intersection Summary 4: Greensborough Dr/Plaza Cir & Plaza Dr

2028 Total2 AM\_Signalized  
06/09/2025

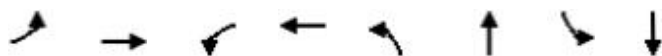
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	596	10	22	625	28	14	0	55	108	0	0
Future Volume (veh/h)	11	596	10	22	625	28	14	0	55	108	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	19	1010	17	37	1059	47	24	0	93	183	0	0
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	358	2343	39	397	2305	102	72	20	217	266	324	0
Arrive On Green	0.02	0.65	0.65	0.03	0.66	0.66	0.17	0.00	0.17	0.17	0.00	0.00
Sat Flow, veh/h	1795	3605	61	1795	3493	155	212	117	1274	1324	1900	0
Grp Volume(v), veh/h	19	502	525	37	543	563	117	0	0	183	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1874	1795	1791	1857	1603	0	0	1324	1900	0
Q Serve(g_s), s	0.4	16.3	16.3	0.8	17.7	17.8	0.6	0.0	0.0	10.4	0.0	0.0
Cycle Q Clear(g_c), s	0.4	16.3	16.3	0.8	17.7	17.8	7.6	0.0	0.0	18.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.08	0.21		0.79	1.00		0.00
Lane Grp Cap(c), veh/h	358	1164	1218	397	1182	1226	309	0	0	266	324	0
V/C Ratio(X)	0.05	0.43	0.43	0.09	0.46	0.46	0.38	0.00	0.00	0.69	0.00	0.00
Avail Cap(c_a), veh/h	398	1164	1218	434	1182	1226	500	0	0	427	554	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	0.77	0.77	0.77	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.8	10.2	10.2	7.5	10.0	10.0	44.4	0.0	0.0	49.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	1.1	0.1	1.0	1.0	0.8	0.0	0.0	3.1	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	0.3	10.3	10.6	0.5	10.2	10.5	5.8	0.0	0.0	9.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.9	11.4	11.3	7.6	10.9	10.9	45.2	0.0	0.0	52.4	0.0	0.0
LnGrp LOS	A	B	B	A	B	B	D			D		
Approach Vol, veh/h	1046			1143			117			183		
Approach Delay, s/veh	11.3			10.8			45.2			52.4		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	84.0		26.5	8.3	85.2		26.5				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	61.0		35.0	5.0	62.0		35.0				
Max Q Clear Time (g_c+I1), s	2.8	18.3		20.0	2.4	19.8		9.6				
Green Ext Time (p_c), s	0.0	7.5		0.5	0.0	8.5		0.7				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh				15.7								
HCM 7th LOS				B								

# Timings

## 4: Greensborough Dr/Plaza Cir & Plaza Dr

2028 Total2 PM\_Signalized

06/09/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	302	40	254	5	0	51	0
Future Volume (vph)	13	302	40	254	5	0	51	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	19.0	55.0	23.0	59.0	42.0	42.0	42.0	42.0
Total Split (%)	15.8%	45.8%	19.2%	49.2%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	94.6	91.2	97.8	96.3		10.4	10.5	10.5
Actuated g/C Ratio	0.79	0.76	0.82	0.80		0.09	0.09	0.09
v/c Ratio	0.02	0.13	0.06	0.14		0.22	0.40	0.00
Control Delay (s/veh)	2.9	5.6	2.9	3.9		5.3	58.4	0.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	2.9	5.6	2.9	3.9		5.3	58.4	0.0
LOS	A	A	A	A		A	E	A
Approach Delay (s/veh)		5.5		3.8		5.3		57.4
Approach LOS		A		A		A		E

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay (s/veh): 8.0

Intersection LOS: A

Intersection Capacity Utilization 38.4%

ICU Level of Service A

Analysis Period (min) 15




















### Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr



# HCM 7th Signalized Intersection Summary

## 4: Greensborough Dr/Plaza Cir & Plaza Dr

2028 Total2 PM\_Signalized  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	302	9	40	254	85	5	0	36	51	0	1
Future Volume (veh/h)	13	302	9	40	254	85	5	0	36	51	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	351	10	47	295	99	6	0	42	59	0	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	851	2752	78	889	2093	688	40	4	70	141	0	80
Arrive On Green	0.02	0.77	0.77	0.03	0.78	0.78	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1810	3585	102	1810	2669	878	120	81	1407	1386	0	1610
Grp Volume(v), veh/h	15	176	185	47	198	196	48	0	0	59	0	1
Grp Sat Flow(s),veh/h/ln	1810	1805	1882	1810	1805	1742	1608	0	0	1386	0	1610
Q Serve(g_s), s	0.2	3.0	3.0	0.6	3.2	3.3	1.1	0.0	0.0	0.5	0.0	0.1
Cycle Q Clear(g_c), s	0.2	3.0	3.0	0.6	3.2	3.3	3.5	0.0	0.0	4.0	0.0	0.1
Prop In Lane	1.00		0.05	1.00		0.50	0.12		0.87	1.00		1.00
Lane Grp Cap(c), veh/h	851	1385	1444	889	1415	1366	113	0	0	141	0	80
V/C Ratio(X)	0.02	0.13	0.13	0.05	0.14	0.14	0.42	0.00	0.00	0.42	0.00	0.01
Avail Cap(c_a), veh/h	1017	1385	1444	1086	1415	1366	511	0	0	488	0	483
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	0.87	0.87	0.87	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.8	3.6	3.6	2.5	3.1	3.2	55.9	0.0	0.0	56.0	0.0	54.2
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.2	0.2	2.5	0.0	0.0	2.0	0.0	0.1
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	1.7	1.8	0.3	1.7	1.7	2.7	0.0	0.0	3.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	2.8	3.8	3.8	2.5	3.3	3.3	58.3	0.0	0.0	58.0	0.0	54.3
LnGrp LOS	A	A	A	A	A	A	E			E		D
Approach Vol, veh/h	376			441			48			60		
Approach Delay, s/veh	3.7			3.2			58.3			58.0		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	98.1		11.9	8.0	100.1		11.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	17.0	49.0		36.0	13.0	53.0		36.0				
Max Q Clear Time (g_c+I1), s	2.6	5.0		6.0	2.2	5.3		5.5				
Green Ext Time (p_c), s	0.1	2.1		0.1	0.0	2.4		0.2				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh				9.9								
HCM 7th LOS				A								

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↱		↰	↱	
Traffic Vol, veh/h	9	697	12	26	738	4	17	0	65	4	0	0
Future Vol, veh/h	9	697	12	26	738	4	17	0	65	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	15	1181	20	44	1251	7	29	0	110	7	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1258	0	0	1202	0	0	1936	2568	601	1964	2575	629
Stage 1	-	-	-	-	-	-	1222	1222	-	1342	1342	-
Stage 2	-	-	-	-	-	-	714	1346	-	621	1232	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	554	-	-	582	-	-	40	26	449	39	26	430
Stage 1	-	-	-	-	-	-	194	254	-	163	223	-
Stage 2	-	-	-	-	-	-	393	222	-	446	252	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	554	-	-	582	-	-	36	24	449	26	24	430
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	109	-	101	103	-
Stage 1	-	-	-	-	-	-	188	247	-	151	206	-
Stage 2	-	-	-	-	-	-	363	205	-	327	245	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.15			0.4			27.83			43.39		
HCM LOS							D			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	293	554	-	-	582	-	-	101	-
HCM Lane V/C Ratio	0.474	0.028	-	-	0.076	-	-	0.067	-
HCM Ctrl Dly (s/v)	27.8	11.7	-	-	11.7	-	-	43.4	0
HCM Lane LOS	D	B	-	-	B	-	-	E	A
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0.2	-	-	0.2	-



Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↰		↰	↱	
Traffic Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Future Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	314	10	45	245	1	6	0	41	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	324	0	0	533	656	162	494	661	123
Stage 1	-	-	-	-	-	-	319	319	-	337	337	-
Stage 2	-	-	-	-	-	-	213	337	-	157	324	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1331	-	-	1247	-	-	434	388	860	463	385	911
Stage 1	-	-	-	-	-	-	672	656	-	657	645	-
Stage 2	-	-	-	-	-	-	775	645	-	835	653	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1331	-	-	1247	-	-	418	373	860	425	371	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	461	-	504	450	-
Stage 1	-	-	-	-	-	-	672	656	-	633	622	-
Stage 2	-	-	-	-	-	-	746	621	-	796	653	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.24	9.82	11.11
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	793	1331	-	-	1247	-	-	504	911
HCM Lane V/C Ratio	0.059	-	-	-	0.036	-	-	0.005	0.001
HCM Ctrl Dly (s/v)	9.8	0	-	-	8	-	-	12.2	9
HCM Lane LOS	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0

# Timings

## 4: Greensborough Dr/Plaza Cir & Plaza Dr

2045 Total AM

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL
Lane Configurations							
Traffic Volume (vph)	13	697	26	738	17	0	114
Future Volume (vph)	13	697	26	738	17	0	114
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8	
Permitted Phases	2		6		8		4
Detector Phase	5	2	1	6	8	8	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0
Total Split (s)	11.0	67.0	12.0	68.0	41.0	41.0	41.0
Total Split (%)	9.2%	55.8%	10.0%	56.7%	34.2%	34.2%	34.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	78.4	73.6	80.5	76.4		24.3	24.3
Actuated g/C Ratio	0.65	0.61	0.67	0.64		0.20	0.20
v/c Ratio	0.08	0.55	0.15	0.57		0.34	0.85
Control Delay (s/veh)	8.2	16.6	12.5	21.8		12.6	75.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	8.2	16.6	12.5	21.8		12.6	75.1
LOS	A	B	B	C		B	E
Approach Delay (s/veh)		16.5		21.5		12.6	
Approach LOS		B		C		B	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 22.5

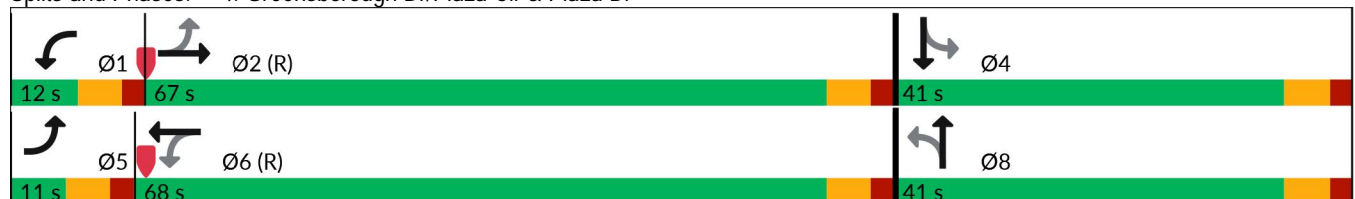
Intersection LOS: C

Intersection Capacity Utilization 44.6%

ICU Level of Service A

Analysis Period (min) 15

### Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr






















Synchro 12 Report

Page 1

# HCM 7th Signalized Intersection Summary

## 4: Greensborough Dr/Plaza Cir & Plaza Dr

2045 Total AM  
06/10/2025
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	697	12	26	738	29	17	0	65	114	0	0
Future Volume (veh/h)	13	697	12	26	738	29	17	0	65	114	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	22	1181	20	44	1251	49	29	0	110	193	0	0
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	287	2267	38	328	2247	88	79	20	239	276	359	0
Arrive On Green	0.02	0.63	0.63	0.03	0.64	0.64	0.19	0.00	0.19	0.19	0.00	0.00
Sat Flow, veh/h	1795	3604	61	1795	3514	138	226	108	1266	1304	1900	0
Grp Volume(v), veh/h	22	587	614	44	637	663	139	0	0	193	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1874	1795	1791	1860	1600	0	0	1304	1900	0
Q Serve(g_s), s	0.5	21.7	21.7	1.0	23.9	24.0	1.9	0.0	0.0	11.2	0.0	0.0
Cycle Q Clear(g_c), s	0.5	21.7	21.7	1.0	23.9	24.0	9.0	0.0	0.0	20.2	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.07	0.21		0.79	1.00		0.00
Lane Grp Cap(c), veh/h	287	1126	1179	328	1145	1189	339	0	0	276	359	0
V/C Ratio(X)	0.08	0.52	0.52	0.13	0.56	0.56	0.41	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	323	1126	1179	360	1145	1189	500	0	0	410	554	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	0.71	0.71	0.71	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.7	12.3	12.3	9.2	12.1	12.1	43.1	0.0	0.0	48.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.7	1.6	0.1	1.4	1.3	0.8	0.0	0.0	3.2	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	0.3	13.2	13.7	0.7	13.2	13.6	6.8	0.0	0.0	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.8	14.0	13.9	9.4	13.5	13.5	43.9	0.0	0.0	51.8	0.0	0.0
LnGrp LOS	A	B	B	A	B	B	D			D		
Approach Vol, veh/h	1223			1344			139			193		
Approach Delay, s/veh	13.9			13.4			43.9			51.8		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	81.5		28.7	8.6	82.7		28.7				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	61.0		35.0	5.0	62.0		35.0				
Max Q Clear Time (g_c+I1), s	3.0	23.7		22.2	2.5	26.0		11.0				
Green Ext Time (p_c), s	0.0	9.4		0.5	0.0	10.6		0.8				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh				17.6								
HCM 7th LOS				B								

# Timings

## 4: Greensborough Dr/Plaza Cir & Plaza Dr

2045 Total PM

06/10/2025

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	353	48	294	6	0	51	0
Future Volume (vph)	13	353	48	294	6	0	51	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	19.0	55.0	23.0	59.0	42.0	42.0	42.0	42.0
Total Split (%)	15.8%	45.8%	19.2%	49.2%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	94.4	91.0	97.8	96.2		10.5	10.6	10.6
Actuated g/C Ratio	0.79	0.76	0.82	0.80		0.09	0.09	0.09
v/c Ratio	0.02	0.16	0.07	0.16		0.27	0.43	0.00
Control Delay (s/veh)	3.0	5.7	2.9	4.1		7.6	60.3	0.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	3.0	5.7	2.9	4.1		7.6	60.3	0.0
LOS	A	A	A	A		A	E	A
Approach Delay (s/veh)		5.6		4.0		7.6		59.3
Approach LOS		A		A		A		E

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay (s/veh): 8.0

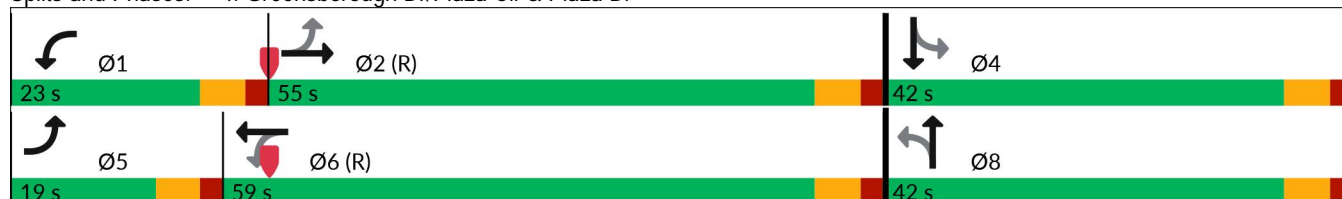
Intersection LOS: A

Intersection Capacity Utilization 39.5%

ICU Level of Service A

Analysis Period (min) 15




















### Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr



# HCM 7th Signalized Intersection Summary

## 4: Greensborough Dr/Plaza Cir & Plaza Dr



















2045 Total PM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	353	11	48	294	85	6	0	43	51	0	1
Future Volume (veh/h)	13	353	11	48	294	85	6	0	43	51	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	410	13	56	342	99	7	0	50	59	0	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	812	2722	86	840	2165	618	40	4	74	142	0	85
Arrive On Green	0.02	0.76	0.76	0.04	0.78	0.78	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1810	3572	113	1810	2772	791	119	79	1411	1376	0	1610
Grp Volume(v), veh/h	15	207	216	56	221	220	57	0	0	59	0	1
Grp Sat Flow(s),veh/h/ln	1810	1805	1880	1810	1805	1758	1608	0	0	1376	0	1610
Q Serve(g_s), s	0.2	3.7	3.7	0.8	3.7	3.8	1.7	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.2	3.7	3.7	0.8	3.7	3.8	4.1	0.0	0.0	4.2	0.0	0.1
Prop In Lane	1.00		0.06	1.00		0.45	0.12		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	812	1376	1433	840	1410	1373	118	0	0	142	0	85
V/C Ratio(X)	0.02	0.15	0.15	0.07	0.16	0.16	0.48	0.00	0.00	0.41	0.00	0.01
Avail Cap(c_a), veh/h	978	1376	1433	1033	1410	1373	511	0	0	483	0	483
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	0.84	0.84	0.84	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.0	3.8	3.8	2.6	3.3	3.3	55.8	0.0	0.0	55.8	0.0	53.9
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.2	0.2	3.0	0.0	0.0	1.9	0.0	0.1
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	2.1	2.2	0.4	1.9	1.9	3.3	0.0	0.0	3.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	3.0	4.1	4.1	2.6	3.5	3.5	58.8	0.0	0.0	57.8	0.0	53.9
LnGrp LOS	A	A	A	A	A	A	E			E		D
Approach Vol, veh/h	438			497			57			60		
Approach Delay, s/veh	4.0			3.4			58.8			57.7		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	97.5		12.3	8.0	99.7		12.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	17.0	49.0		36.0	13.0	53.0		36.0				
Max Q Clear Time (g_c+I1), s	2.8	5.7		6.2	2.2	5.8		6.1				
Green Ext Time (p_c), s	0.1	2.5		0.1	0.0	2.7		0.3				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh				9.8								
HCM 7th LOS				A								



Timings  
5: Kendrick Castillo Way & Plaza Dr

2025 Existing AM  
06/09/2025

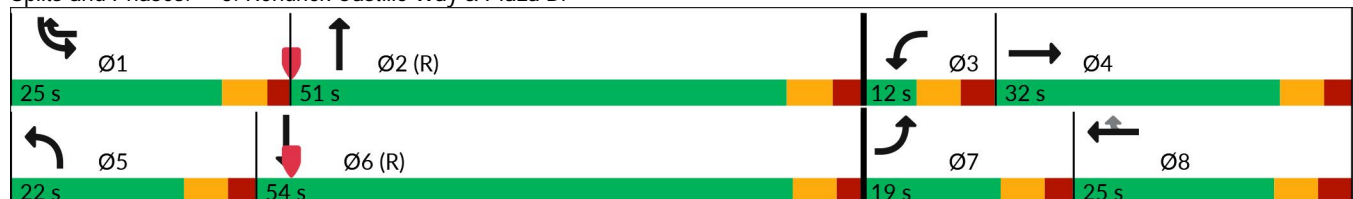
									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	268	193	23	126	170	238	1223	449	1004
Future Volume (vph)	268	193	23	126	170	238	1223	449	1004
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	19.0	32.0	12.0	25.0	25.0	22.0	51.0	25.0	54.0
Total Split (%)	15.8%	26.7%	10.0%	20.8%	20.8%	18.3%	42.5%	20.8%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.4	22.4	5.0	10.2	40.2	14.5	48.4	23.1	57.0
Actuated g/C Ratio	0.10	0.19	0.04	0.09	0.34	0.12	0.40	0.19	0.48
v/c Ratio	0.83	0.51	0.18	0.47	0.30	0.64	0.72	0.76	0.60
Control Delay (s/veh)	72.8	29.8	58.6	57.3	7.9	57.2	32.9	47.0	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.8	29.8	58.6	57.3	7.9	57.2	32.9	47.0	33.5
LOS	E	C	E	E	A	E	C	D	C
Approach Delay (s/veh)		48.6		31.1			36.6		37.1
Approach LOS		D		C			D		D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 54.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay (s/veh): 38.1  
 Intersection Capacity Utilization 74.4%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service D























Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary

## 5: Kendrick Castillo Way & Plaza Dr

2025 Existing AM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	193	150	23	126	170	238	1223	90	449	1004	256
Future Volume (veh/h)	268	193	150	23	126	170	238	1223	90	449	1004	256
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	301	217	169	26	142	191	267	1374	101	504	1128	288
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	356	381	283	83	427	441	330	1974	145	547	1877	479
Arrive On Green	0.10	0.19	0.19	0.02	0.12	0.12	0.09	0.40	0.40	0.05	0.15	0.15
Sat Flow, veh/h	3510	1974	1467	3456	3554	1585	3483	4892	360	3456	4053	1035
Grp Volume(v), veh/h	301	197	189	26	142	191	267	964	511	504	947	469
Grp Sat Flow(s),veh/h/ln	1755	1805	1636	1728	1777	1585	1742	1716	1820	1728	1702	1684
Q Serve(g_s), s	10.1	11.9	12.6	0.9	4.4	11.9	9.0	28.0	28.0	17.4	31.2	31.2
Cycle Q Clear(g_c), s	10.1	11.9	12.6	0.9	4.4	11.9	9.0	28.0	28.0	17.4	31.2	31.2
Prop In Lane	1.00		0.90	1.00		1.00	1.00		0.20	1.00		0.61
Lane Grp Cap(c), veh/h	356	349	316	83	427	441	330	1385	735	547	1576	780
V/C Ratio(X)	0.85	0.57	0.60	0.31	0.33	0.43	0.81	0.70	0.70	0.92	0.60	0.60
Avail Cap(c_a), veh/h	366	384	348	144	533	489	450	1385	735	547	1576	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	53.0	43.9	44.2	57.6	48.4	35.5	53.2	29.7	29.7	56.1	40.5	40.5
Incr Delay (d2), s/veh	16.3	1.6	2.3	2.1	0.5	0.7	7.7	2.9	5.4	18.4	1.4	2.8
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	8.9	9.2	9.0	0.7	3.5	8.1	7.6	17.1	18.5	14.1	20.2	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.3	45.5	46.5	59.7	48.8	36.2	60.9	32.6	35.1	74.5	41.9	43.3
LnGrp LOS	E	D	D	E	D	D	E	C	D	E	D	D
Approach Vol, veh/h	687				359				1742			
Approach Delay, s/veh	56.2				42.9				37.7			
Approach LOS	E				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	54.9	9.9	30.2	17.9	62.1	18.7	21.4				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	19.0	44.5	5.0	* 26	15.5	* 48	12.5	18.0				
Max Q Clear Time (g_c+I1), s	19.4	30.0	2.9	14.6	11.0	33.2	12.1	13.9				
Green Ext Time (p_c), s	0.0	7.9	0.0	1.6	0.4	8.0	0.0	0.5				

### Intersection Summary



















HCM 7th Control Delay, s/veh	46.1
HCM 7th LOS	D

### Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# Timings 5: Kendrick Castillo Way & Plaza Dr

2025 Existing PM  
06/09/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	256	122	124	82	360	87	1337	203	1461
Future Volume (vph)	256	122	124	82	360	87	1337	203	1461
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	16.0	14.8	10.0	8.9	36.4	9.2	68.6	20.5	79.9
Actuated g/C Ratio	0.11	0.11	0.07	0.06	0.26	0.07	0.49	0.15	0.57
v/c Ratio	0.70	0.62	0.54	0.39	0.77	0.42	0.61	0.44	0.61
Control Delay (s/veh)	69.3	35.2	70.9	67.7	40.7	67.9	28.8	55.8	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.3	35.2	70.9	67.7	40.7	67.9	28.8	55.8	21.4
LOS	E	D	E	E	D	E	C	E	C
Approach Delay (s/veh)		51.7		51.2			31.1		25.2
Approach LOS		D		D			C		C

## Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay (s/veh): 33.7

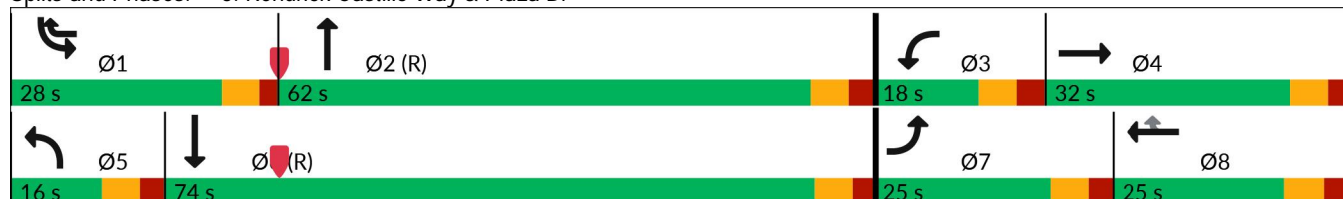
Intersection LOS: C

Intersection Capacity Utilization 72.6%

ICU Level of Service C





















Analysis Period (min) 15

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary 5: Kendrick Castillo Way & Plaza Dr

2025 Existing PM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	256	122	153	124	82	360	87	1337	62	203	1461	157
Future Volume (veh/h)	256	122	153	124	82	360	87	1337	62	203	1461	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	281	134	168	136	90	330	96	1469	68	223	1605	173
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	337	303	271	186	464	336	143	2587	120	282	2592	279
Arrive On Green	0.10	0.17	0.17	0.05	0.13	0.13	0.04	0.51	0.51	0.08	0.55	0.55
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5081	235	3510	4754	512
Grp Volume(v), veh/h	281	134	168	136	90	330	96	1000	537	223	1167	611
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1858	1755	1729	1808
Q Serve(g_s), s	11.0	9.3	13.6	5.3	3.1	18.0	3.8	27.9	28.0	8.7	32.4	32.5
Cycle Q Clear(g_c), s	11.0	9.3	13.6	5.3	3.1	18.0	3.8	27.9	28.0	8.7	32.4	32.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.28
Lane Grp Cap(c), veh/h	337	303	271	186	464	336	143	1761	946	282	1885	986
V/C Ratio(X)	0.83	0.44	0.62	0.73	0.19	0.98	0.67	0.57	0.57	0.79	0.62	0.62
Avail Cap(c_a), veh/h	464	329	293	276	464	336	238	1761	946	552	1885	986
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	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	62.2	52.3	54.1	65.3	54.5	55.1	66.2	23.7	23.7	63.2	21.8	21.9
Incr Delay (d2), s/veh	9.0	1.0	3.5	5.4	0.2	43.7	5.4	1.3	2.5	4.4	1.4	2.6
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	9.1	7.7	9.6	4.5	2.6	21.9	3.2	16.8	18.2	7.1	18.5	19.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	71.2	53.3	57.6	70.7	54.7	98.8	71.6	25.1	26.2	67.6	23.2	24.5
LnGrp LOS	E	D	E	E	D	F	E	C	C	E	C	C
Approach Vol, veh/h	583			556			1633			2001		
Approach Delay, s/veh	63.2			84.8			28.2			28.5		
Approach LOS	E			F			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	77.8	14.4	30.5	12.2	82.8	20.0	25.0				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0				
Max Q Clear Time (g_c+I1), s	10.7	30.0	7.3	15.6	5.8	34.5	13.0	20.0				
Green Ext Time (p_c), s	0.5	11.2	0.1	1.1	0.1	16.2	0.4	0.0				

## Intersection Summary





























HCM 7th Control Delay, s/veh 39.2  
HCM 7th LOS D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# Timings 5: Kendrick Castillo Way & Plaza Dr

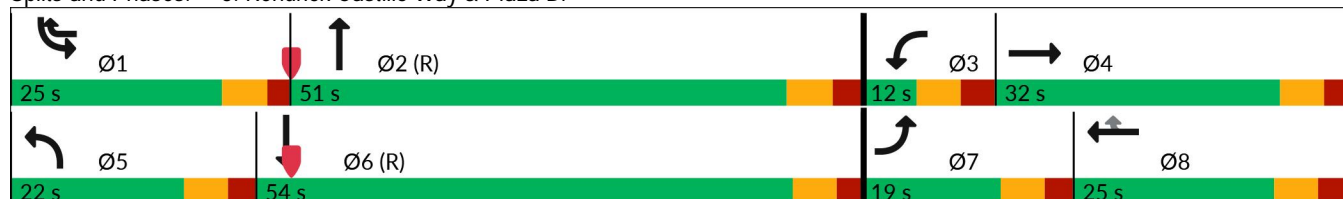
2028 Background AM  
06/09/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	 	 	 	 		 	  	 	  
Traffic Volume (vph)	301	207	24	132	175	249	1260	463	1034
Future Volume (vph)	301	207	24	132	175	249	1260	463	1034
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	19.0	32.0	12.0	25.0	25.0	22.0	51.0	25.0	54.0
Total Split (%)	15.8%	26.7%	10.0%	20.8%	20.8%	18.3%	42.5%	20.8%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.5	22.8	5.0	10.5	41.1	14.9	47.4	23.6	56.1
Actuated g/C Ratio	0.10	0.19	0.04	0.09	0.34	0.12	0.40	0.20	0.47
v/c Ratio	0.93	0.55	0.19	0.48	0.31	0.65	0.75	0.77	0.63
Control Delay (s/veh)	85.7	30.9	58.8	56.9	8.3	57.1	34.5	47.1	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	85.7	30.9	58.8	56.9	8.3	57.1	34.5	47.1	34.6
LOS	F	C	E	E	A	E	C	D	C
Approach Delay (s/veh)		55.2		31.3			38.0		37.9
Approach LOS		E		C			D		D

## Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 54.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay (s/veh): 40.1  
 Intersection Capacity Utilization 76.6%  
 Analysis Period (min) 15























## Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr





# HCM 7th Signalized Intersection Summary 5: Kendrick Castillo Way & Plaza Dr

2028 Background AM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	207	169	24	132	175	249	1260	93	463	1034	272
Future Volume (veh/h)	301	207	169	24	132	175	249	1260	93	463	1034	272
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	338	233	190	27	148	197	280	1416	104	520	1162	306
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	366	383	299	85	437	446	343	1946	143	547	1825	481
Arrive On Green	0.10	0.20	0.20	0.02	0.12	0.12	0.10	0.40	0.40	0.05	0.15	0.15
Sat Flow, veh/h	3510	1928	1506	3456	3554	1585	3483	4892	359	3456	4024	1060
Grp Volume(v), veh/h	338	217	206	27	148	197	280	993	527	520	983	485
Grp Sat Flow(s),veh/h/ln	1755	1805	1629	1728	1777	1585	1742	1716	1821	1728	1702	1680
Q Serve(g_s), s	11.5	13.2	13.9	0.9	4.6	12.2	9.5	29.4	29.4	18.0	32.6	32.6
Cycle Q Clear(g_c), s	11.5	13.2	13.9	0.9	4.6	12.2	9.5	29.4	29.4	18.0	32.6	32.6
Prop In Lane	1.00		0.92	1.00		1.00	1.00		0.20	1.00		0.63
Lane Grp Cap(c), veh/h	366	358	323	85	437	446	343	1365	724	547	1544	762
V/C Ratio(X)	0.92	0.61	0.64	0.32	0.34	0.44	0.82	0.73	0.73	0.95	0.64	0.64
Avail Cap(c_a), veh/h	366	384	346	144	533	489	450	1365	724	547	1544	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	53.3	43.8	44.1	57.5	48.1	35.4	53.0	30.6	30.6	56.4	41.7	41.7
Incr Delay (d2), s/veh	28.7	2.5	3.5	2.1	0.5	0.7	8.7	3.4	6.3	23.1	1.6	3.3
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	10.6	10.0	9.8	0.8	3.6	8.3	7.9	17.9	19.5	14.8	20.9	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	82.0	46.3	47.6	59.6	48.6	36.1	61.7	34.1	36.9	79.5	43.4	45.0
LnGrp LOS	F	D	D	E	D	D	E	C	D	E	D	D
Approach Vol, veh/h	761				372				1800			
Approach Delay, s/veh	62.5				42.8				39.2			
Approach LOS	E				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	54.2	10.0	30.8	18.3	60.9	19.0	21.8				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	19.0	44.5	5.0	* 26	15.5	* 48	12.5	18.0				
Max Q Clear Time (g_c+I1), s	20.0	31.4	2.9	15.9	11.5	34.6	13.5	14.2				
Green Ext Time (p_c), s	0.0	7.6	0.0	1.6	0.3	7.8	0.0	0.5				

## Intersection Summary





























HCM 7th Control Delay, s/veh	48.7
HCM 7th LOS	D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# Timings 5: Kendrick Castillo Way & Plaza Dr

2028 Background PM  
06/10/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	 	 	 	 		 	  	 	  
Traffic Volume (vph)	277	130	128	90	371	101	1378	209	1505
Future Volume (vph)	277	130	128	90	371	101	1378	209	1505
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	16.6	15.6	10.1	9.2	37.4	9.8	67.1	21.2	78.4
Actuated g/C Ratio	0.12	0.11	0.07	0.07	0.27	0.07	0.48	0.15	0.56
v/c Ratio	0.73	0.65	0.56	0.42	0.77	0.45	0.64	0.43	0.65
Control Delay (s/veh)	70.4	37.9	71.3	67.8	41.1	68.1	30.5	55.3	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.4	37.9	71.3	67.8	41.1	68.1	30.5	55.3	23.0
LOS	E	D	E	E	D	E	C	E	C
Approach Delay (s/veh)		53.6		51.7			32.9		26.6
Approach LOS		D		D			C		C

## Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay (s/veh): 35.3

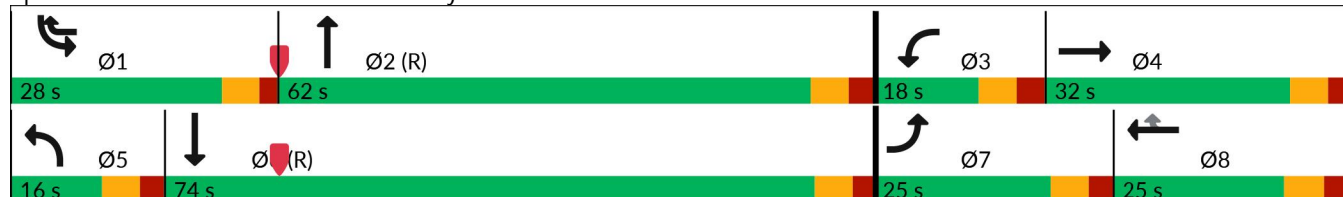
Intersection LOS: D

Intersection Capacity Utilization 74.8%

ICU Level of Service D

Analysis Period (min) 15























Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary



















## 5: Kendrick Castillo Way & Plaza Dr

2028 Background PM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	277	130	165	128	90	371	101	1378	64	209	1505	182
Future Volume (veh/h)	277	130	165	128	90	371	101	1378	64	209	1505	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	304	143	181	141	99	342	111	1514	70	230	1654	200
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	360	312	279	191	464	340	159	2544	118	289	2506	302
Arrive On Green	0.10	0.17	0.17	0.05	0.13	0.13	0.05	0.50	0.50	0.08	0.53	0.53
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5081	235	3510	4691	566
Grp Volume(v), veh/h	304	143	181	141	99	342	111	1030	554	230	1218	636
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1858	1755	1729	1798
Q Serve(g_s), s	11.9	10.0	14.7	5.5	3.4	18.0	4.4	29.7	29.7	9.0	35.5	35.7
Cycle Q Clear(g_c), s	11.9	10.0	14.7	5.5	3.4	18.0	4.4	29.7	29.7	9.0	35.5	35.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.31
Lane Grp Cap(c), veh/h	360	312	279	191	464	340	159	1732	930	289	1848	961
V/C Ratio(X)	0.84	0.46	0.65	0.74	0.21	1.01	0.70	0.60	0.60	0.79	0.66	0.66
Avail Cap(c_a), veh/h	464	329	293	276	464	340	238	1732	930	552	1848	961
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	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	61.7	52.0	53.9	65.2	54.7	55.2	65.9	24.9	24.9	63.1	23.4	23.5
Incr Delay (d2), s/veh	10.8	1.0	4.7	5.9	0.2	50.5	5.4	1.5	2.8	4.2	1.6	3.0
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	9.7	8.1	10.3	4.7	2.8	23.3	3.7	17.7	19.2	7.2	20.0	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	72.6	53.0	58.6	71.1	54.9	105.7	71.3	26.4	27.7	67.2	25.0	26.5
LnGrp LOS	E	D	E	E	D	F	E	C	C	E	C	C
Approach Vol, veh/h	628			582			1695			2084		
Approach Delay, s/veh	64.1			88.7			29.7			30.1		
Approach LOS	E			F			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.5	76.6	14.6	31.2	12.9	81.3	20.8	25.0				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0				
Max Q Clear Time (g_c+I1), s	11.0	31.7	7.5	16.7	6.4	37.7	13.9	20.0				
Green Ext Time (p_c), s	0.5	11.3	0.1	1.2	0.1	16.3	0.4	0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	41.1											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings  
5: Kendrick Castillo Way & Plaza Dr

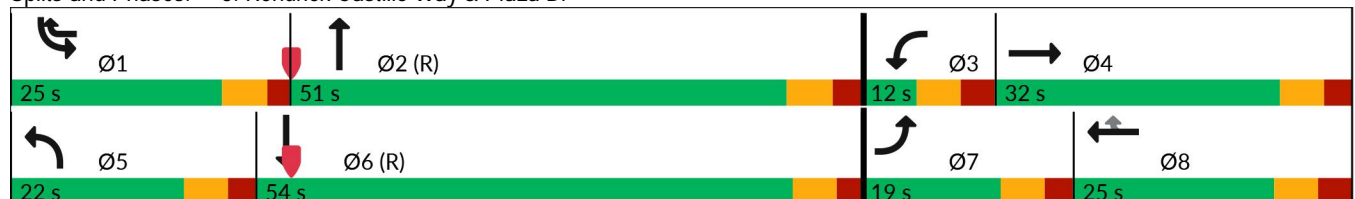
2028 Total AM  
06/10/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	344	219	24	136	175	257	1260	463	1034
Future Volume (vph)	344	219	24	136	175	257	1260	463	1034
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	19.0	32.0	12.0	25.0	25.0	22.0	51.0	25.0	54.0
Total Split (%)	15.8%	26.7%	10.0%	20.8%	20.8%	18.3%	42.5%	20.8%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.5	23.2	5.0	10.9	41.1	15.0	47.4	23.3	55.6
Actuated g/C Ratio	0.10	0.19	0.04	0.09	0.34	0.13	0.40	0.19	0.46
v/c Ratio	1.06	0.59	0.19	0.48	0.31	0.67	0.75	0.78	0.64
Control Delay (s/veh)	115.9	31.5	58.8	56.3	8.3	57.7	34.5	47.9	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	115.9	31.5	58.8	56.3	8.3	57.7	34.5	47.9	35.1
LOS	F	C	E	E	A	E	C	D	D
Approach Delay (s/veh)		69.9		31.4			38.2		38.4
Approach LOS		E		C			D		D

Intersection Summary























Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 54.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay (s/veh): 43.1  
 Intersection Capacity Utilization 77.7%  
 Analysis Period (min) 15

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary 5: Kendrick Castillo Way & Plaza Dr

2028 Total AM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	219	193	24	136	175	257	1260	93	463	1034	285
Future Volume (veh/h)	344	219	193	24	136	175	257	1260	93	463	1034	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	387	246	217	27	153	197	289	1416	104	520	1162	320
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	366	368	311	85	438	446	351	1945	143	547	1795	494
Arrive On Green	0.10	0.20	0.20	0.02	0.12	0.12	0.10	0.40	0.40	0.16	0.45	0.45
Sat Flow, veh/h	3510	1853	1570	3456	3554	1585	3483	4892	359	3456	3981	1096
Grp Volume(v), veh/h	387	239	224	27	153	197	289	993	527	520	994	488
Grp Sat Flow(s),veh/h/ln	1755	1805	1617	1728	1777	1585	1742	1716	1821	1728	1702	1673
Q Serve(g_s), s	12.5	14.7	15.4	0.9	4.7	12.2	9.8	29.4	29.4	17.9	27.2	27.2
Cycle Q Clear(g_c), s	12.5	14.7	15.4	0.9	4.7	12.2	9.8	29.4	29.4	17.9	27.2	27.2
Prop In Lane	1.00		0.97	1.00		1.00	1.00		0.20	1.00		0.66
Lane Grp Cap(c), veh/h	366	358	321	85	438	446	351	1364	724	547	1535	754
V/C Ratio(X)	1.06	0.67	0.70	0.32	0.35	0.44	0.82	0.73	0.73	0.95	0.65	0.65
Avail Cap(c_a), veh/h	366	384	344	144	533	489	450	1364	724	547	1535	754
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	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	53.8	44.4	44.7	57.5	48.2	35.4	52.9	30.6	30.6	50.0	25.5	25.5
Incr Delay (d2), s/veh	63.3	4.0	5.6	2.1	0.5	0.7	9.3	3.4	6.3	23.1	1.7	3.5
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	13.7	11.1	10.8	0.8	3.8	8.3	8.1	17.9	19.5	13.8	15.7	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	117.0	48.5	50.3	59.6	48.7	36.1	62.2	34.1	37.0	73.2	27.3	29.0
LnGrp LOS	F	D	D	E	D	D	E	C	D	E	C	C
Approach Vol, veh/h	850				377				1809			
Approach Delay, s/veh	80.2				42.9				39.4			
Approach LOS	F				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	54.2	10.0	30.8	18.6	60.6	19.0	21.8				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	19.0	44.5	5.0	* 26	15.5	* 48	12.5	18.0				
Max Q Clear Time (g_c+I1), s	19.9	31.4	2.9	17.4	11.8	29.2	14.5	14.2				
Green Ext Time (p_c), s	0.0	7.6	0.0	1.6	0.3	9.7	0.0	0.5				

## Intersection Summary

HCM 7th Control Delay, s/veh	46.6
HCM 7th LOS	D



















## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



# Timings 5: Kendrick Castillo Way & Plaza Dr

2028 Total PM  
06/10/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	303	138	128	103	371	127	1378	209	1505
Future Volume (vph)	303	138	128	103	371	127	1378	209	1505
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	17.2	16.8	10.1	9.7	37.4	10.9	66.5	20.6	76.2
Actuated g/C Ratio	0.12	0.12	0.07	0.07	0.27	0.08	0.48	0.15	0.54
v/c Ratio	0.78	0.67	0.56	0.45	0.77	0.51	0.65	0.45	0.69
Control Delay (s/veh)	72.4	40.1	71.3	67.9	41.1	68.4	30.9	56.0	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.4	40.1	71.3	67.9	41.1	68.4	30.9	56.0	25.2
LOS	E	D	E	E	D	E	C	E	C
Approach Delay (s/veh)		55.8		52.1			34.0		28.5
Approach LOS		E		D			C		C

## Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay (s/veh): 36.9

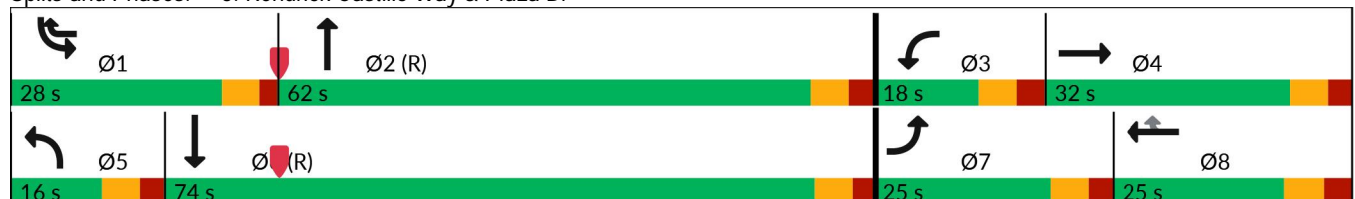
Intersection LOS: D

Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15





















Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary

## 5: Kendrick Castillo Way & Plaza Dr

2028 Total PM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	303	138	180	128	103	371	127	1378	64	209	1505	227
Future Volume (veh/h)	303	138	180	128	103	371	127	1378	64	209	1505	227
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	333	152	198	141	113	342	140	1514	70	230	1654	249
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	387	326	291	191	464	340	189	2504	116	289	2358	353
Arrive On Green	0.11	0.18	0.18	0.05	0.13	0.13	0.05	0.49	0.49	0.08	0.52	0.52
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5081	235	3510	4553	682
Grp Volume(v), veh/h	333	152	198	141	113	342	140	1030	554	230	1254	649
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1858	1755	1729	1777
Q Serve(g_s), s	13.1	10.5	16.1	5.5	3.9	18.0	5.5	30.1	30.1	9.0	38.4	38.8
Cycle Q Clear(g_c), s	13.1	10.5	16.1	5.5	3.9	18.0	5.5	30.1	30.1	9.0	38.4	38.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.38
Lane Grp Cap(c), veh/h	387	326	291	191	464	340	189	1705	916	289	1791	921
V/C Ratio(X)	0.86	0.47	0.68	0.74	0.24	1.01	0.74	0.60	0.60	0.79	0.70	0.70
Avail Cap(c_a), veh/h	464	329	293	276	464	340	238	1705	916	552	1791	921
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	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	61.2	51.3	53.6	65.2	54.9	55.2	65.3	25.6	25.6	63.1	25.5	25.6
Incr Delay (d2), s/veh	13.1	1.0	6.2	5.9	0.3	50.5	8.9	1.6	3.0	4.1	1.9	3.8
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	10.6	8.4	11.2	4.7	3.2	23.3	4.8	18.0	19.5	7.2	21.5	22.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.4	52.3	59.7	71.1	55.1	105.7	74.2	27.2	28.6	67.2	27.4	29.4
LnGrp LOS	E	D	E	E	E	F	E	C	C	E	C	C
Approach Vol, veh/h	683			596			1724			2133		
Approach Delay, s/veh	65.2			87.9			31.5			32.3		
Approach LOS	E			F			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.5	75.5	14.6	32.3	14.0	79.0	21.9	25.0				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0				
Max Q Clear Time (g_c+I1), s	11.0	32.1	7.5	18.1	7.5	40.8	15.1	20.0				
Green Ext Time (p_c), s	0.5	11.2	0.1	1.1	0.1	15.9	0.4	0.0				

### Intersection Summary





























HCM 7th Control Delay, s/veh 42.9  
HCM 7th LOS D

### Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# Timings 5: Kendrick Castillo Way & Plaza Dr

2045 Background AM  
06/10/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	 	 	 	 		 	  	 	  
Traffic Volume (vph)	352	243	28	156	207	294	1492	548	1225
Future Volume (vph)	352	243	28	156	207	294	1492	548	1225
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	24.0	37.0	12.0	25.0	32.0	23.0	59.0	32.0	68.0
Total Split (%)	17.1%	26.4%	8.6%	17.9%	22.9%	16.4%	42.1%	22.9%	48.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	17.4	29.5	5.0	12.2	48.9	17.9	54.7	29.6	66.4
Actuated g/C Ratio	0.12	0.21	0.04	0.09	0.35	0.13	0.39	0.21	0.47
v/c Ratio	0.91	0.61	0.25	0.57	0.37	0.74	0.90	0.85	0.73
Control Delay (s/veh)	85.8	39.9	71.0	68.3	15.4	69.5	47.8	64.9	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	85.8	39.9	71.0	68.3	15.4	69.5	47.8	64.9	31.5
LOS	F	D	E	E	B	E	D	E	C
Approach Delay (s/veh)		60.3		40.4			51.1		40.2
Approach LOS		E		D			D		D

## Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay (s/veh): 47.3

Intersection LOS: D

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15
























Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary

## 5: Kendrick Castillo Way & Plaza Dr

2045 Background AM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	352	243	197	28	156	207	294	1492	110	548	1225	320
Future Volume (veh/h)	352	243	197	28	156	207	294	1492	110	548	1225	320
Initial Q (Qb), veh	1	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	396	273	221	31	175	233	330	1676	102	616	1376	248
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	439	433	339	86	457	498	379	1860	113	642	1950	351
Arrive On Green	0.13	0.22	0.22	0.03	0.13	0.13	0.11	0.38	0.38	0.19	0.45	0.45
Sat Flow, veh/h	3510	1925	1508	3456	3554	1585	3483	4960	302	3456	4350	783
Grp Volume(v), veh/h	396	255	239	31	175	233	330	1159	619	616	1077	547
Grp Sat Flow(s),veh/h/ln	1755	1805	1629	1728	1777	1585	1742	1716	1831	1728	1702	1729
Q Serve(g_s), s	15.6	17.9	18.6	1.2	6.3	16.5	13.1	44.6	44.7	24.7	35.7	35.8
Cycle Q Clear(g_c), s	15.6	17.9	18.6	1.2	6.3	16.5	13.1	44.6	44.7	24.7	35.7	35.8
Prop In Lane	1.00		0.93	1.00		1.00	1.00		0.16	1.00		0.45
Lane Grp Cap(c), veh/h	439	406	366	86	457	498	379	1287	687	642	1526	775
V/C Ratio(X)	0.90	0.63	0.65	0.36	0.38	0.47	0.87	0.90	0.90	0.96	0.71	0.71
Avail Cap(c_a), veh/h	439	406	366	123	457	498	411	1287	687	642	1526	775
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	1.00	1.00	0.67	0.67	0.67
Uniform Delay (d), s/veh	60.5	49.0	49.3	67.1	55.9	38.6	61.4	41.3	41.3	56.5	31.2	31.2
Incr Delay (d2), s/veh	21.6	3.1	4.1	2.5	0.5	0.7	17.1	10.3	17.3	20.0	1.9	3.6
Initial Q Delay(d3), s/veh	0.4	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	13.0	13.1	12.5	1.0	5.1	10.6	10.8	27.3	30.5	17.1	19.8	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	82.4	52.1	53.3	69.6	56.4	39.3	78.5	51.6	58.6	76.5	33.0	34.8
LnGrp LOS	F	D	D	E	E	D	E	D	E	E	C	C
Approach Vol, veh/h	890			439			2108			2240		
Approach Delay, s/veh	65.9			48.3			57.9			45.4		
Approach LOS	E			D			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.0	59.0	10.5	38.5	21.7	69.3	24.0	25.0				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	26.0	52.5	5.0	* 31	16.5	* 62	17.5	18.0				
Max Q Clear Time (g_c+I1), s	26.7	46.7	3.2	20.6	15.1	37.8	17.6	18.5				
Green Ext Time (p_c), s	0.0	4.5	0.0	2.0	0.2	12.3	0.0	0.0				

### Intersection Summary



















HCM 7th Control Delay, s/veh 53.5  
HCM 7th LOS D

### Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# Timings 5: Kendrick Castillo Way & Plaza Dr

2045 Background PM  
06/09/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	325	153	151	106	439	117	1631	248	1783
Future Volume (vph)	325	153	151	106	439	117	1631	248	1783
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	15.0	62.0	28.0	75.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	10.7%	44.3%	20.0%	53.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	17.6	17.5	10.5	10.3	42.3	10.2	61.2	24.9	75.9
Actuated g/C Ratio	0.13	0.13	0.08	0.07	0.30	0.07	0.44	0.18	0.54
v/c Ratio	0.81	0.73	0.64	0.44	0.83	0.51	0.83	0.44	0.79
Control Delay (s/veh)	74.7	47.7	74.3	66.5	45.4	69.2	39.9	53.1	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	74.7	47.7	74.3	66.5	45.4	69.2	39.9	53.1	28.9
LOS	E	D	E	E	D	E	D	D	C
Approach Delay (s/veh)		60.7		54.9			41.8		31.6
Approach LOS		E		D			D		C

## Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 41.6

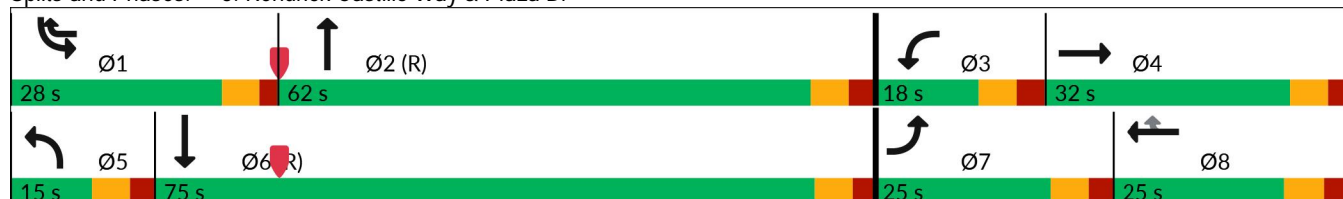
Intersection LOS: D

Intersection Capacity Utilization 85.5%

ICU Level of Service E





















Analysis Period (min) 15

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary 5: Kendrick Castillo Way & Plaza Dr

2045 Background PM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	325	153	194	151	106	439	117	1631	76	248	1783	212
Future Volume (veh/h)	325	153	194	151	106	439	117	1631	76	248	1783	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	357	168	213	166	116	416	129	1792	84	273	1959	233
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	409	325	290	216	464	360	177	2407	113	333	2423	285
Arrive On Green	0.12	0.18	0.18	0.06	0.13	0.13	0.05	0.47	0.47	0.09	0.52	0.52
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5078	238	3510	4704	554
Grp Volume(v), veh/h	357	168	213	166	116	416	129	1220	656	273	1435	757
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1857	1755	1729	1800
Q Serve(g_s), s	14.0	11.8	17.5	6.5	4.1	18.0	5.1	40.1	40.2	10.7	48.2	49.3
Cycle Q Clear(g_c), s	14.0	11.8	17.5	6.5	4.1	18.0	5.1	40.1	40.2	10.7	48.2	49.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.31
Lane Grp Cap(c), veh/h	409	325	290	216	464	360	177	1639	881	333	1781	927
V/C Ratio(X)	0.87	0.52	0.73	0.77	0.25	1.16	0.73	0.74	0.75	0.82	0.81	0.82
Avail Cap(c_a), veh/h	464	329	293	276	464	360	213	1639	881	552	1781	927
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	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	60.8	51.9	54.2	64.7	54.9	54.4	65.5	29.9	29.9	62.2	28.1	28.4
Incr Delay (d2), s/veh	15.1	1.4	9.1	9.5	0.3	96.9	9.6	3.1	5.7	3.8	3.0	6.0
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	11.4	9.2	12.3	5.7	3.3	31.9	4.4	23.3	25.6	8.0	26.1	28.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	75.9	53.3	63.3	74.2	55.2	151.3	75.1	33.0	35.6	65.9	31.2	34.5
LnGrp LOS	E	D	E	E	E	F	E	C	D	E	C	C
Approach Vol, veh/h	738			698			2005			2465		
Approach Delay, s/veh	67.1			117.0			36.6			36.0		
Approach LOS	E			F			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.3	72.9	15.6	32.2	13.6	78.6	22.8	25.0				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	8.5	* 69	18.5	18.0				
Max Q Clear Time (g_c+I1), s	12.7	42.2	8.5	19.5	7.1	51.3	16.0	20.0				
Green Ext Time (p_c), s	0.6	9.3	0.1	1.1	0.0	13.5	0.3	0.0				

## Intersection Summary

HCM 7th Control Delay, s/veh 49.7  
HCM 7th LOS D



















## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Timings  
5: Kendrick Castillo Way & Plaza Dr

2045 Total AM  
06/10/2025

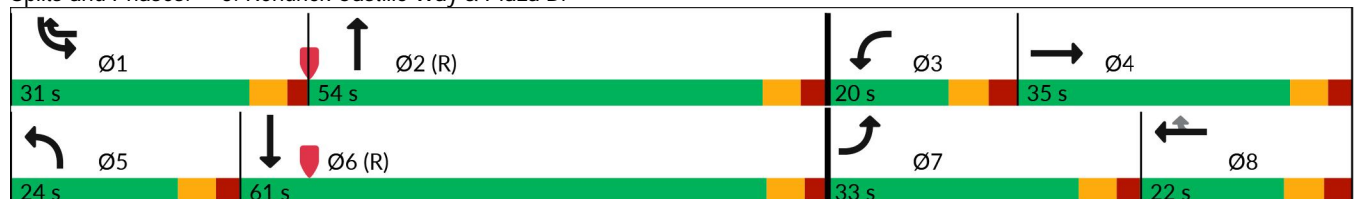
									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	395	255	28	160	207	302	1492	548	1225
Future Volume (vph)	395	255	28	160	207	302	1492	548	1225
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	33.0	35.0	20.0	22.0	31.0	24.0	54.0	31.0	61.0
Total Split (%)	23.6%	25.0%	14.3%	15.7%	22.1%	17.1%	38.6%	22.1%	43.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	22.5	33.2	6.7	12.3	48.5	17.7	49.9	29.3	61.5
Actuated g/C Ratio	0.16	0.24	0.05	0.09	0.35	0.13	0.36	0.21	0.44
v/c Ratio	0.79	0.59	0.19	0.58	0.37	0.78	0.99	0.86	0.80
Control Delay (s/veh)	66.9	37.7	66.2	68.9	16.1	71.9	63.2	66.3	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.9	37.7	66.2	68.9	16.1	71.9	63.2	66.3	37.1
LOS	E	D	E	E	B	E	E	E	D
Approach Delay (s/veh)		50.9		41.0			64.6		44.7
Approach LOS		D		D			E		D

Intersection Summary

Cycle Length: 140  
 Actuated Cycle Length: 140  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay (s/veh): 52.6  
 Intersection Capacity Utilization 86.9%  
 Analysis Period (min) 15
































Intersection LOS: D  
 ICU Level of Service E

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary 5: Kendrick Castillo Way & Plaza Dr

2045 Total AM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Traffic Volume (veh/h)	395	255	221	28	160	207	302	1492	110	548	1225	333
Future Volume (veh/h)	395	255	221	28	160	207	302	1492	110	548	1225	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	444	287	248	31	180	233	339	1676	124	616	1376	262
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	509	416	349	86	381	453	390	1876	139	617	1924	366
Arrive On Green	0.14	0.22	0.22	0.03	0.11	0.11	0.11	0.38	0.38	0.18	0.45	0.45
Sat Flow, veh/h	3510	1862	1562	3456	3554	1585	3483	4890	361	3456	4308	819
Grp Volume(v), veh/h	444	278	257	31	180	233	339	1175	625	616	1087	551
Grp Sat Flow(s),veh/h/ln	1755	1805	1619	1728	1777	1585	1742	1716	1820	1728	1702	1723
Q Serve(g_s), s	17.3	19.8	20.5	1.2	6.7	15.0	13.4	45.0	45.1	24.9	36.3	36.4
Cycle Q Clear(g_c), s	17.3	19.8	20.5	1.2	6.7	15.0	13.4	45.0	45.1	24.9	36.3	36.4
Prop In Lane	1.00		0.96	1.00		1.00	1.00		0.20	1.00		0.48
Lane Grp Cap(c), veh/h	509	403	362	86	381	453	390	1316	698	617	1521	770
V/C Ratio(X)	0.87	0.69	0.71	0.36	0.47	0.51	0.87	0.89	0.89	1.00	0.71	0.72
Avail Cap(c_a), veh/h	664	403	362	321	381	453	435	1316	698	617	1521	770
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)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Uniform Delay (d), s/veh	58.6	49.9	50.2	67.1	58.8	41.9	61.2	40.5	40.5	57.5	31.5	31.5
Incr Delay (d2), s/veh	8.0	3.8	5.0	2.5	0.9	1.0	15.8	9.5	16.3	29.2	2.0	3.8
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	12.3	13.7	13.0	1.0	5.4	11.1	10.9	27.3	30.3	18.1	20.1	20.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.5	53.7	55.2	69.6	59.7	42.9	77.0	50.0	56.8	86.7	33.4	35.3
LnGrp LOS	E	D	E	E	E	D	E	D	E	F	C	D
Approach Vol, veh/h	979			444			2139			2254		
Approach Delay, s/veh	59.9			51.6			56.3			48.5		
Approach LOS	E			D			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.0	60.2	10.5	38.3	22.2	69.0	26.8	22.0				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	25.0	47.5	13.0	* 29	17.5	* 55	26.5	15.0				
Max Q Clear Time (g_c+I1), s	26.9	47.1	3.2	22.5	15.4	38.4	19.3	17.0				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.6	0.3	9.9	1.0	0.0				

## Intersection Summary

HCM 7th Control Delay, s/veh	53.5
HCM 7th LOS	D



















## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# Timings 5: Kendrick Castillo Way & Plaza Dr

2045 Total PM  
06/10/2025

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	351	161	151	119	439	143	1631	248	1783
Future Volume (vph)	351	161	151	119	439	143	1631	248	1783
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	18.0	18.7	10.5	11.1	42.4	10.9	60.6	24.3	74.0
Actuated g/C Ratio	0.13	0.13	0.08	0.08	0.30	0.08	0.43	0.17	0.53
v/c Ratio	0.86	0.73	0.64	0.46	0.83	0.58	0.84	0.45	0.83
Control Delay (s/veh)	78.3	45.8	74.3	66.1	45.2	70.9	40.6	54.0	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.3	45.8	74.3	66.1	45.2	70.9	40.6	54.0	31.5
LOS	E	D	E	E	D	E	D	D	C
Approach Delay (s/veh)		61.7		54.9			42.9		34.0
Approach LOS		E		D			D		C

## Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 43.2

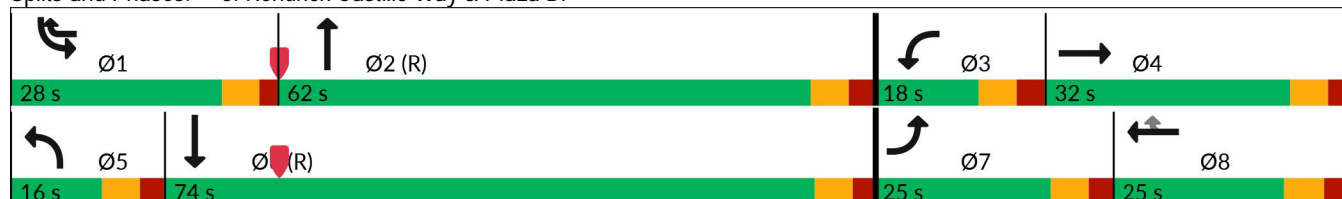
Intersection LOS: D

Intersection Capacity Utilization 86.2%

ICU Level of Service E






















Analysis Period (min) 15

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



# HCM 7th Signalized Intersection Summary 5: Kendrick Castillo Way & Plaza Dr

2045 Total PM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	351	161	209	151	119	439	143	1631	76	248	1783	257
Future Volume (veh/h)	351	161	209	151	119	439	143	1631	76	248	1783	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	386	177	230	166	131	416	157	1792	84	273	1959	282
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	435	338	302	216	464	360	206	2370	111	333	2292	326
Arrive On Green	0.12	0.19	0.19	0.06	0.13	0.13	0.06	0.47	0.47	0.09	0.50	0.50
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5078	238	3510	4589	652
Grp Volume(v), veh/h	386	177	230	166	131	416	157	1220	656	273	1470	771
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1857	1755	1729	1783
Q Serve(g_s), s	15.2	12.4	19.0	6.5	4.6	18.0	6.2	40.7	40.8	10.7	51.8	53.4
Cycle Q Clear(g_c), s	15.2	12.4	19.0	6.5	4.6	18.0	6.2	40.7	40.8	10.7	51.8	53.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.37
Lane Grp Cap(c), veh/h	435	338	302	216	464	360	206	1614	867	333	1727	890
V/C Ratio(X)	0.89	0.52	0.76	0.77	0.28	1.16	0.76	0.76	0.76	0.82	0.85	0.87
Avail Cap(c_a), veh/h	464	338	302	276	464	360	238	1614	867	552	1727	890
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)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	60.4	51.2	53.9	64.7	55.2	54.4	64.9	30.8	30.8	62.2	30.5	30.9
Incr Delay (d2), s/veh	17.6	1.4	10.8	9.5	0.3	96.9	11.8	3.3	6.1	3.7	4.1	8.5
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	12.3	9.6	13.2	5.7	3.8	31.9	5.5	23.7	26.1	8.0	28.2	30.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	77.9	52.7	64.7	74.2	55.5	151.3	76.7	34.1	36.9	65.9	34.6	39.4
LnGrp LOS	E	D	E	E	E	F	E	C	D	E	C	D
Approach Vol, veh/h	793			713			2033			2514		
Approach Delay, s/veh	68.4			115.7			38.3			39.5		
Approach LOS	E			F			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.3	71.8	15.6	33.2	14.7	76.4	23.9	25.0				
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0				
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0				
Max Q Clear Time (g_c+I1), s	12.7	42.8	8.5	21.0	8.2	55.4	17.2	20.0				
Green Ext Time (p_c), s	0.6	8.9	0.1	0.9	0.1	10.3	0.2	0.0				

## Intersection Summary















HCM 7th Control Delay, s/veh	51.9
HCM 7th LOS	D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

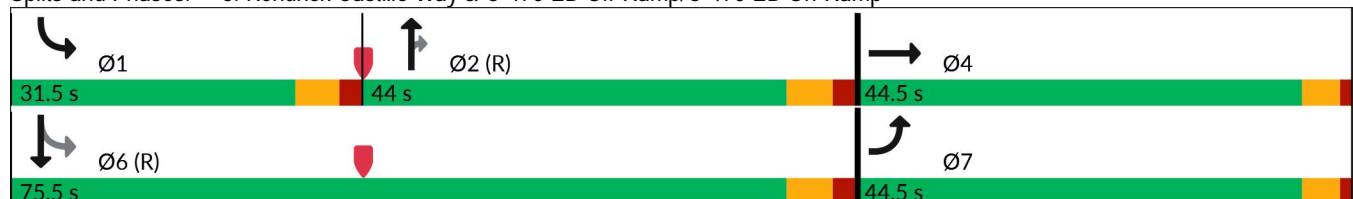
2025 Existing AM  
06/09/2025

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	149	0	984	1190	594	42	757
Future Volume (vph)	149	0	984	1190	594	42	757
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.3	32.0	120.0	69.1	69.1	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.58	0.58	0.65	0.66
v/c Ratio	0.17	0.18	0.68	0.44	0.55	0.18	0.35
Control Delay (s/veh)	30.4	29.4	2.3	17.1	11.8	23.8	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.4	29.4	2.3	17.1	11.8	23.8	25.8
LOS	C	C	A	B	B	C	C
Approach Delay (s/veh)		5.9		15.3			25.7
Approach LOS		A		B			C

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay (s/veh): 14.7  
 Intersection Capacity Utilization 58.9%  
 Analysis Period (min) 15




















Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp


















2025 Existing AM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	0	984	0	0	0	0	1190	594	42	757	0
Future Volume (veh/h)	149	0	984	0	0	0	0	1190	594	42	757	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	164	0	0				0	1308	0	46	832	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	236	0					0	3933		377	3010	0
Arrive On Green	0.07	0.00	0.00				0.00	0.51	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	164	0	0				0	1308	0	46	832	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	5.4	0.0	0.0				0.0	17.9	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	5.4	0.0	0.0				0.0	17.9	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	236	0					0	3933		377	3010	0
V/C Ratio(X)	0.70	0.00					0.00	0.33		0.12	0.28	0.00
Avail Cap(c_a), veh/h	1197	0					0	3933		697	3010	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.67	0.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.66	0.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	54.9	0.0	0.0				0.0	11.3	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.2	0.0	0.1	0.2	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
%ile BackOfQ(95%),veh/ln	4.6	0.0	0.0				0.0	11.1	0.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	0.0	0.0				0.0	11.4	0.0	4.0	0.2	0.0
LnGrp LOS	E							B		A	A	
Approach Vol, veh/h	164						1308			878		
Approach Delay, s/veh	58.6						11.4			0.4		
Approach LOS	E						B			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.9	97.7		12.4		107.6						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	2.6	19.9		7.4		2.0						
Green Ext Time (p_c), s	0.1	8.5		0.5		6.6						
Intersection Summary												
HCM 7th Control Delay, s/veh	10.6											
HCM 7th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												



Timings  
6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2025 Existing PM  
06/09/2025

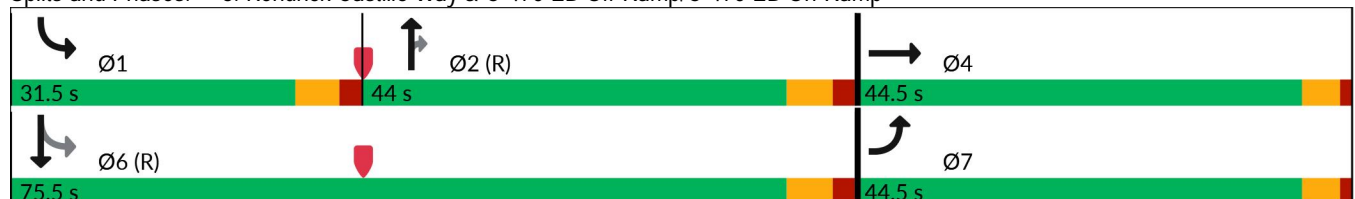
							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations				  			 
Traffic Volume (vph)	73	0	877	1175	686	110	906
Future Volume (vph)	73	0	877	1175	686	110	906
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	26.5	24.0	120.0	72.7	72.7	87.3	89.7
Actuated g/C Ratio	0.22	0.20	1.00	0.61	0.61	0.73	0.75
v/c Ratio	0.10	0.12	0.59	0.41	0.59	0.37	0.37
Control Delay (s/veh)	31.0	28.4	1.6	17.9	3.7	19.8	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.0	28.4	1.6	17.9	3.7	19.8	14.3
LOS	C	C	A	B	A	B	B
Approach Delay (s/veh)		3.7		12.7			14.9
Approach LOS		A		B			B

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay (s/veh): 11.0  
 Intersection Capacity Utilization 66.5%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C




















Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2025 Existing PM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	0	877	0	0	0	0	1175	686	110	906	0
Future Volume (veh/h)	73	0	877	0	0	0	0	1175	686	110	906	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	79	0	0				0	1277	0	120	985	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	140	0					0	4061		447	3155	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	79	0	0				0	1277	0	120	985	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	2.6	0.0	0.0				0.0	8.5	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0				0.0	8.5	0.0	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	140	0					0	4061		447	3155	0
V/C Ratio(X)	0.56	0.00					0.00	0.31		0.27	0.31	0.00
Avail Cap(c_a), veh/h	1206	0					0	4061		758	3155	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.72	0.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	56.7	0.0	0.0				0.0	3.8	0.0	2.2	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.0				0.0	0.1	0.0	0.3	0.2	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
%ile BackOfQ(95%),veh/ln	2.2	0.0	0.0				0.0	4.1	0.0	0.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	0.0	0.0				0.0	3.9	0.0	2.4	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h	79						1277			1105		
Approach Delay, s/veh	60.2						3.9			0.4		
Approach LOS	E						A			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.9	100.0		9.1		110.9						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	3.4	10.5		4.6		2.0						
Green Ext Time (p_c), s	0.3	10.1		0.2		8.4						
Intersection Summary												
HCM 7th Control Delay, s/veh				4.2								
HCM 7th LOS				A								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Background AM

06/09/2025



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	154	0	1017	1226	612	43	785
Future Volume (vph)	154	0	1017	1226	612	43	785
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effect Green (s)	33.4	32.0	120.0	69.1	69.1	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.58	0.58	0.65	0.66
v/c Ratio	0.18	0.19	0.70	0.46	0.56	0.19	0.37
Control Delay (s/veh)	30.6	29.5	2.6	16.4	11.7	23.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.6	29.5	2.6	16.4	11.7	23.7	25.7
LOS	C	C	A	B	B	C	C
Approach Delay (s/veh)		6.2		14.9			25.6
Approach LOS		A		B			C

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay (s/veh): 14.5

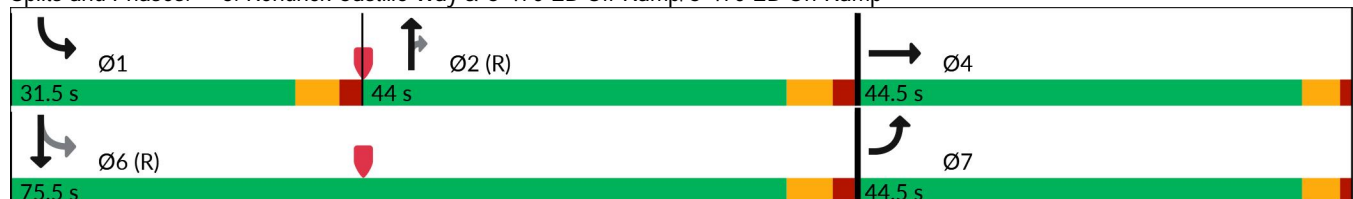
Intersection LOS: B

Intersection Capacity Utilization 60.1%

ICU Level of Service B

Analysis Period (min) 15

### Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp






















Synchro 12 Report

Page 1

# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Background AM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	0	1017	0	0	0	0	1226	612	43	785	0
Future Volume (veh/h)	154	0	1017	0	0	0	0	1226	612	43	785	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	169	0	0				0	1347	0	47	863	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	241	0					0	3924		365	3004	0
Arrive On Green	0.07	0.00	0.00				0.00	0.51	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	169	0	0				0	1347	0	47	863	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	5.5	0.0	0.0				0.0	18.6	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	0.0				0.0	18.6	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	241	0					0	3924		365	3004	0
V/C Ratio(X)	0.70	0.00					0.00	0.34		0.13	0.29	0.00
Avail Cap(c_a), veh/h	1197	0					0	3924		685	3004	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.67	0.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.59	0.00	0.86	0.86	0.00
Uniform Delay (d), s/veh	54.8	0.0	0.0				0.0	11.5	0.0	4.0	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.1	0.2	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
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0				0.0	11.2	0.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.5	0.0	0.0				0.0	11.7	0.0	4.2	0.2	0.0
LnGrp LOS	E							B		A	A	
Approach Vol, veh/h	169						1347			910		
Approach Delay, s/veh	58.5						11.7			0.4		
Approach LOS	E						B			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.0	97.5		12.6		107.4						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	2.6	20.6		7.5		2.0						
Green Ext Time (p_c), s	0.1	8.6		0.6		6.9						
Intersection Summary												
HCM 7th Control Delay, s/veh	10.7											
HCM 7th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Timings  
6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Background PM  
06/10/2025

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	75	0	912	1211	707	113	945
Future Volume (vph)	75	0	912	1211	707	113	945
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.1	32.0	120.0	63.2	63.2	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.53	0.53	0.65	0.66
v/c Ratio	0.09	0.09	0.61	0.48	0.63	0.43	0.43
Control Delay (s/veh)	28.0	28.1	1.8	22.2	4.3	25.9	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.0	28.1	1.8	22.2	4.3	25.9	18.4
LOS	C	C	A	C	A	C	B
Approach Delay (s/veh)		3.8		15.6			19.2
Approach LOS		A		B			B

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay (s/veh): 13.6

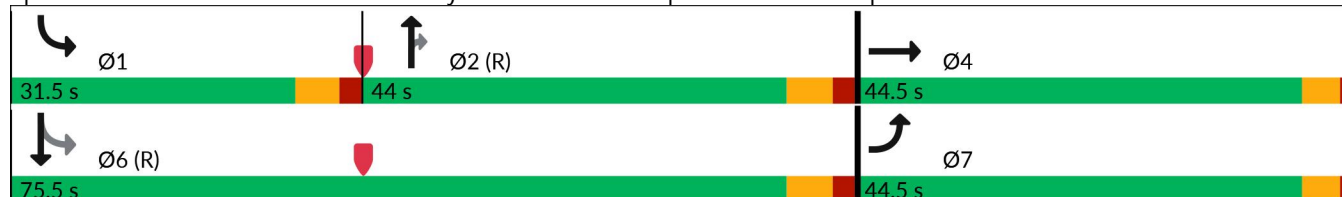
Intersection LOS: B

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15




















Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Background PM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	912	0	0	0	0	1211	707	113	945	0
Future Volume (veh/h)	75	0	912	0	0	0	0	1211	707	113	945	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	82	0	0				0	1316	0	123	1027	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	141	0					0	4059		435	3153	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	82	0	0				0	1316	0	123	1027	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	2.7	0.0	0.0				0.0	8.9	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	0.0				0.0	8.9	0.0	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	141	0					0	4059		435	3153	0
V/C Ratio(X)	0.58	0.00					0.00	0.32		0.28	0.33	0.00
Avail Cap(c_a), veh/h	1206	0					0	4059		745	3153	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.68	0.00	0.79	0.79	0.00
Uniform Delay (d), s/veh	56.7	0.0	0.0				0.0	3.8	0.0	2.2	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.3	0.2	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
%ile BackOfQ(95%),veh/ln	2.3	0.0	0.0				0.0	4.2	0.0	0.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.5	0.0	0.0				0.0	3.9	0.0	2.5	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h	82						1316			1150		
Approach Delay, s/veh	60.5						3.9			0.5		
Approach LOS	E						A			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.9	99.9		9.2		110.8						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	3.4	10.9		4.7		2.0						
Green Ext Time (p_c), s	0.3	10.4		0.2		8.9						
Intersection Summary												
HCM 7th Control Delay, s/veh				4.2								
HCM 7th LOS				A								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

















# Timings

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Total AM

06/10/2025

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	154	0	1023	1250	630	43	793
Future Volume (vph)	154	0	1023	1250	630	43	793
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.4	32.0	120.0	69.1	69.1	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.58	0.58	0.65	0.66
v/c Ratio	0.18	0.19	0.70	0.46	0.58	0.19	0.37
Control Delay (s/veh)	30.6	29.5	2.6	16.0	11.7	23.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.6	29.5	2.6	16.0	11.7	23.7	25.7
LOS	C	C	A	B	B	C	C
Approach Delay (s/veh)		6.2		14.6			25.6
Approach LOS		A		B			C

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay (s/veh): 14.4

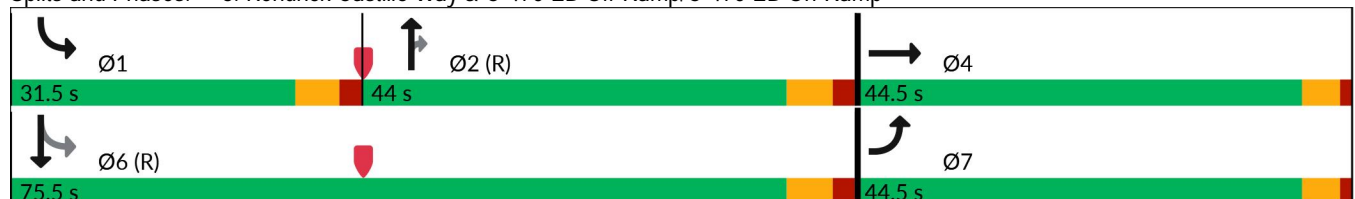
Intersection LOS: B

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp






















Synchro 12 Report

Page 1

# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Total AM  
06/10/2025















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	0	1023	0	0	0	0	1250	630	43	793	0
Future Volume (veh/h)	154	0	1023	0	0	0	0	1250	630	43	793	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	169	0	0				0	1374	0	47	871	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	241	0					0	3924		357	3004	0
Arrive On Green	0.07	0.00	0.00				0.00	0.51	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	169	0	0				0	1374	0	47	871	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	5.5	0.0	0.0				0.0	19.1	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	0.0				0.0	19.1	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	241	0					0	3924		357	3004	0
V/C Ratio(X)	0.70	0.00					0.00	0.35		0.13	0.29	0.00
Avail Cap(c_a), veh/h	1197	0					0	3924		677	3004	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.67	0.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.55	0.00	0.86	0.86	0.00
Uniform Delay (d), s/veh	54.8	0.0	0.0				0.0	11.6	0.0	4.1	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.1	0.2	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
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0				0.0	11.3	0.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.5	0.0	0.0				0.0	11.8	0.0	4.3	0.2	0.0
LnGrp LOS	E							B		A	A	
Approach Vol, veh/h	169						1374			918		
Approach Delay, s/veh	58.5						11.8			0.4		
Approach LOS	E						B			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.0	97.5		12.6		107.4						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	2.6	21.1		7.5		2.0						
Green Ext Time (p_c), s	0.1	8.7		0.6		7.0						
Intersection Summary												
HCM 7th Control Delay, s/veh	10.7											
HCM 7th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Total PM

06/10/2025

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	75	0	931	1226	718	113	971
Future Volume (vph)	75	0	931	1226	718	113	971
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.1	32.0	120.0	63.2	63.2	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.53	0.53	0.65	0.66
v/c Ratio	0.09	0.09	0.63	0.49	0.64	0.43	0.44
Control Delay (s/veh)	28.0	28.1	1.8	22.3	4.5	26.1	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.0	28.1	1.8	22.3	4.5	26.1	18.6
LOS	C	C	A	C	A	C	B
Approach Delay (s/veh)		3.8		15.7			19.4
Approach LOS		A		B			B

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay (s/veh): 13.7

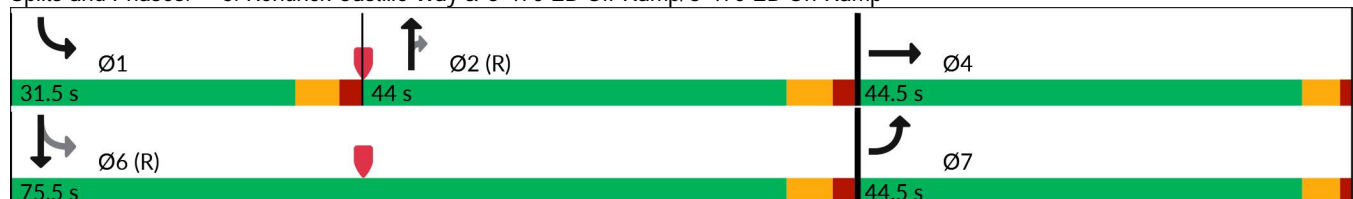
Intersection LOS: B

Intersection Capacity Utilization 68.6%

ICU Level of Service C

Analysis Period (min) 15




















Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



# HCM 7th Signalized Intersection Summary















## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2028 Total PM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	931	0	0	0	0	1226	718	113	971	0
Future Volume (veh/h)	75	0	931	0	0	0	0	1226	718	113	971	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	82	0	0				0	1333	0	123	1055	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	141	0					0	4059		429	3153	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	82	0	0				0	1333	0	123	1055	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	2.7	0.0	0.0				0.0	9.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	0.0				0.0	9.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	141	0					0	4059		429	3153	0
V/C Ratio(X)	0.58	0.00					0.00	0.33		0.29	0.33	0.00
Avail Cap(c_a), veh/h	1206	0					0	4059		740	3153	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.67	0.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	56.7	0.0	0.0				0.0	3.8	0.0	2.3	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.3	0.2	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
%ile BackOfQ(95%),veh/ln	2.3	0.0	0.0				0.0	4.3	0.0	0.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.5	0.0	0.0				0.0	4.0	0.0	2.5	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h	82						1333			1178		
Approach Delay, s/veh	60.5						4.0			0.5		
Approach LOS	E						A			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.9	99.9		9.2		110.8						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	3.4	11.0		4.7		2.0						
Green Ext Time (p_c), s	0.3	10.6		0.2		9.3						
Intersection Summary												
HCM 7th Control Delay, s/veh	4.2											
HCM 7th LOS	A											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Timings  
6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2045 Background AM  
06/09/2025

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	182	0	1204	1452	725	51	929
Future Volume (vph)	182	0	1204	1452	725	51	929
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	40.0	40.0	120.0	58.7	58.7	69.5	69.5
Actuated g/C Ratio	0.33	0.33	1.00	0.49	0.49	0.58	0.58
v/c Ratio	0.18	0.18	0.83	0.64	0.71	0.31	0.50
Control Delay (s/veh)	29.4	29.4	5.1	18.2	15.1	25.6	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.4	29.4	5.1	18.2	15.1	25.6	31.1
LOS	C	C	A	B	B	C	C
Approach Delay (s/veh)		8.3		17.2			30.9
Approach LOS		A		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 17.4

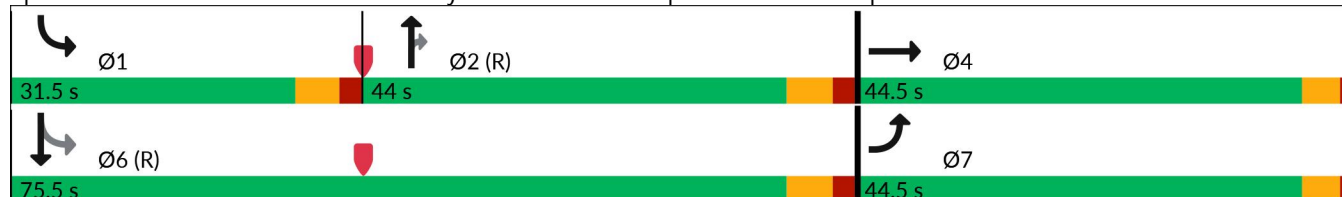
Intersection LOS: B

Intersection Capacity Utilization 67.8%

ICU Level of Service C





















Analysis Period (min) 15

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



HCM 7th Signalized Intersection Summary  
6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp


















2045 Background AM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	0	1204	0	0	0	0	1452	725	51	929	0
Future Volume (veh/h)	182	0	1204	0	0	0	0	1452	725	51	929	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	200	0	0				0	1596	0	56	1021	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	275	0					0	3863		279	2970	0
Arrive On Green	0.08	0.00	0.00				0.00	0.25	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	200	0	0				0	1596	0	56	1021	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	6.5	0.0	0.0				0.0	31.2	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	0.0				0.0	31.2	0.0	0.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	275	0					0	3863		279	2970	0
V/C Ratio(X)	0.73	0.00					0.00	0.41		0.20	0.34	0.00
Avail Cap(c_a), veh/h	1197	0					0	3863		595	2970	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.28	0.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	54.2	0.0	0.0				0.0	23.0	0.0	7.6	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.3	0.2	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
%ile BackOfQ(95%),veh/ln	5.5	0.0	0.0				0.0	17.6	0.0	0.7	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.8	0.0	0.0				0.0	23.1	0.0	7.9	0.2	0.0
LnGrp LOS	E							C		A	A	
Approach Vol, veh/h	200						1596			1077		
Approach Delay, s/veh	57.8						23.1			0.6		
Approach LOS	E						C			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.2	96.1		13.7		106.3						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	2.8	33.2		8.5		2.0						
Green Ext Time (p_c), s	0.1	3.7		0.7		8.9						
Intersection Summary												
HCM 7th Control Delay, s/veh	17.1											
HCM 7th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												



Timings  
6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2045 Background PM  
06/09/2025

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations				  			 
Traffic Volume (vph)	89	0	1078	1434	837	134	1117
Future Volume (vph)	89	0	1078	1434	837	134	1117
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.1	32.0	120.0	62.2	62.2	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.52	0.52	0.65	0.66
v/c Ratio	0.10	0.11	0.73	0.58	0.75	0.58	0.51
Control Delay (s/veh)	28.3	28.3	2.9	24.9	9.4	37.1	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.3	28.3	2.9	24.9	9.4	37.1	19.3
LOS	C	C	A	C	A	D	B
Approach Delay (s/veh)		4.8		19.2			21.2
Approach LOS		A		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 16.1

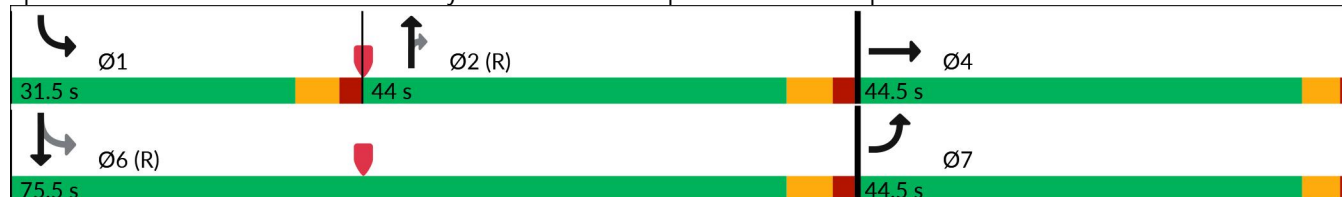
Intersection LOS: B

Intersection Capacity Utilization 77.2%

ICU Level of Service D

Analysis Period (min) 15




















Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2045 Background PM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	1078	0	0	0	0	1434	837	134	1117	0
Future Volume (veh/h)	89	0	1078	0	0	0	0	1434	837	134	1117	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	97	0	0				0	1559	0	146	1214	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	158	0					0	4033		364	3136	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	97	0	0				0	1559	0	146	1214	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	3.2	0.0	0.0				0.0	11.5	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0				0.0	11.5	0.0	1.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	158	0					0	4033		364	3136	0
V/C Ratio(X)	0.61	0.00					0.00	0.39		0.40	0.39	0.00
Avail Cap(c_a), veh/h	1206	0					0	4033		673	3136	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.45	0.00	0.59	0.59	0.00
Uniform Delay (d), s/veh	56.4	0.0	0.0				0.0	4.2	0.0	2.9	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.4	0.2	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
%ile BackOfQ(95%),veh/ln	2.7	0.0	0.0				0.0	5.0	0.0	0.7	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	0.0	0.0				0.0	4.4	0.0	3.4	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h	97						1559			1360		
Approach Delay, s/veh	60.2						4.4			0.6		
Approach LOS	E						A			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.0	99.3		9.7		110.3						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	3.8	13.5		5.2		2.0						
Green Ext Time (p_c), s	0.3	12.3		0.3		11.7						
Intersection Summary												
HCM 7th Control Delay, s/veh				4.4								
HCM 7th LOS				A								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2045 Total AM

06/10/2025



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	182	0	1210	1476	743	51	937
Future Volume (vph)	182	0	1210	1476	743	51	937
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	40.0	40.0	120.0	58.7	58.7	69.5	69.5
Actuated g/C Ratio	0.33	0.33	1.00	0.49	0.49	0.58	0.58
v/c Ratio	0.18	0.18	0.83	0.65	0.73	0.32	0.50
Control Delay (s/veh)	29.4	29.4	5.2	17.8	15.2	25.8	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.4	29.4	5.2	17.8	15.2	25.8	31.2
LOS	C	C	A	B	B	C	C
Approach Delay (s/veh)		8.4		17.0			30.9
Approach LOS		A		B			C

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 17.4

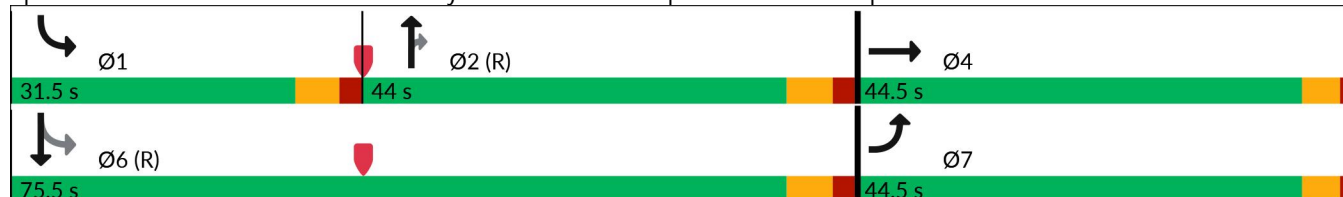
Intersection LOS: B

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15




















### Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2045 Total AM  
06/10/2025















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	0	1210	0	0	0	0	1476	743	51	937	0
Future Volume (veh/h)	182	0	1210	0	0	0	0	1476	743	51	937	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	200	0	0				0	1622	0	56	1030	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	275	0					0	3863		274	2970	0
Arrive On Green	0.08	0.00	0.00				0.00	0.25	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	200	0	0				0	1622	0	56	1030	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	6.5	0.0	0.0				0.0	31.8	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	0.0				0.0	31.8	0.0	0.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	275	0					0	3863		274	2970	0
V/C Ratio(X)	0.73	0.00					0.00	0.42		0.20	0.35	0.00
Avail Cap(c_a), veh/h	1197	0					0	3863		590	2970	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.22	0.00	0.76	0.76	0.00
Uniform Delay (d), s/veh	54.2	0.0	0.0				0.0	23.2	0.0	7.9	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.3	0.2	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
%ile BackOfQ(95%),veh/ln	5.5	0.0	0.0				0.0	17.5	0.0	0.7	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.8	0.0	0.0				0.0	23.3	0.0	8.1	0.2	0.0
LnGrp LOS	E							C		A	A	
Approach Vol, veh/h	200						1622			1086		
Approach Delay, s/veh	57.8						23.3			0.7		
Approach LOS	E						C			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.2	96.1		13.7		106.3						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	2.8	33.8		8.5		2.0						
Green Ext Time (p_c), s	0.1	3.3		0.7		9.0						
Intersection Summary												
HCM 7th Control Delay, s/veh	17.2											
HCM 7th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2045 Total PM

06/10/2025

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	89	0	1097	1449	848	134	1143
Future Volume (vph)	89	0	1097	1449	848	134	1143
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.1	32.0	120.0	62.2	62.2	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.52	0.52	0.65	0.66
v/c Ratio	0.10	0.11	0.74	0.59	0.76	0.59	0.52
Control Delay (s/veh)	28.3	28.3	3.1	25.0	9.9	37.5	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.3	28.3	3.1	25.0	9.9	37.5	19.5
LOS	C	C	A	C	A	D	B
Approach Delay (s/veh)		5.0		19.4			21.4
Approach LOS		A		B			C

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay (s/veh): 16.4

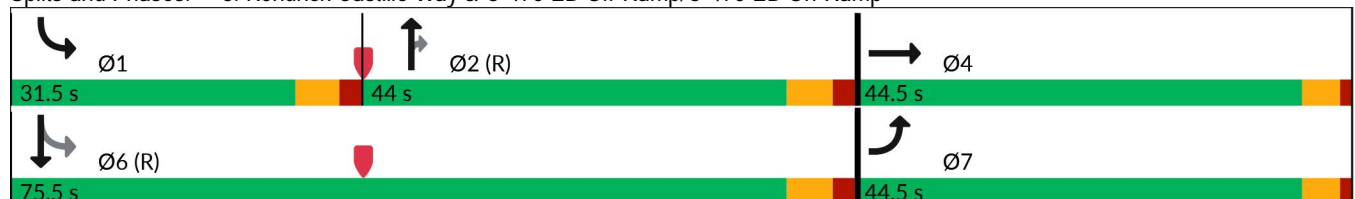
Intersection LOS: B

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Analysis Period (min) 15




















Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



# HCM 7th Signalized Intersection Summary

## 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp

2045 Total PM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	1097	0	0	0	0	1449	848	134	1143	0
Future Volume (veh/h)	89	0	1097	0	0	0	0	1449	848	134	1143	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	97	0	0				0	1575	0	146	1242	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	158	0					0	4033		360	3136	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	97	0	0				0	1575	0	146	1242	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	3.2	0.0	0.0				0.0	11.6	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0				0.0	11.6	0.0	1.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	158	0					0	4033		360	3136	0
V/C Ratio(X)	0.61	0.00					0.00	0.39		0.41	0.40	0.00
Avail Cap(c_a), veh/h	1206	0					0	4033		670	3136	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.43	0.00	0.57	0.57	0.00
Uniform Delay (d), s/veh	56.4	0.0	0.0				0.0	4.3	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.4	0.2	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
%ile BackOfQ(95%),veh/ln	2.7	0.0	0.0				0.0	5.0	0.0	0.7	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	0.0	0.0				0.0	4.4	0.0	3.4	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h	97						1575			1388		
Approach Delay, s/veh	60.2						4.4			0.5		
Approach LOS	E						A			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.0	99.3		9.7		110.3						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	3.8	13.6		5.2		2.0						
Green Ext Time (p_c), s	0.3	12.4		0.3		12.1						
Intersection Summary												
HCM 7th Control Delay, s/veh				4.4								
HCM 7th LOS				A								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												



# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2025 Existing AM

06/09/2025

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	599	2	150	733	635	215	33
Future Volume (vph)	599	2	150	733	635	215	33
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	32.9	78.0	40.6	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.27	0.65	0.34	1.00
v/c Ratio	0.68	0.69	0.10	0.81	0.29	0.19	0.02
Control Delay (s/veh)	47.5	47.7	0.1	70.3	2.8	29.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.5	47.7	0.1	70.3	2.8	29.8	0.0
LOS	D	D	A	E	A	C	A
Approach Delay (s/veh)		38.1			39.0	25.8	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay (s/veh): 37.3

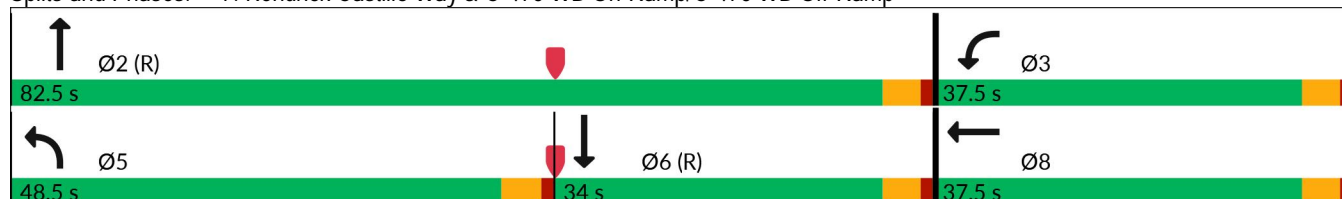
Intersection LOS: D

Intersection Capacity Utilization 58.9%

ICU Level of Service B

Analysis Period (min) 15




















Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



# HCM 7th Signalized Intersection Summary

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2025 Existing AM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	599	2	150	733	635	0	0	215	33
Future Volume (veh/h)	0	0	0	599	2	150	733	635	0	0	215	33
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				632	0	0	772	668	0	0	226	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				725	0		858	2584	0	0	1554	
Arrive On Green				0.20	0.00	0.00	0.41	1.00	0.00	0.00	0.44	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				632	0	0	772	668	0	0	226	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				20.6	0.0	0.0	24.8	0.0	0.0	0.0	4.6	0.0
Cycle Q Clear(g_c), s				20.6	0.0	0.0	24.8	0.0	0.0	0.0	4.6	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				725	0		858	2584	0	0	1554	
V/C Ratio(X)				0.87	0.00		0.90	0.26	0.00	0.00	0.15	
Avail Cap(c_a), veh/h				980	0		1277	2584	0	0	1554	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.3	0.0	0.0	33.9	0.0	0.0	0.0	20.3	0.0
Incr Delay (d2), s/veh				6.7	0.0	0.0	5.7	0.2	0.0	0.0	0.2	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
%ile BackOfQ(95%),veh/ln				14.8	0.0	0.0	14.1	0.1	0.0	0.0	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.9	0.0	0.0	39.7	0.2	0.0	0.0	20.5	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					632			1440			226	
Approach Delay, s/veh					52.9			21.4			20.5	
Approach LOS					D			C			C	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	91.1			34.1			57.0			28.9		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	78.0			44.0			29.5			33.0		
Max Q Clear Time (g_c+I1), s	2.0			26.8			6.6			22.6		
Green Ext Time (p_c), s	4.9			2.7			1.3			1.8		
Intersection Summary												
HCM 7th Control Delay, s/veh				30.0								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2025 Existing PM

06/09/2025

	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	565	1	82	798	432	519	120
Future Volume (vph)	565	1	82	798	432	519	120
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	35.9	78.0	37.6	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.30	0.65	0.31	1.00
v/c Ratio	0.65	0.65	0.06	0.83	0.20	0.50	0.08
Control Delay (s/veh)	46.0	46.0	0.1	66.5	6.5	36.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.0	46.0	0.1	66.5	6.5	36.5	0.1
LOS	D	D	A	E	A	D	A
Approach Delay (s/veh)		40.2			45.4	29.7	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 40.1

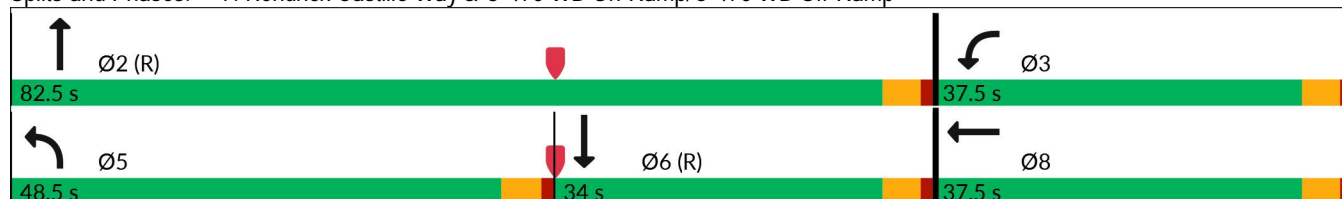
Intersection LOS: D

Intersection Capacity Utilization 66.5%

ICU Level of Service C

Analysis Period (min) 15




















Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



# HCM 7th Signalized Intersection Summary

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2025 Existing PM  
06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	565	1	82	798	432	0	0	519	120
Future Volume (veh/h)	0	0	0	565	1	82	798	432	0	0	519	120
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				615	0	0	867	470	0	0	564	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				711	0		952	2630	0	0	1516	
Arrive On Green				0.20	0.00	0.00	0.45	1.00	0.00	0.00	0.42	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				615	0	0	867	470	0	0	564	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				19.7	0.0	0.0	27.6	0.0	0.0	0.0	12.9	0.0
Cycle Q Clear(g_c), s				19.7	0.0	0.0	27.6	0.0	0.0	0.0	12.9	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				711	0		952	2630	0	0	1516	
V/C Ratio(X)				0.87	0.00		0.91	0.18	0.00	0.00	0.37	
Avail Cap(c_a), veh/h				995	0		1287	2630	0	0	1516	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.92	0.92	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.7	0.0	0.0	31.5	0.0	0.0	0.0	23.9	0.0
Incr Delay (d2), s/veh				5.9	0.0	0.0	7.3	0.1	0.0	0.0	0.7	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
%ile BackOfQ(95%),veh/ln				14.4	0.0	0.0	15.3	0.1	0.0	0.0	9.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.6	0.0	0.0	38.8	0.1	0.0	0.0	24.6	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					615			1337			564	
Approach Delay, s/veh					52.6			25.2			24.6	
Approach LOS					D			C			C	
Timer - Assigned Phs	2			5		6	8					
Phs Duration (G+Y+Rc), s	91.9			37.1		54.9	28.1					
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5					
Max Green Setting (Gmax), s	78.0			44.0		29.5	33.0					
Max Q Clear Time (g_c+I1), s	2.0			29.6		14.9	21.7					
Green Ext Time (p_c), s	3.2			3.0		3.0	1.8					
Intersection Summary												
HCM 7th Control Delay, s/veh				31.8								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

2028 Background AM

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

06/09/2025



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↰	↰	↰↰	↰↰	↰↰	↰
Traffic Volume (vph)	620	2	155	755	654	224	34
Future Volume (vph)	620	2	155	755	654	224	34
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	33.6	78.0	39.9	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.28	0.65	0.33	1.00
v/c Ratio	0.71	0.71	0.10	0.82	0.30	0.20	0.02
Control Delay (s/veh)	48.7	48.9	0.1	70.5	3.0	30.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.7	48.9	0.1	70.5	3.0	30.5	0.0
LOS	D	D	A	E	A	C	A
Approach Delay (s/veh)		39.1			39.2	26.5	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 37.8

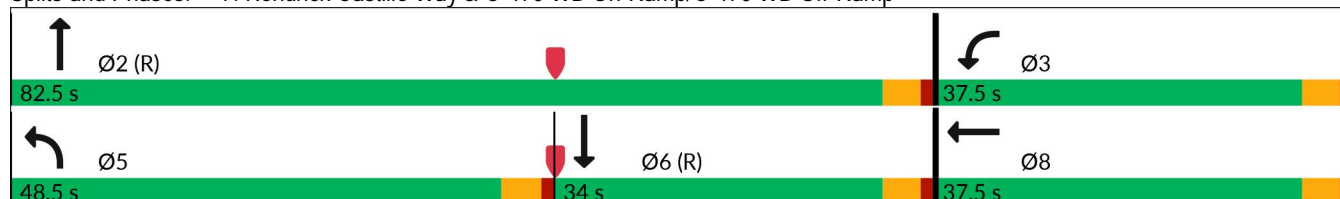
Intersection LOS: D

Intersection Capacity Utilization 60.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp






















# HCM 7th Signalized Intersection Summary

2028 Background AM

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	620	2	155	755	654	0	0	224	34
Future Volume (veh/h)	0	0	0	620	2	155	755	654	0	0	224	34
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				654	0	0	795	688	0	0	236	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				747	0		881	2562	0	0	1510	
Arrive On Green				0.21	0.00	0.00	0.42	1.00	0.00	0.00	0.42	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				654	0	0	795	688	0	0	236	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				21.3	0.0	0.0	25.6	0.0	0.0	0.0	4.9	0.0
Cycle Q Clear(g_c), s				21.3	0.0	0.0	25.6	0.0	0.0	0.0	4.9	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				747	0		881	2562	0	0	1510	
V/C Ratio(X)				0.88	0.00		0.90	0.27	0.00	0.00	0.16	
Avail Cap(c_a), veh/h				980	0		1277	2562	0	0	1510	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.90	0.90	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.9	0.0	0.0	33.3	0.0	0.0	0.0	21.3	0.0
Incr Delay (d2), s/veh				7.2	0.0	0.0	6.1	0.2	0.0	0.0	0.2	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
%ile BackOfQ(95%),veh/ln				15.3	0.0	0.0	14.3	0.1	0.0	0.0	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				53.1	0.0	0.0	39.4	0.2	0.0	0.0	21.5	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					654			1483			236	
Approach Delay, s/veh					53.1			21.2			21.5	
Approach LOS					D			C			C	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	90.3			34.9			55.5			29.7		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	78.0			44.0			29.5			33.0		
Max Q Clear Time (g_c+I1), s	2.0			27.6			6.9			23.3		
Green Ext Time (p_c), s	5.1			2.8			1.3			1.8		
Intersection Summary												
HCM 7th Control Delay, s/veh				30.0								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												



# Timings

2028 Background PM

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

06/10/2025



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	590	1	84	822	445	539	124
Future Volume (vph)	590	1	84	822	445	539	124
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	36.8	78.0	36.7	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.31	0.65	0.31	1.00
v/c Ratio	0.68	0.68	0.06	0.83	0.21	0.53	0.08
Control Delay (s/veh)	47.2	47.3	0.1	71.9	6.5	37.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.2	47.3	0.1	71.9	6.5	37.7	0.1
LOS	D	D	A	E	A	D	A
Approach Delay (s/veh)		41.4			48.9	30.7	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 42.3

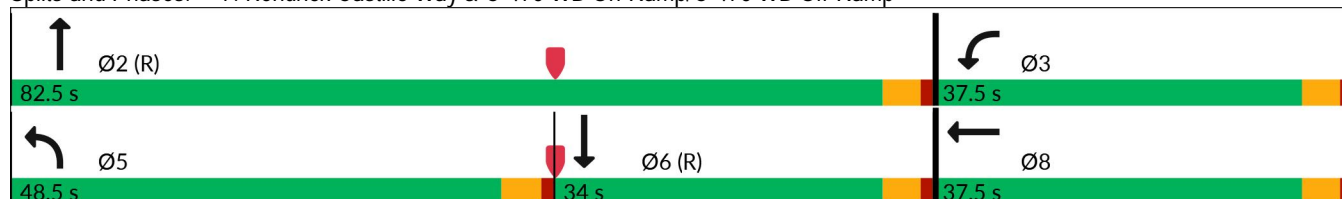
Intersection LOS: D

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp






















# HCM 7th Signalized Intersection Summary

2028 Background PM

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

06/10/2025















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	590	1	84	822	445	0	0	539	124
Future Volume (veh/h)	0	0	0	590	1	84	822	445	0	0	539	124
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				642	0	0	893	484	0	0	586	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				738	0		977	2603	0	0	1463	
Arrive On Green				0.20	0.00	0.00	0.46	1.00	0.00	0.00	0.41	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				642	0	0	893	484	0	0	586	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				20.6	0.0	0.0	28.4	0.0	0.0	0.0	13.8	0.0
Cycle Q Clear(g_c), s				20.6	0.0	0.0	28.4	0.0	0.0	0.0	13.8	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				738	0		977	2603	0	0	1463	
V/C Ratio(X)				0.87	0.00		0.91	0.19	0.00	0.00	0.40	
Avail Cap(c_a), veh/h				995	0		1287	2603	0	0	1463	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.88	0.88	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.2	0.0	0.0	30.8	0.0	0.0	0.0	25.3	0.0
Incr Delay (d2), s/veh				6.5	0.0	0.0	7.5	0.1	0.0	0.0	0.8	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
%ile BackOfQ(95%),veh/ln				15.0	0.0	0.0	15.5	0.1	0.0	0.0	9.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.8	0.0	0.0	38.3	0.1	0.0	0.0	26.1	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					642			1377			586	
Approach Delay, s/veh					52.8			24.9			26.1	
Approach LOS					D			C			C	
Timer - Assigned Phs	2			5		6	8					
Phs Duration (G+Y+Rc), s	91.0			37.9		53.1	29.0					
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5					
Max Green Setting (Gmax), s	78.0			44.0		29.5	33.0					
Max Q Clear Time (g_c+I1), s	2.0			30.4		15.8	22.6					
Green Ext Time (p_c), s	3.4			3.0		3.1	1.9					
Intersection Summary												
HCM 7th Control Delay, s/veh				32.0								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2028 Total AM

06/10/2025

							
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	626	2	155	773	660	226	34
Future Volume (vph)	626	2	155	773	660	226	34
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	34.2	78.0	39.3	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.29	0.65	0.33	1.00
v/c Ratio	0.71	0.72	0.10	0.82	0.30	0.21	0.02
Control Delay (s/veh)	49.0	49.3	0.1	70.6	3.2	31.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	49.0	49.3	0.1	70.6	3.2	31.0	0.0
LOS	D	D	A	E	A	C	A
Approach Delay (s/veh)		39.5			39.5	26.9	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 38.2

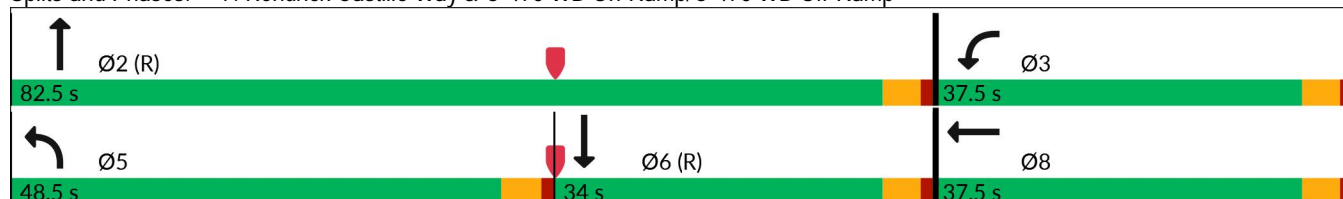
Intersection LOS: D

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15




















Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



# HCM 7th Signalized Intersection Summary

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2028 Total AM  
06/10/2025















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	626	2	155	773	660	0	0	226	34
Future Volume (veh/h)	0	0	0	626	2	155	773	660	0	0	226	34
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				660	0	0	814	695	0	0	238	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				753	0		900	2556	0	0	1485	
Arrive On Green				0.21	0.00	0.00	0.43	1.00	0.00	0.00	0.42	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				660	0	0	814	695	0	0	238	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				21.5	0.0	0.0	26.2	0.0	0.0	0.0	5.0	0.0
Cycle Q Clear(g_c), s				21.5	0.0	0.0	26.2	0.0	0.0	0.0	5.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				753	0		900	2556	0	0	1485	
V/C Ratio(X)				0.88	0.00		0.90	0.27	0.00	0.00	0.16	
Avail Cap(c_a), veh/h				980	0		1277	2556	0	0	1485	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.89	0.89	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.8	0.0	0.0	32.7	0.0	0.0	0.0	21.8	0.0
Incr Delay (d2), s/veh				7.3	0.0	0.0	6.4	0.2	0.0	0.0	0.2	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
%ile BackOfQ(95%),veh/ln				15.4	0.0	0.0	14.6	0.1	0.0	0.0	3.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				53.1	0.0	0.0	39.1	0.2	0.0	0.0	22.0	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					660			1509			238	
Approach Delay, s/veh					53.1			21.2			22.0	
Approach LOS					D			C			C	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	90.1			35.5			54.6			29.9		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	78.0			44.0			29.5			33.0		
Max Q Clear Time (g_c+I1), s	2.0			28.2			7.0			23.5		
Green Ext Time (p_c), s	5.2			2.8			1.3			1.8		
Intersection Summary												
HCM 7th Control Delay, s/veh				30.0								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2028 Total PM

06/10/2025

							
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	609	1	84	833	449	545	124
Future Volume (vph)	609	1	84	833	449	545	124
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	37.1	78.0	36.4	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.31	0.65	0.30	1.00
v/c Ratio	0.70	0.70	0.06	0.84	0.21	0.54	0.08
Control Delay (s/veh)	48.4	48.3	0.1	72.0	6.6	38.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.4	48.3	0.1	72.0	6.6	38.1	0.1
LOS	D	D	A	E	A	D	A
Approach Delay (s/veh)		42.5			49.1	31.1	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 42.8

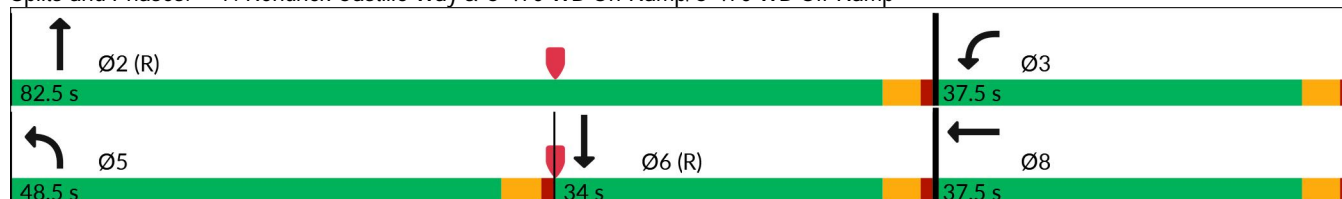
Intersection LOS: D

Intersection Capacity Utilization 68.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp





















# HCM 7th Signalized Intersection Summary

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2028 Total PM

06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	609	1	84	833	449	0	0	545	124
Future Volume (veh/h)	0	0	0	609	1	84	833	449	0	0	545	124
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				663	0	0	905	488	0	0	592	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				758	0		989	2583	0	0	1431	
Arrive On Green				0.21	0.00	0.00	0.47	1.00	0.00	0.00	0.40	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				663	0	0	905	488	0	0	592	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				21.3	0.0	0.0	28.8	0.0	0.0	0.0	14.2	0.0
Cycle Q Clear(g_c), s				21.3	0.0	0.0	28.8	0.0	0.0	0.0	14.2	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				758	0		989	2583	0	0	1431	
V/C Ratio(X)				0.87	0.00		0.92	0.19	0.00	0.00	0.41	
Avail Cap(c_a), veh/h				995	0		1287	2583	0	0	1431	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.88	0.88	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.9	0.0	0.0	30.5	0.0	0.0	0.0	26.1	0.0
Incr Delay (d2), s/veh				7.0	0.0	0.0	7.7	0.1	0.0	0.0	0.9	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
%ile BackOfQ(95%),veh/ln				15.4	0.0	0.0	15.7	0.1	0.0	0.0	10.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.9	0.0	0.0	38.2	0.1	0.0	0.0	27.0	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					663			1393			592	
Approach Delay, s/veh					52.9			24.8			27.0	
Approach LOS					D			C			C	
Timer - Assigned Phs	2			5		6	8					
Phs Duration (G+Y+Rc), s	90.4			38.3		52.1	29.6					
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5					
Max Green Setting (Gmax), s	78.0			44.0		29.5	33.0					
Max Q Clear Time (g_c+I1), s	2.0			30.8		16.2	23.3					
Green Ext Time (p_c), s	3.4			3.0		3.1	1.9					
Intersection Summary												
HCM 7th Control Delay, s/veh				32.4								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												



# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Background AM

06/09/2025

	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	734	2	183	894	775	264	40
Future Volume (vph)	734	2	183	894	775	264	40
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effect Green (s)	33.0	33.0	120.0	38.2	78.0	35.3	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.32	0.65	0.29	1.00
v/c Ratio	0.84	0.84	0.12	0.85	0.35	0.27	0.03
Control Delay (s/veh)	58.0	58.4	0.2	76.2	5.3	34.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.0	58.4	0.2	76.2	5.3	34.5	0.0
LOS	E	E	A	E	A	C	A
Approach Delay (s/veh)		46.6			43.3	29.9	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 43.0

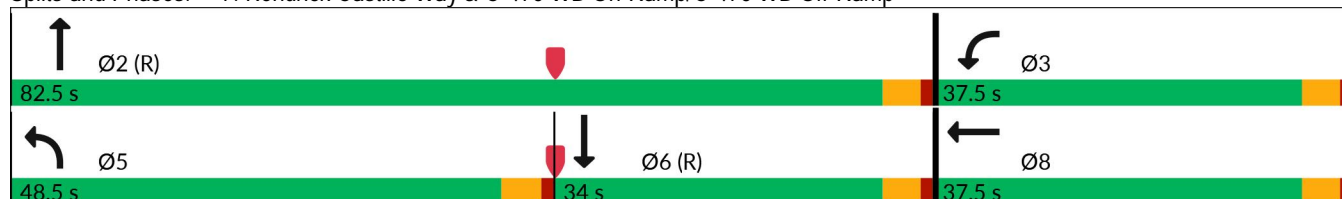
Intersection LOS: D

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp





















# HCM 7th Signalized Intersection Summary

2045 Background AM

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

06/09/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	734	2	183	894	775	0	0	264	40
Future Volume (veh/h)	0	0	0	734	2	183	894	775	0	0	264	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				774	0	0	941	816	0	0	278	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				858	0		1021	2450	0	0	1256	
Arrive On Green				0.24	0.00	0.00	0.49	1.00	0.00	0.00	0.35	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				774	0	0	941	816	0	0	278	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				25.3	0.0	0.0	30.2	0.0	0.0	0.0	6.6	0.0
Cycle Q Clear(g_c), s				25.3	0.0	0.0	30.2	0.0	0.0	0.0	6.6	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				858	0		1021	2450	0	0	1256	
V/C Ratio(X)				0.90	0.00		0.92	0.33	0.00	0.00	0.22	
Avail Cap(c_a), veh/h				980	0		1277	2450	0	0	1256	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.76	0.76	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.2	0.0	0.0	29.3	0.0	0.0	0.0	27.2	0.0
Incr Delay (d2), s/veh				10.4	0.0	0.0	7.6	0.3	0.0	0.0	0.4	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
%ile BackOfQ(95%),veh/ln				17.9	0.0	0.0	15.6	0.2	0.0	0.0	5.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				54.6	0.0	0.0	37.0	0.3	0.0	0.0	27.6	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					774			1757			278	
Approach Delay, s/veh					54.6			19.9			27.6	
Approach LOS					D			B			C	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	86.6			39.7			46.9			33.4		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	78.0			44.0			29.5			33.0		
Max Q Clear Time (g_c+I1), s	2.0			32.2			8.6			27.3		
Green Ext Time (p_c), s	6.4			3.0			1.6			1.6		
Intersection Summary												
HCM 7th Control Delay, s/veh				30.2								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Background PM

06/09/2025

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	697	1	100	974	527	637	146
Future Volume (vph)	697	1	100	974	527	637	146
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	40.9	78.0	32.6	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.34	0.65	0.27	1.00
v/c Ratio	0.80	0.80	0.07	0.89	0.24	0.71	0.10
Control Delay (s/veh)	54.9	54.8	0.1	73.0	8.5	44.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.9	54.8	0.1	73.0	8.5	44.8	0.1
LOS	D	D	A	E	A	D	A
Approach Delay (s/veh)		48.0			50.4	36.4	
Approach LOS		D			D	D	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay (s/veh): 46.2

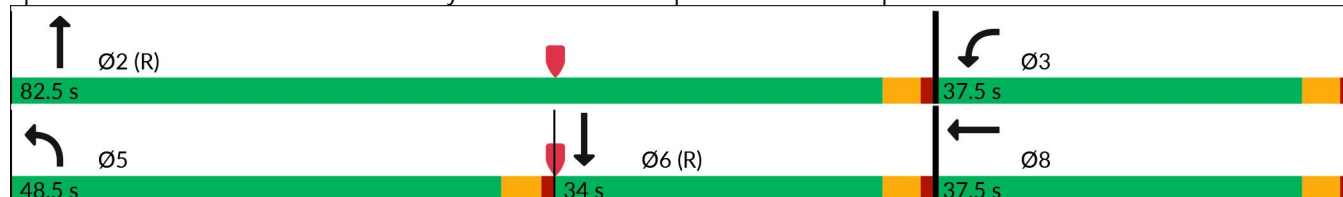
Intersection LOS: D

Intersection Capacity Utilization 77.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp





















# HCM 7th Signalized Intersection Summary

2045 Background PM

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

06/09/2025















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	697	1	100	974	527	0	0	637	146
Future Volume (veh/h)	0	0	0	697	1	100	974	527	0	0	637	146
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				759	0	0	1059	573	0	0	692	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				848	0		1130	2493	0	0	1196	
Arrive On Green				0.23	0.00	0.00	0.54	1.00	0.00	0.00	0.33	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				759	0	0	1059	573	0	0	692	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				24.4	0.0	0.0	33.7	0.0	0.0	0.0	19.0	0.0
Cycle Q Clear(g_c), s				24.4	0.0	0.0	33.7	0.0	0.0	0.0	19.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				848	0		1130	2493	0	0	1196	
V/C Ratio(X)				0.89	0.00		0.94	0.23	0.00	0.00	0.58	
Avail Cap(c_a), veh/h				995	0		1287	2493	0	0	1196	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.80	0.80	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.5	0.0	0.0	26.6	0.0	0.0	0.0	33.2	0.0
Incr Delay (d2), s/veh				9.4	0.0	0.0	10.1	0.2	0.0	0.0	2.0	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
%ile BackOfQ(95%),veh/ln				17.5	0.0	0.0	17.2	0.1	0.0	0.0	13.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				53.9	0.0	0.0	36.8	0.2	0.0	0.0	35.2	0.0
LnGrp LOS				D			D	A			D	
Approach Vol, veh/h					759			1632			692	
Approach Delay, s/veh					53.9			23.9			35.2	
Approach LOS					D			C			D	
Timer - Assigned Phs	2			5		6	8					
Phs Duration (G+Y+Rc), s	87.4			43.1		44.3	32.6					
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5					
Max Green Setting (Gmax), s	78.0			44.0		29.5	33.0					
Max Q Clear Time (g_c+I1), s	2.0			35.7		21.0	26.4					
Green Ext Time (p_c), s	4.1			2.9		2.8	1.8					
Intersection Summary												
HCM 7th Control Delay, s/veh				33.8								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Total AM

06/10/2025

							
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	740	2	183	912	781	266	40
Future Volume (vph)	740	2	183	912	781	266	40
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	38.8	78.0	34.7	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.32	0.65	0.29	1.00
v/c Ratio	0.84	0.85	0.12	0.86	0.35	0.27	0.03
Control Delay (s/veh)	58.7	59.1	0.2	76.2	5.7	35.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.7	59.1	0.2	76.2	5.7	35.0	0.0
LOS	E	E	A	E	A	C	A
Approach Delay (s/veh)		47.2			43.6	30.4	
Approach LOS		D			D	C	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 43.4

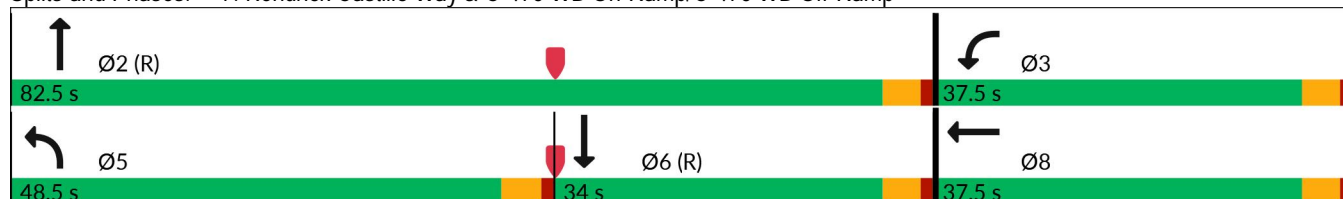
Intersection LOS: D

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15




















Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



# HCM 7th Signalized Intersection Summary

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Total AM  
06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	740	2	183	912	781	0	0	266	40
Future Volume (veh/h)	0	0	0	740	2	183	912	781	0	0	266	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				780	0	0	960	822	0	0	280	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				864	0		1039	2445	0	0	1233	
Arrive On Green				0.24	0.00	0.00	0.50	1.00	0.00	0.00	0.35	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				780	0	0	960	822	0	0	280	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				25.5	0.0	0.0	30.8	0.0	0.0	0.0	6.7	0.0
Cycle Q Clear(g_c), s				25.5	0.0	0.0	30.8	0.0	0.0	0.0	6.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				864	0		1039	2445	0	0	1233	
V/C Ratio(X)				0.90	0.00		0.92	0.34	0.00	0.00	0.23	
Avail Cap(c_a), veh/h				980	0		1277	2445	0	0	1233	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.75	0.75	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.1	0.0	0.0	28.9	0.0	0.0	0.0	27.8	0.0
Incr Delay (d2), s/veh				10.6	0.0	0.0	7.9	0.3	0.0	0.0	0.4	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
%ile BackOfQ(95%),veh/ln				18.1	0.0	0.0	15.8	0.2	0.0	0.0	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				54.7	0.0	0.0	36.7	0.3	0.0	0.0	28.2	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					780			1782			280	
Approach Delay, s/veh					54.7			19.9			28.2	
Approach LOS					D			B			C	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	86.4			40.3			46.1			33.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	78.0			44.0			29.5			33.0		
Max Q Clear Time (g_c+I1), s	2.0			32.8			8.7			27.5		
Green Ext Time (p_c), s	6.5			3.0			1.6			1.6		
Intersection Summary												
HCM 7th Control Delay, s/veh				30.3								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												



# Timings

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Total PM

06/10/2025

	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	716	1	100	985	531	643	146
Future Volume (vph)	716	1	100	985	531	643	146
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	41.2	78.0	32.3	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.34	0.65	0.27	1.00
v/c Ratio	0.83	0.83	0.07	0.89	0.25	0.72	0.10
Control Delay (s/veh)	56.8	56.8	0.1	73.1	8.7	45.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.8	56.8	0.1	73.1	8.7	45.4	0.1
LOS	E	E	A	E	A	D	A
Approach Delay (s/veh)		49.8			50.5	37.0	
Approach LOS		D			D	D	

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay (s/veh): 46.9

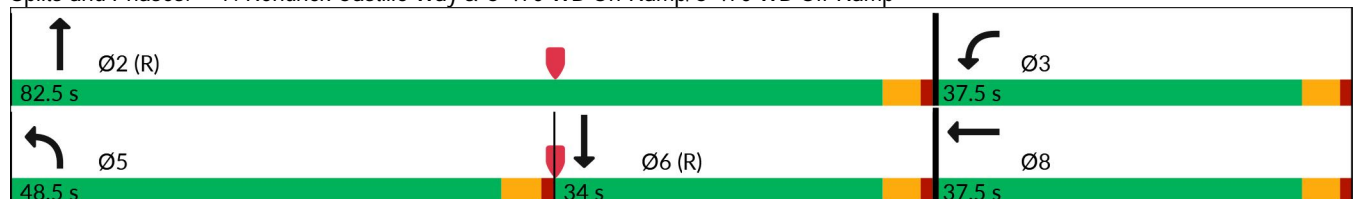
Intersection LOS: D

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp





















# HCM 7th Signalized Intersection Summary

## 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Total PM

06/10/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	716	1	100	985	531	0	0	643	146
Future Volume (veh/h)	0	0	0	716	1	100	985	531	0	0	643	146
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				779	0	0	1071	577	0	0	699	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				866	0		1140	2475	0	0	1167	
Arrive On Green				0.24	0.00	0.00	0.54	1.00	0.00	0.00	0.32	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				779	0	0	1071	577	0	0	699	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				25.0	0.0	0.0	34.2	0.0	0.0	0.0	19.5	0.0
Cycle Q Clear(g_c), s				25.0	0.0	0.0	34.2	0.0	0.0	0.0	19.5	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				866	0		1140	2475	0	0	1167	
V/C Ratio(X)				0.90	0.00		0.94	0.23	0.00	0.00	0.60	
Avail Cap(c_a), veh/h				995	0		1287	2475	0	0	1167	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.80	0.80	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.2	0.0	0.0	26.4	0.0	0.0	0.0	34.1	0.0
Incr Delay (d2), s/veh				10.0	0.0	0.0	10.4	0.2	0.0	0.0	2.3	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
%ile BackOfQ(95%),veh/ln				18.0	0.0	0.0	17.4	0.1	0.0	0.0	13.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				54.3	0.0	0.0	36.8	0.2	0.0	0.0	36.3	0.0
LnGrp LOS				D			D	A			D	
Approach Vol, veh/h					779			1648			699	
Approach Delay, s/veh					54.3			24.0			36.3	
Approach LOS					D			C			D	
Timer - Assigned Phs	2			5		6	8					
Phs Duration (G+Y+Rc), s	86.8			43.5		43.3	33.2					
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5					
Max Green Setting (Gmax), s	78.0			44.0		29.5	33.0					
Max Q Clear Time (g_c+I1), s	2.0			36.2		21.5	27.0					
Green Ext Time (p_c), s	4.1			2.8		2.7	1.7					
Intersection Summary												
HCM 7th Control Delay, s/veh				34.3								
HCM 7th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+		+	+		+	+	
Traffic Vol, veh/h	0	0	6	73	0	0	2	22	4	0	39	0
Future Vol, veh/h	0	0	6	73	0	0	2	22	4	0	39	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	7	79	0	0	2	24	4	0	42	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	71	75	42	73	73	26	42	0	0	28	0	0
Stage 1	42	42	-	30	30	-	-	-	-	-	-	-
Stage 2	28	33	-	42	42	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	921	815	1028	918	818	1050	1567	-	-	1585	-	-
Stage 1	972	860	-	986	870	-	-	-	-	-	-	-
Stage 2	989	868	-	972	860	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	920	814	1028	911	816	1050	1567	-	-	1585	-	-
Mov Cap-2 Maneuver	920	814	-	911	816	-	-	-	-	-	-	-
Stage 1	972	860	-	985	869	-	-	-	-	-	-	-
Stage 2	987	867	-	966	860	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	8.52		9.33		0.52		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1567	-	-	1028	911	1585	-
HCM Lane V/C Ratio	0.001	-	-	0.006	0.087	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.5	9.3	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-







Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+		+	+		+	+	
Traffic Vol, veh/h	0	0	4	45	0	0	6	9	13	0	3	0
Future Vol, veh/h	0	0	4	45	0	0	6	9	13	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	49	0	0	7	10	14	0	3	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	26	40	3	33	33	17	3	0	0	24	0	0
Stage 1	3	3	-	30	30	-	-	-	-	-	-	-
Stage 2	23	37	-	3	3	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	984	852	1081	974	859	1062	1619	-	-	1591	-	-
Stage 1	1019	893	-	987	870	-	-	-	-	-	-	-
Stage 2	995	864	-	1019	893	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	980	848	1081	966	856	1062	1619	-	-	1591	-	-
Mov Cap-2 Maneuver	980	848	-	966	856	-	-	-	-	-	-	-
Stage 1	1019	893	-	983	867	-	-	-	-	-	-	-
Stage 2	991	861	-	1015	893	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	8.35		8.92		1.55		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1619	-	-	1081	966	1591	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.004	0.051	-	-	-				
HCM Ctrl Dly (s/v)	7.2	-	-	8.3	8.9	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-				

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	0	0	6	73	0	0	2	24	4	0	47	0
Future Vol, veh/h	0	0	6	73	0	0	2	24	4	0	47	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	7	79	0	0	2	26	4	0	51	0




Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	82	86	51	84	84	28	51	0	0	30	0	0
Stage 1	51	51	-	33	33	-	-	-	-	-	-	-
Stage 2	30	35	-	51	51	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	906	804	1017	903	806	1047	1555	-	-	1582	-	-
Stage 1	962	852	-	984	868	-	-	-	-	-	-	-
Stage 2	986	866	-	962	852	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	905	803	1017	896	805	1047	1555	-	-	1582	-	-
Mov Cap-2 Maneuver	905	803	-	896	805	-	-	-	-	-	-	-
Stage 1	962	852	-	982	867	-	-	-	-	-	-	-
Stage 2	985	865	-	956	852	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	8.56		9.41		0.49		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1555	-	-	1017	896	1582	-
HCM Lane V/C Ratio	0.001	-	-	0.006	0.089	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.6	9.4	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	45	0	0	6	9	13	0	4	0
Future Vol, veh/h	0	0	4	45	0	0	6	9	13	0	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	49	0	0	7	10	14	0	4	0
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	27	41	4	34	34	17	4	0	0	24	0	0
Stage 1	4	4	-	30	30	-	-	-	-	-	-	-
Stage 2	23	37	-	4	4	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	983	851	1079	972	858	1062	1617	-	-	1591	-	-
Stage 1	1018	892	-	987	870	-	-	-	-	-	-	-
Stage 2	995	864	-	1018	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	979	847	1079	965	855	1062	1617	-	-	1591	-	-
Mov Cap-2 Maneuver	979	847	-	965	855	-	-	-	-	-	-	-
Stage 1	1018	892	-	983	867	-	-	-	-	-	-	-
Stage 2	991	861	-	1014	892	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	8.35		8.93			1.55			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1617	-	-	1079	965	1591	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.004	0.051	-	-	-				
HCM Ctrl Dly (s/v)	7.2	-	-	8.3	8.9	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-				









Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	12	16	23	0	118
Future Vol, veh/h	0	12	16	23	0	118
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	17	25	0	128

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	30	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.22	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.318	-
Pot Cap-1 Maneuver	0	1045	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1045	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.49	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 1045	-
HCM Lane V/C Ratio	-	- 0.012	-
HCM Ctrl Dly (s/v)	-	- 8.5	-
HCM Lane LOS	-	- A	-
HCM 95th %tile Q(veh)	-	- 0	-




Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	8	20	77	0	52
Future Vol, veh/h	0	8	20	77	0	52
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	22	84	0	57
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	64	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	1001	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	1001	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	8.63	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT			
Capacity (veh/h)	-	- 1001	-			
HCM Lane V/C Ratio	-	- 0.009	-			
HCM Ctrl Dly (s/v)	-	- 8.6	-			
HCM Lane LOS	-	- A	-			
HCM 95th %tile Q(veh)	-	- 0	-			

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	12	18	23	0	126
Future Vol, veh/h	0	12	18	23	0	126
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	20	25	0	137

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	32	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.22	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.318	-
Pot Cap-1 Maneuver	0	1042	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1042	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 1042	-
HCM Lane V/C Ratio	-	- 0.013	-
HCM Ctrl Dly (s/v)	-	- 8.5	-
HCM Lane LOS	-	- A	-
HCM 95th %tile Q(veh)	-	- 0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	8	20	77	0	53
Future Vol, veh/h	0	8	20	77	0	53
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	22	84	0	58

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	64	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.22	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.318	-
Pot Cap-1 Maneuver	0	1001	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1001	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.63	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 1001	-
HCM Lane V/C Ratio	-	- 0.009	-
HCM Ctrl Dly (s/v)	-	- 8.6	-
HCM Lane LOS	-	- A	-
HCM 95th %tile Q(veh)	-	- 0	-

## Appendix F: Queue Analysis Worksheets

## Queues

2028 Total2 AM\_Signalized

## 4: Greensborough Dr/Plaza Cir &amp; Plaza Dr

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL
Lane Group Flow (vph)	19	1027	37	1106	117	183
v/c Ratio	0.06	0.44	0.10	0.46	0.31	0.82
Control Delay (s/veh)	7.2	13.1	9.9	15.7	13.4	72.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.2	13.1	9.9	15.7	13.4	72.9
Queue Length 50th (ft)	4	214	8	221	16	137
Queue Length 95th (ft)	9	183	20	247	19	122
Internal Link Dist (ft)		726		1812	1011	
Turn Bay Length (ft)	200		150			250
Base Capacity (vph)	341	2315	368	2386	532	349
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.44	0.10	0.46	0.22	0.52
Intersection Summary						

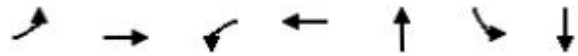


## Queues

2028 Total2 PM\_Signalized

## 4: Greensborough Dr/Plaza Cir &amp; Plaza Dr

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	15	361	47	394	48	59	1
v/c Ratio	0.02	0.13	0.06	0.14	0.22	0.40	0.00
Control Delay (s/veh)	2.9	5.6	2.9	3.9	5.3	58.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.9	5.6	2.9	3.9	5.3	58.4	0.0
Queue Length 50th (ft)	2	41	6	23	0	44	0
Queue Length 95th (ft)	7	65	15	62	9	81	0
Internal Link Dist (ft)		726		1812	1011		244
Turn Bay Length (ft)	200		150			250	
Base Capacity (vph)	909	2733	937	2796	539	508	900
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.13	0.05	0.14	0.09	0.12	0.00

## Intersection Summary

## Queues

2045 Total AM

## 4: Greensborough Dr/Plaza Cir &amp; Plaza Dr

06/10/2025



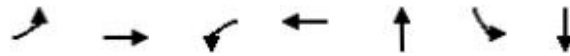
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL
Lane Group Flow (vph)	22	1201	44	1300	139	193
v/c Ratio	0.08	0.55	0.15	0.57	0.34	0.85
Control Delay (s/veh)	8.2	16.6	8.6	16.0	12.6	75.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.2	16.6	8.6	16.0	12.6	75.1
Queue Length 50th (ft)	5	283	10	315	18	145
Queue Length 95th (ft)	11	230	17	248	20	126
Internal Link Dist (ft)		726		1812	1011	
Turn Bay Length (ft)	200		150			250
Base Capacity (vph)	261	2187	290	2263	543	329
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.55	0.15	0.57	0.26	0.59
Intersection Summary						

## Queues

2045 Total PM

## 4: Greensborough Dr/Plaza Cir &amp; Plaza Dr

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	15	423	56	441	57	59	1
v/c Ratio	0.02	0.16	0.07	0.16	0.27	0.43	0.00
Control Delay (s/veh)	3.0	5.7	2.9	4.1	7.6	60.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	3.0	5.7	2.9	4.1	7.6	60.3	0.0
Queue Length 50th (ft)	2	50	7	27	0	44	0
Queue Length 95th (ft)	7	76	17	71	18	81	0
Internal Link Dist (ft)		726		1812	1011		244
Turn Bay Length (ft)	200		150			250	
Base Capacity (vph)	876	2725	896	2804	539	468	866
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.16	0.06	0.16	0.11	0.13	0.00
Intersection Summary							

## Queues

## 5: Kendrick Castillo Way &amp; Plaza Dr

2028 Total AM

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	387	463	27	153	197	289	1520	520	1482
v/c Ratio	1.06	0.59	0.19	0.48	0.31	0.67	0.75	0.78	0.64
Control Delay (s/veh)	115.9	31.5	58.8	56.3	8.3	57.7	34.5	47.9	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	115.9	31.5	58.8	56.3	8.3	57.7	34.5	47.9	35.1
Queue Length 50th (ft)	~170	115	10	60	21	111	372	205	373
Queue Length 95th (ft)	#265	163	26	91	71	152	434	#279	440
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	364	872	143	530	644	471	2014	665	2318
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.53	0.19	0.29	0.31	0.61	0.75	0.78	0.64

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

## 5: Kendrick Castillo Way &amp; Plaza Dr

2028 Total PM

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	333	350	141	113	408	140	1584	230	1903
v/c Ratio	0.78	0.67	0.56	0.45	0.77	0.51	0.65	0.45	0.69
Control Delay (s/veh)	72.4	40.1	71.3	67.9	41.1	68.4	30.9	56.0	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.4	40.1	71.3	67.9	41.1	68.4	30.9	56.0	25.2
Queue Length 50th (ft)	152	93	64	53	238	64	405	98	450
Queue Length 95th (ft)	206	145	101	85	335	98	515	134	553
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	462	721	275	464	562	280	2448	598	2778
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.49	0.51	0.24	0.73	0.50	0.65	0.38	0.69

## Intersection Summary

## Queues

## 5: Kendrick Castillo Way &amp; Plaza Dr

2045 Total AM

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	444	535	31	180	233	339	1800	616	1750
v/c Ratio	0.79	0.59	0.19	0.58	0.37	0.78	0.99	0.86	0.80
Control Delay (s/veh)	66.9	37.7	66.2	68.9	16.1	71.9	63.2	66.3	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.9	37.7	66.2	68.9	16.1	71.9	63.2	66.3	37.1
Queue Length 50th (ft)	202	177	14	84	62	154	~645	276	495
Queue Length 95th (ft)	252	227	31	122	136	#212	#727	#414	584
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	662	902	318	379	634	454	1819	717	2196
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.59	0.10	0.47	0.37	0.75	0.99	0.86	0.80

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



## Queues

## 5: Kendrick Castillo Way &amp; Plaza Dr

2045 Total PM

06/10/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	386	407	166	131	482	157	1876	273	2241
v/c Ratio	0.86	0.73	0.64	0.46	0.83	0.58	0.84	0.45	0.83
Control Delay (s/veh)	78.3	45.8	74.3	66.1	45.2	70.9	40.6	54.0	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.3	45.8	74.3	66.1	45.2	70.9	40.6	54.0	31.5
Queue Length 50th (ft)	179	126	76	61	296	72	583	111	608
Queue Length 95th (ft)	#256	177	116	92	440	111	657	163	736
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	462	714	275	464	591	278	2232	633	2700
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.57	0.60	0.28	0.82	0.56	0.84	0.43	0.83

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

2028 Total AM

## 6: Kendrick Castillo Way &amp; C-470 EB Off-Ramp/C-470 EB On-Ramp

06/10/2025



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	85	1124	1374	692	47	871
v/c Ratio	0.18	0.19	0.70	0.46	0.58	0.19	0.37
Control Delay (s/veh)	30.6	29.5	2.6	16.0	11.7	23.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.6	29.5	2.6	16.0	11.7	23.7	25.7
Queue Length 50th (ft)	47	48	0	319	286	29	282
Queue Length 95th (ft)	89	89	0	m343	m480	m46	332
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	566	453	1599	2955	1202	483	2347
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.19	0.70	0.46	0.58	0.10	0.37

## Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

## Queues

2028 Total PM

## 6: Kendrick Castillo Way &amp; C-470 EB Off-Ramp/C-470 EB On-Ramp

06/10/2025



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	41	1012	1333	780	123	1055
v/c Ratio	0.09	0.09	0.63	0.49	0.64	0.43	0.44
Control Delay (s/veh)	28.0	28.1	1.8	22.3	4.5	26.1	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.0	28.1	1.8	22.3	4.5	26.1	18.6
Queue Length 50th (ft)	23	23	0	272	3	56	252
Queue Length 95th (ft)	50	50	0	338	88	m111	288
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	571	457	1615	2733	1216	495	2394
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.09	0.63	0.49	0.64	0.25	0.44

## Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

## Queues

2045 Total AM

## 6: Kendrick Castillo Way &amp; C-470 EB Off-Ramp/C-470 EB On-Ramp

06/10/2025



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	100	100	1330	1622	816	56	1030
v/c Ratio	0.18	0.18	0.83	0.65	0.73	0.32	0.50
Control Delay (s/veh)	29.4	29.4	5.2	25.1	9.0	25.8	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.4	29.4	5.2	25.1	9.0	25.8	31.2
Queue Length 50th (ft)	57	57	0	347	69	34	335
Queue Length 95th (ft)	103	103	0	413	246	m49	386
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	566	566	1599	2511	1120	425	2049
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.18	0.83	0.65	0.73	0.13	0.50

## Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

## Queues

2045 Total PM

## 6: Kendrick Castillo Way &amp; C-470 EB Off-Ramp/C-470 EB On-Ramp

06/10/2025



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	49	1192	1575	922	146	1242
v/c Ratio	0.10	0.11	0.74	0.59	0.76	0.59	0.52
Control Delay (s/veh)	28.3	28.3	3.1	25.0	9.9	37.5	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.3	28.3	3.1	25.0	9.9	37.5	19.5
Queue Length 50th (ft)	26	27	0	347	73	91	295
Queue Length 95th (ft)	56	57	0	436	319	m129	362
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	571	457	1615	2690	1209	456	2394
Starvation Cap Reductn	0	0	0	0	0	0	102
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.11	0.74	0.59	0.76	0.32	0.54

## Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

## Queues

## 7: Kendrick Castillo Way &amp; C-470 WB On-Ramp/C-470 WB Off-Ramp

2028 Total AM

06/10/2025



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	329	332	163	814	695	238	36
v/c Ratio	0.71	0.72	0.10	0.82	0.30	0.21	0.02
Control Delay (s/veh)	49.0	49.3	0.1	70.6	3.2	31.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	49.0	49.3	0.1	70.6	3.2	31.0	0.0
Queue Length 50th (ft)	242	245	0	348	36	70	0
Queue Length 95th (ft)	356	358	0	413	64	111	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	462	463	1583	1271	2323	1157	1583
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.72	0.10	0.64	0.30	0.21	0.02
Intersection Summary							



## Queues

## 7: Kendrick Castillo Way &amp; C-470 WB On-Ramp/C-470 WB Off-Ramp

2028 Total PM

06/10/2025



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	331	332	91	905	488	592	135
v/c Ratio	0.70	0.70	0.06	0.84	0.21	0.54	0.08
Control Delay (s/veh)	48.4	48.3	0.1	72.0	6.6	38.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.4	48.3	0.1	72.0	6.6	38.1	0.1
Queue Length 50th (ft)	243	244	0	388	44	201	0
Queue Length 95th (ft)	356	356	0	455	60	282	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	471	473	1615	1284	2346	1095	1615
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.70	0.06	0.70	0.21	0.54	0.08
Intersection Summary							

## Queues

## 7: Kendrick Castillo Way &amp; C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Total AM

06/10/2025



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	389	392	193	960	822	280	42
v/c Ratio	0.84	0.85	0.12	0.86	0.35	0.27	0.03
Control Delay (s/veh)	58.7	59.1	0.2	74.5	7.8	35.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.7	59.1	0.2	74.5	7.8	35.0	0.0
Queue Length 50th (ft)	300	302	0	412	87	88	0
Queue Length 95th (ft)	#472	#476	0	479	130	134	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	462	463	1583	1271	2323	1023	1583
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.85	0.12	0.76	0.35	0.27	0.03

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

## 7: Kendrick Castillo Way &amp; C-470 WB On-Ramp/C-470 WB Off-Ramp

2045 Total PM

06/10/2025



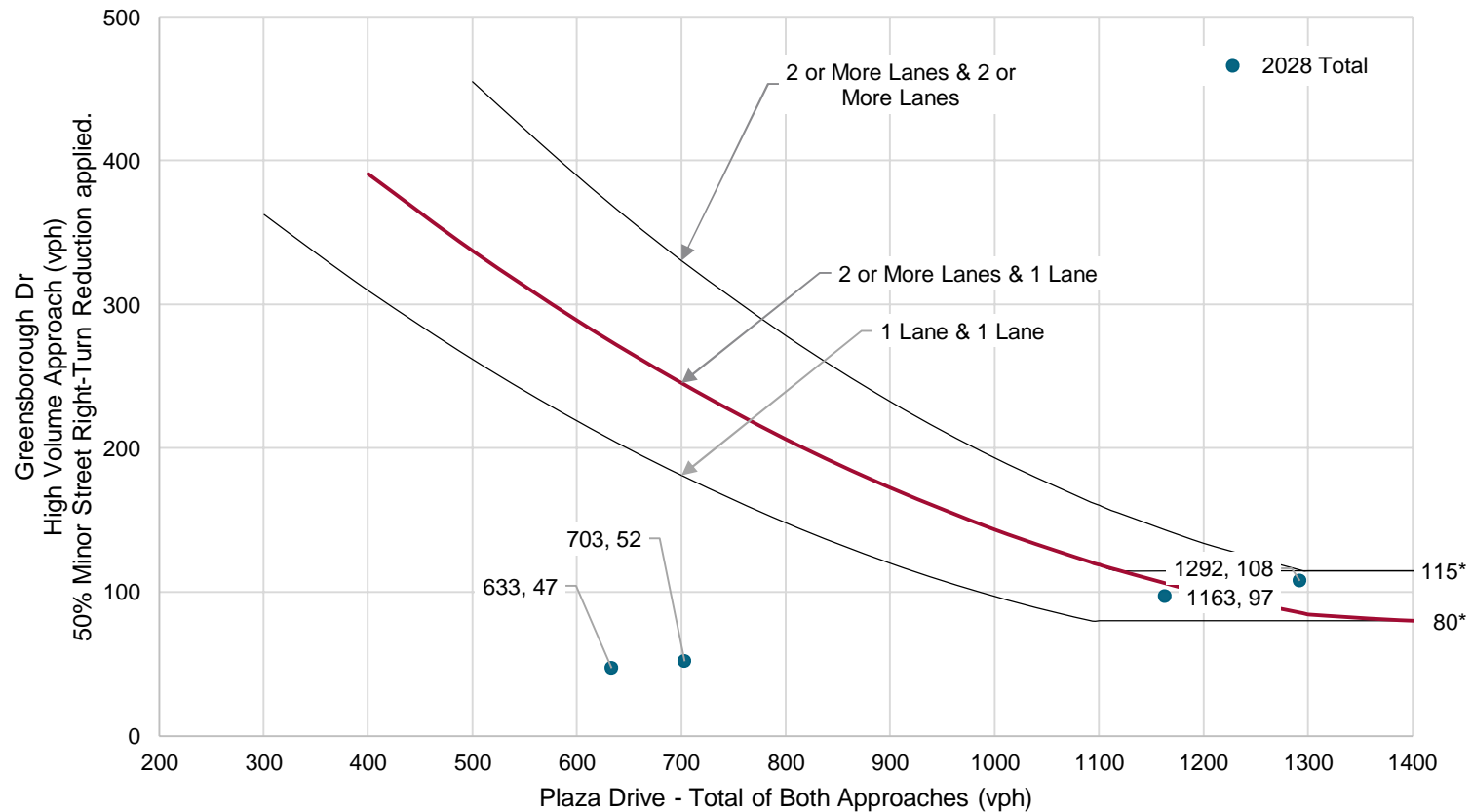
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	389	390	109	1071	577	699	159
v/c Ratio	0.83	0.83	0.07	0.89	0.25	0.72	0.10
Control Delay (s/veh)	56.8	56.8	0.1	73.1	8.7	45.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.8	56.8	0.1	73.1	8.7	45.4	0.1
Queue Length 50th (ft)	297	298	0	460	53	264	0
Queue Length 95th (ft)	#465	#466	0	528	120	339	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	471	472	1615	1284	2346	971	1615
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.83	0.07	0.83	0.25	0.72	0.10

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

## Appendix G: Signal Warrant Analysis Worksheet

### Warrant 2 - Four-Hour Vehicular Volume



\*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Plaza Drive & Greensborough Dr  
Signal Warrant Analysis  
Four-Hour Volume Warrant

Source: Manual on Uniform Traffic Control Devices 2023

Intersection #4

**Kimley»Horn**



April 22, 2025

Douglas County Planning Services  
100 Third Street  
Castle Rock, CO 80104

Re: Water and Sewer for Project ZR2025-001, Highlands Ranch Planned Development, 80<sup>th</sup> Amendment

To Whom It May Concern:

Pursuant to Section 1805A.01 of the Douglas County Zoning Resolution, Highlands Ranch Water and Sanitation District (the “District”) acknowledges its willingness and ability to serve all future proposed developments in its Highlands Ranch service area, including parcels in Filing 157, Lot 3 and 4.

**Verification of District Status:**

The District hereby verifies that the statements made in the letters and reports submitted by the District for the State Engineer and the County, and in the current materials are true and accurate, with the exception of any updates to the District’s available water supply in accordance with the attached information.

**Commitment to Serve:**

The District is committed to providing service for all future developments within its service area based upon the water supply sources so identified. The connection to and use of such lines, mains and facilities is conditioned upon compliance with all the Rules and Regulations of the Districts, including the payment of the appropriate fees. Any applicant, owner or customer desiring water and/or sewer service from the District shall pay a Tap Fee prior to the installation of a water meter. Such fee shall be paid in addition to all other charges relating to water and/or sewer service as established from time to time by the Board of Directors.

**Water Demand:**

Based on the demands at buildout of Highlands Ranch, all existing and future developments within our service area will require 19,600 to 22,600 AF/year. At this time, with the existing development at approximately 95% of buildout, demand has not exceeded 17,000 AF/year.

The representative for the developer has stated that the development will include a mix of commercial uses and associated landscaping totaling 234 Single Family Equivalent (SFE) taps for domestic use. Based on Highlands Ranch’s standard water demand requirements, this project will therefore require 117 acre-feet (AF) of water per year.



**Water Supply:**

The District's existing water supply (in accordance with the attached report on sources, storage and decrees) of over 30,000 AF/year is adequate to deliver water to all future development within its service area. Highlands Ranch's water supply includes an amount sufficient to meet the water demands for this property.

**Water Quality:**

The District is in compliance with the Colorado Department of Public Health and Environment testing and quality requirements and provides a high-quality water supply to all of its customers.

**Sanitary Sewer Service:**

The District shall provide sanitary sewer service for all water taps requested for this development. Treatment is provided by Highlands Ranch's Marcy Gulch Wastewater Treatment Plant.

**Feasibility of Service:**

Since its inception, Highlands Ranch has developed and funded an infrastructure plan to provide service to all properties within its service area. It is physically and economically feasible for the District to extend service to the proposed development.

**Documentation:**

Information describing Highlands Ranch's water supply including decrees is contained in the attached letter from Samuel L. Calkins, General Manager of Highlands Ranch Water and Sanitation District.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Edwards", is written over a light blue horizontal line.

Ryan Edwards  
Director of Engineering  
Highlands Ranch Water and Sanitation District

Enclosures



April 22, 2025

Douglas County Planning Services  
100 Third Street  
Castle Rock, CO 80104

**Re: Statement of Water Availability**

This letter serves as a general summary addressing the water supply for customers seeking water service within the Highlands Ranch Water and Sanitation District's (HRWSD) service area through the Northern Douglas County Water and Sanitation District (NDCWSD), the Highlands Ranch Metropolitan District and Mirabelle Metropolitan District.

For planning purposes, the water demand projected for all existing and future customers in the HRWSD service area is estimated to be from 19,600 to 22,600 acre-feet per year (AF/yr.). The actual annual demand for the last few years has averaged about 17,000 AF/yr. and the HRWSD's service area is approximately 95% developed. Approximately 90% of HRWSD's reusable water is recycled for municipal purposes in the HRWSD water service area.

Water demands in the HRWSD service area are met through a robust conjunctive use system that includes both renewable surface water and reusable Denver Basin ground water. Captured surface-water supplies are stored in four reservoirs and in three of the four Denver Basin aquifers through an aquifer storage and recovery (ASR) program. HRWSD's surface-water supplies are from several sources on the South Platte River and its tributaries, which are summarized in Table 1.

**Table 1**

Surface-Water Sources	Average Year Yield (AF/yr.)
Augmentation / Exchange Plan	3,000
Plum Creek	550
Cline Ranch	400
South Platte River / Reservoir	700
Hock Hocking Mine	100
Tingle Reservoir	100
Englewood Agreements	6,120
Denver Water ("Patti water")	1,000
Bargas Ranch	900
Castle Pines North	50
WISE	1,000
Chatfield Reservoir	2,500
<b>Total Surface Water Supply (current)</b>	<b>16,420</b>



HRWSD's decreed annual yield of Denver Basin ground-water rights total 17,717 AF/yr., which are defined in Table 2. Ground water can be pumped from the Denver Basin aquifers through a well field array comprised of more than 50 wells.

**Table 2**

<b>Bedrock Aquifer</b>	<b>Decree Yield (af/yr.)</b>
Arapahoe	4,915
Denver	5,111
Laramie-Fox Hills	4,500
Laramie-Fox Hills West	340
Dawson	390
Not-Nontributary Denver	1,876
Phipps Arapahoe	585
<b>TOTAL</b>	<b>17,717</b>

In an average year, the total volume of water currently available for use by CWSD customers is more than 30,000 AF. In addition to these water rights, HRWSD has the use of 3,885 AF of storage space in McLellan Reservoir, 6,400 AF of storage space in South Platte Reservoir, 205 AF of storage space in James Tingle Reservoir, and 6,922 AF of storage space in the Chatfield Reservoir Reallocation Project. The total storage space is 17,412 AF.

HRWSD operates a successful ASR program that stores treated surface water in three of the four Denver Basin aquifers, and makes that water available for use at any time. The ASR program has been operated for over 20 years. To date, nearly 15,300 AF of treated potable water has been stored in the Denver Basin aquifers beneath Highlands Ranch and is available when needed to supplement the annual decreed quantities defined above.

The attached sheet lists the water right decrees for the various water sources available for service to HRWSD customers.

Sincerely,

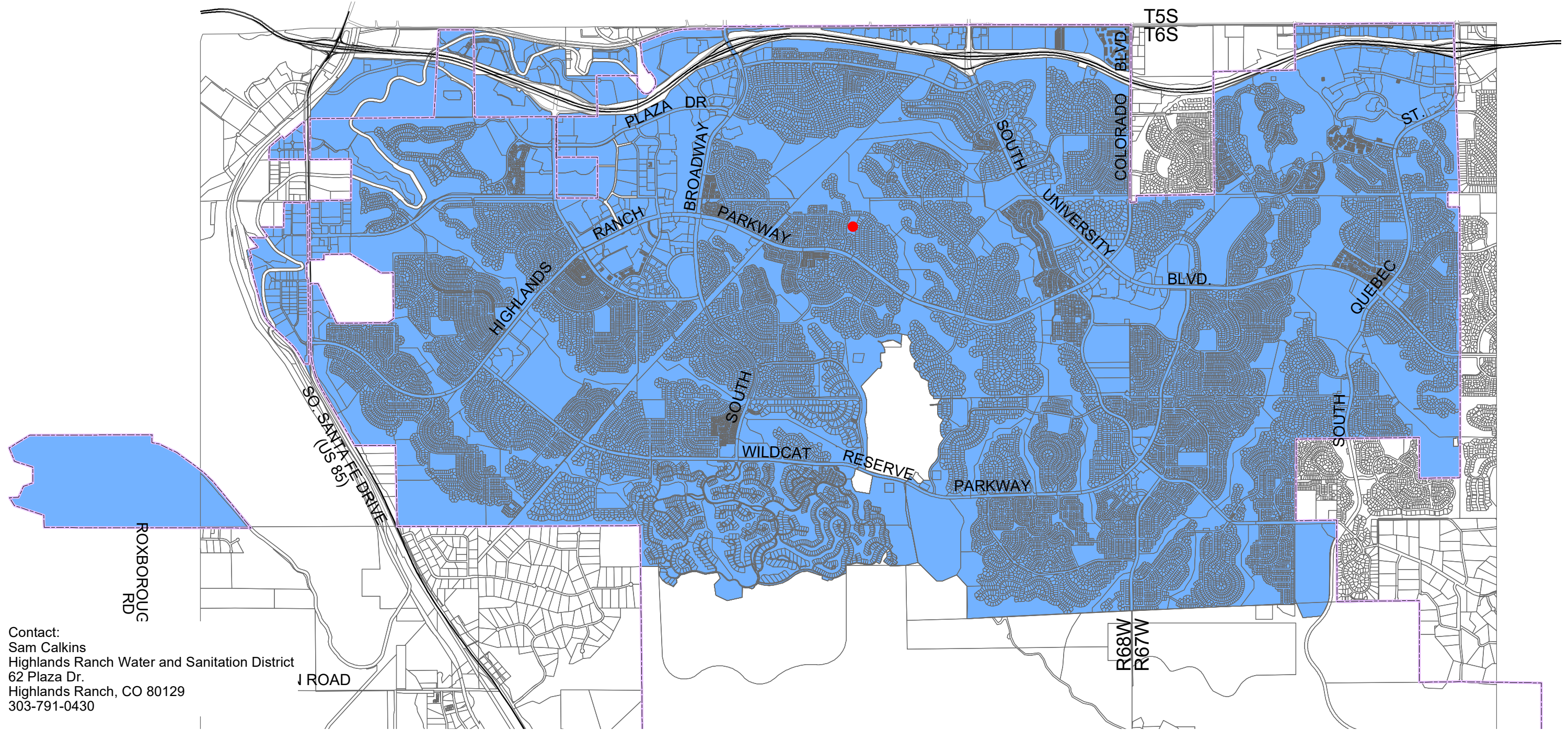
Samuel L. Calkins  
General Manager

Cc: Ryan Edwards

Attachment: Water Right Decree List

Highlands Ranch WSD's Water Court Case Numbers								12/9/24
Water Right Description	Original Decree	Change Case Decree	Diligence/ Absolute Decrees			Fourth	Fifth/Sixth	When next diligence due
			First	Second	Third			
Surface Water Rights								
Plum Creek	W - 6072	85CW415 93CW177	NA					
Augmentation Plan/ Exchange	85CW415 19CW3257	93CW178	94CW286	02CW037	11CW244	19CW3140		1/31/2027
So. Platte Direct	88CW222	93CW179	96CW219	04CW033	12CW184	19CW3222		11/30/2026
Chatfield Storage	84CW411	93CW082 83CW184*	93CW081 95CW111	01CW101 02CW041	14CW3155 09CW076	21CW3183 17CW3176	24CW3140	6/30/2028 TBD
So. Platte Reservoir	95CW239	93CW082	03CW295	12CW199	20CW3078			2/28/2028
Highlands Ranch Reservoirs	79CW316 to 330		85CW288 to 294	89CW168	96CW124	03CW266	12CW291 19CW3139	2/28/2026
Highlands Ranch Gulches	86CW332 to 336	95CW160 (Big Dry)	95CW159 to 164	02CW311 to 315	BD-11CW171 DC-11CW024 SPG-11CW129 MG-11CW130			Dropped Dropped Dropped Dropped
Cline	99CW199(A)		08CW20	15CW3133	22CW3180			6/30/2029
Fairview Senior Junior	84CW058 85CW314		01CW276	12CW119	18CW3222			8/31/2026
Hock Hocking	W-1318		83CW214	87CW161	97CW222	04CW271		Completed
Randall Ditch/ Tingle Res Junior Application	05CW111 09CW180		13CW3029 17CW3207	19CW3223 24CW3092				10/31/2026 11/30/2030
CD Catholic Schools United Development	07CW62	18CW3188						
Groundwater Rights								
Dawson	82CW480							
Denver Trib	85CW415							
Denver Non-Trib	80CW445	97CW145 (locations)			88CV335 D-3 Settlemt			
Arapahoe	W-9192-78	84CW483 (locations)	84CW482 (diligence)	06CW202 (A-1 reloca.)				
Laramie-Foxhills	W-9192-78	83CW237 (locations)	83CW237					
Chatfield LFH	82CW479							
Willows Arap.(PA -5,7)	W-9310-78	90CW109	also	85CW163, 85CW170, 88CW079, and 99CW163				10CW171 PA-7
Plum Creek Non-Trib	W-6072							

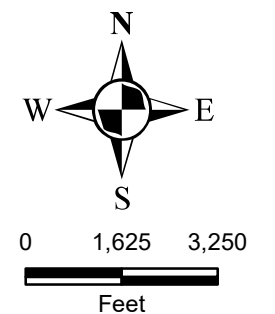




# Boundary Map Highlands Ranch Water and Sanitation District Tax Authority # 4058

● LGID 18025 - 39°32'53.23" N, 104°58'26.21" W

■ Highlands Ranch Water and Sanitation District



January 1, 2025





URBAN USES

RESIDENTIAL DENSITY-LOW	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
1,5,7,23 & 51	1	165	2.6	433
	2	66	3.2	212
	3	165	3.6	594
	4	51	2.0	102
	5	53	3.8	198
	7	194	2.9	562
	23	64	1.6	104
	51	77	3.2	246
SUB TOTAL		835	2.9	2,451

MEDIUM-LOW	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
20,24-32,52,57 & 58	6	87	4.9	429
	20	353	4.3	1,518
	24	185	4.0	740
	25	77	4.0	308
	26	234	4.0	936
	27	95	4.0	380
	28	94	4.0	376
	29	108	4.0	432
	30	91	4.0	364
	31	253	4.1	1,032
	32	187	4.0	748
	52	226	4.4	1,004
	57	391	4.4	1,737
	58	336	4.2	1,400
SUB TOTAL		2,717	4.2	11,404

MEDIUM	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
33,40-50,53-56 & 59	33	65	6.4	419
	40	87	5.3	465
	41	216	5.3	1,134
	42	43	5.9	275
	43	179	5.0	893
	44	186	5.0	957
	45	86	5.0	430
	46	224	5.9	1,330
	47	46	5.0	230
	48	72	5.0	360
	49	98	5.0	490
	50	181	5.0	905
	53	154	5.0	770
	54	47	5.6	265
	55	258	5.8	1,493
	56	101	5.0	505
	59	362	4.8	1,749
SUB TOTAL		2,405	5.3	12,670

HIGH	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
60-69	60	32	8.0-15.0	284
	61	168	8.0-15.0	1,794
	62	51	8.0-15.0	447
	63	35	8.0-15.0	280
	64	98	8.0-15.0	863
	65	151	8.0-15.0	2,187
	66	229	8.0-15.0	1,832
	67	44	8.0-15.0	456
	68	17	8.0-15.0	255
	69	36	8.0-15.0	725
	84,87	--	--	135
	85-A	--	--	285
SUB TOTAL		861	8.0-15.0	9,543
TOTAL RESIDENTIAL		6,818		36,068

NONRESIDENTIAL	PA <sup>2</sup>	GNA <sup>3</sup>
70, 89-91 COMMUNITY ACTIVITY CENTER	70	85
	89	11
	90	13
	91	14
71 CIVIC CENTER	71	151
72,73 TOWN CENTER	72	173
	73	286
74 CORRIDOR ACTIVITY CENTER	74	132
T SHOP-N-RIDE	13	
75-88 INDUSTRIAL PARK	75	45
	76	57
	77	107
	78	80
	79	12
	80	61
	81	40
	84	72
	85	69
	86	27
	87	15
	88	8
SUB TOTAL		1,471

CIRCULATION	
2 LANE ARTERIAL HIGHWAYS	
4 LANE ARTERIAL HIGHWAYS	
6 LANE ARTERIAL HIGHWAYS	
TOTAL ARTERIALS	443
TOTAL NONRESIDENTIAL	1,914

NON-URBAN USES

SCHOOLS	GNA <sup>3</sup>
E ELEMENTARY SCHOOLS	462
MS MIDDLE SCHOOL	
HS HIGH SCHOOL	
L LIBRARY	3
P MASS TRANSIT PARKING SITE	7
RP REGIONAL PARK	300
A HIGHLANDS RANCH COMMUNITY ASSOCIATION FACILITY SITE	35
CP COMMUNITY PARK	160
NONURBAN EASEMENTS	600
FLOODPLAINS (100 YR.)	741
REMAINING AREA	2,382

OPEN SPACE CONSERVATION AREA	PA	GNA <sup>3</sup>
	A	467
	B	87
	C	191
	D	87
	E	272
	F	34
	G	19
	H	10
	I	33
SUBTOTAL		1,200
	J	125
		6,875
		7,000
TOTAL OPEN SPACE CONSERVATION AREA		8,200
TOTAL NONURBAN		12,890

TOTAL PLANNED COMMUNITY DISTRICT (ACRES)

Section XVIII of the New Town of Highlands Ranch  
Planned Community District Development Guide

FOOTNOTES:  
1 PLANNING AREA  
2 GROSS RESIDENTIAL ACRES  
3 GROSS NONRESIDENTIAL ACRES  
4 DWELLING UNITS/GROSS RESIDENTIAL ACRE

- GENERAL NOTES:
- SCHOOL SITES WILL BE PRECISELY SCALED AND LOCATED IN ACCORDANCE WITH THE STANDARDS OF THE DOUGLAS COUNTY SCHOOL DISTRICT. SCHOOL SITES ARE NONURBAN USES AND AS SUCH ARE NOT A PART OF THE RESIDENTIAL PLANNING AREA ACREAGE.
  - THE SPECIFIC LOCATIONS AND SIZES OF SHOP-N-RIDES WILL BE DETERMINED BY PRECISE ENGINEERING STUDIES. THE FACILITIES INDICATED ON THE PLAN ARE SYMBOLIC ONLY.
  - COMMUNITY PARK SITES DESIGNATED ON THE DEVELOPMENT PLAN ARE SYMBOLIC ONLY.
  - PLANNING AREA BOUNDARIES OTHER THAN THOSE DELINEATED BY STREETS ARE SHOWN BY THE FOLLOWING SYMBOL: \_\_\_\_\_
  - HIGHLANDS RANCH BOUNDARY IS SHOWN BY THE FOLLOWING SYMBOL: - - - - -
  - OFF-STREET HIKING AND BIKING TRAIL: .....
  - THE CULTURAL AND HISTORICAL PROTECTION OVERLAY ZONE IS DELINEATED BY THE FOLLOWING SYMBOL: \_\_\_\_\_
  - SOME NONURBAN AREAS EXIST INTERIOR TO ADJACENT PLANNING AREAS, AND ARE NOT GRAPHICALLY REPRESENTED. THESE NONURBAN AREAS REMAIN SUBJECT TO SECTION XIII OF THE HIGHLANDS RANCH DEVELOPMENT GUIDE.

I HEREBY CERTIFY THAT THIS PLAN WAS FILED IN MY OFFICE ON THIS \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_, A.D. AT \_\_\_\_\_ O'CLOCK A.M./P.M., AND WAS RECORDED PER RECEPTION NO. \_\_\_\_\_

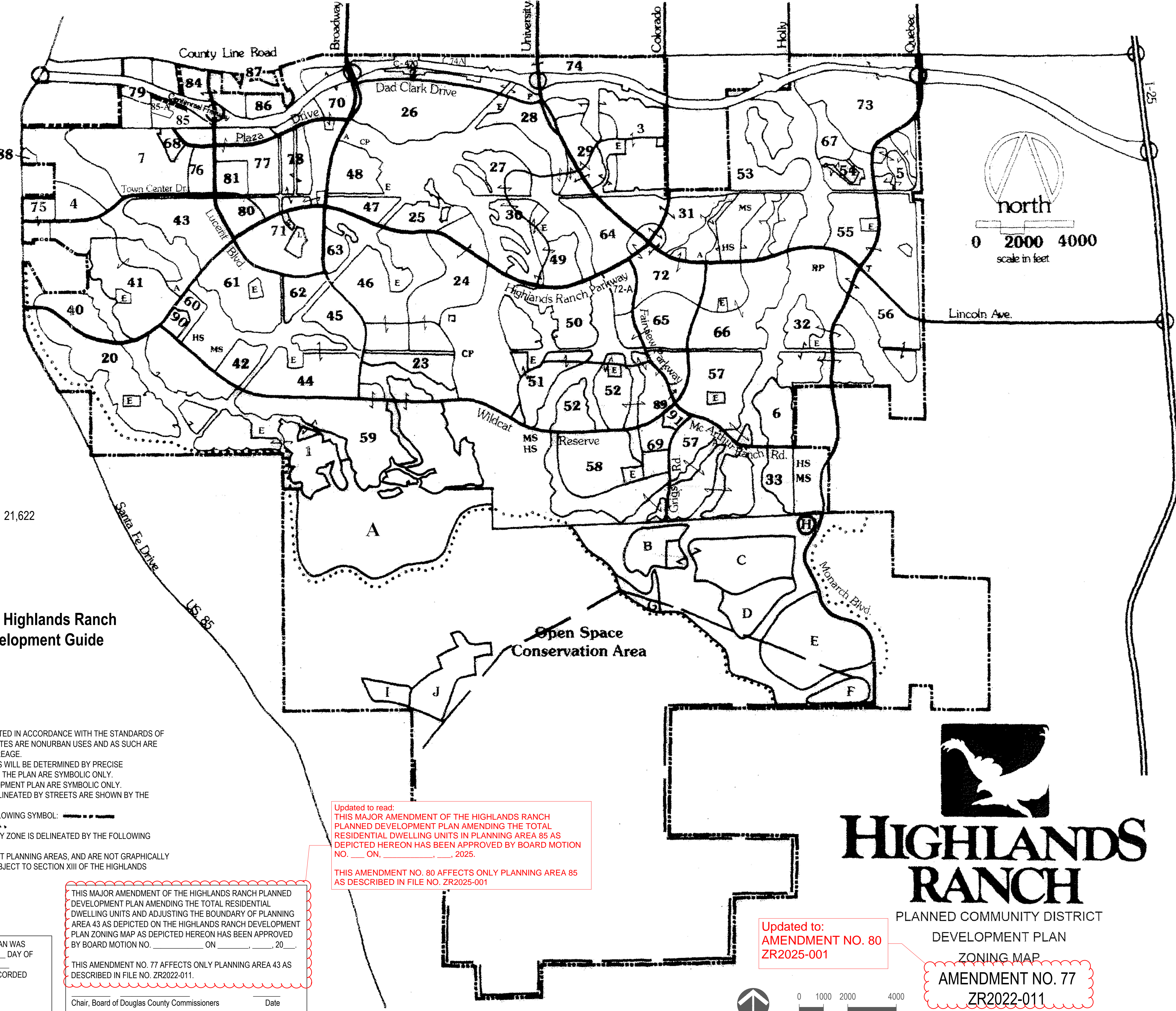
Douglas County Clerk and Recorder

THIS MAJOR AMENDMENT OF THE HIGHLANDS RANCH PLANNED DEVELOPMENT PLAN AMENDING THE TOTAL RESIDENTIAL DWELLING UNITS AND ADJUSTING THE BOUNDARY OF PLANNING AREA 43 AS DEPICTED ON THE HIGHLANDS RANCH DEVELOPMENT PLAN ZONING MAP AS DEPICTED HEREON HAS BEEN APPROVED BY BOARD MOTION NO. \_\_\_\_\_ ON \_\_\_\_\_, 20\_\_\_\_.

THIS AMENDMENT NO. 77 AFFECTS ONLY PLANNING AREA 43 AS DESCRIBED IN FILE NO. ZR2022-011.

Chair, Board of Douglas County Commissioners \_\_\_\_\_ Date \_\_\_\_\_

Director of Community Development \_\_\_\_\_ Date \_\_\_\_\_



Updated to read:  
THIS MAJOR AMENDMENT OF THE HIGHLANDS RANCH PLANNED DEVELOPMENT PLAN AMENDING THE TOTAL RESIDENTIAL DWELLING UNITS IN PLANNING AREA 85 AS DEPICTED HEREON HAS BEEN APPROVED BY BOARD MOTION NO. \_\_\_\_ ON, \_\_\_\_\_, 2025.

THIS AMENDMENT NO. 80 AFFECTS ONLY PLANNING AREA 85 AS DESCRIBED IN FILE NO. ZR2025-001

Updated to:  
AMENDMENT NO. 80  
ZR2025-001

NORTH

0 1000 2000 4000

SCALE: 1" = 2000'

**HIGHLANDS RANCH**

PLANNED COMMUNITY DISTRICT

DEVELOPMENT PLAN

ZONING MAP

AMENDMENT NO. 77

ZR2022-011

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URBAN USES

RESIDENTIAL DENSITY-LOW 1,5,7,23 & 51	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
1	165	2.6		433
2	66	3.2		212
3	165	3.6		594
4	51	2.0		102
5	53	3.8		198
7	194	2.9		562
23	64	1.6		104
51	77	3.2		246
SUB TOTAL	835	2.9		2,451

MEDIUM-LOW 20,24-32,52,57 & 58	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
6	87	4.9		429
20	353	4.3		1,518
24	185	4.0		740
25	77	4.0		308
26	234	4.0		936
27	95	4.0		380
28	94	4.0		376
29	108	4.0		432
30	91	4.0		364
31	253	4.1		1,032
32	187	4.0		748
52	226	4.4		1,004
57	391	4.4		1,737
58	336	4.2		1,400
SUB TOTAL	2,717	4.2		11,404

MEDIUM 33,40-50,53-56 & 59	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
33	65	6.4		419
40	87	5.3		465
41	216	5.3		1,134
42	43	5.9		275
43	179	5.0		893
44	186	5.0		957
45	86	5.0		430
46	224	5.9		1,330
47	46	5.0		230
48	72	5.0		360
49	98	5.0		490
50	181	5.0		905
53	154	5.0		770
54	47	5.6		265
55	258	5.8		1,493
56	101	5.0		505
59	362	4.8		1,749
SUB TOTAL	2,405	5.3		12,670

HIGH 60-69	PA <sup>1</sup>	GRA <sup>2</sup>	DU/GRA <sup>4</sup>	TOTAL DU
60	32	8.0-15.0		284
61	168	8.0-15.0		1,794
62	51	8.0-15.0		447
63	35	8.0-15.0		280
64	98	8.0-15.0		863
65	151	8.0-15.0		2,187
66	229	8.0-15.0		1,832
67	44	8.0-15.0		456
68	17	8.0-15.0		255
69	36	8.0-15.0		725
84,87	--	--		135
85	--	8.0-25.0		400
85-A	--	--		285
SUB TOTAL	861	8.0-25.0		9,943

TOTAL RESIDENTIAL 6,818 36,468

NONRESIDENTIAL	PA <sup>2</sup>	GNA <sup>3</sup>
70, 89-91 COMMUNITY ACTIVITY CENTER	70 89 90 91 91	85 11 13 14
71 CIVIC CENTER	71	151
72,73 TOWN CENTER	72 73	173 286
74 CORRIDOR ACTIVITY CENTER	74	132
T SHOP-N-RIDE	13	13
75-88 INDUSTRIAL PARK	75 76 77 78 79 80 81 84 85 86 87 88	45 57 107 80 12 61 40 72 69 27 15 8
SUB TOTAL	1,471	

CIRCULATION	
2 LANE ARTERIAL HIGHWAYS	
4 LANE ARTERIAL HIGHWAYS	
6 LANE ARTERIAL HIGHWAYS	
TOTAL ARTERIALS	443

TOTAL NONRESIDENTIAL 1,914

NON-URBAN USES

SCHOOLS	GNA <sup>3</sup>
E ELEMENTARY SCHOOLS	462
MS MIDDLE SCHOOL	
HS HIGH SCHOOL	
L LIBRARY	3
P MASS TRANSIT PARKING SITE	7
RP REGIONAL PARK	300
A HIGHLANDS RANCH COMMUNITY ASSOCIATION FACILITY SITE	35
CP COMMUNITY PARK	160
NONURBAN	
EASEMENTS	600
FLOODPLAINS (100 YR.)	741
REMAINING AREA	2,382

OPEN SPACE CONSERVATION AREA	PA	GNA <sup>3</sup>
A	PA	467
B	A	87
C	B	191
D	C	87
E	D	272
F	E	34
G	F	19
H	G	10
I	H	33
SUBTOTAL	J	1,200
		125
		6,875
		7,000
TOTAL OPEN SPACE CONSERVATION AREA		8,200
TOTAL NONURBAN		12,890

TOTAL PLANNED COMMUNITY DISTRICT (ACRES) 21,622

Section XVIII of the New Town of Highlands Ranch  
Planned Community District Development Guide

FOOTNOTES:  
<sup>1</sup>PLANNING AREA  
<sup>2</sup>GROSS RESIDENTIAL ACRES  
<sup>3</sup>GROSS NONRESIDENTIAL ACRES  
<sup>4</sup>DWELLING UNITS/GROSS RESIDENTIAL ACRE

- GENERAL NOTES:
- SCHOOL SITES WILL BE PRECISELY SCALED AND LOCATED IN ACCORDANCE WITH THE STANDARDS OF THE DOUGLAS COUNTY SCHOOL DISTRICT. SCHOOL SITES ARE NONURBAN USES AND AS SUCH ARE NOT A PART OF THE RESIDENTIAL PLANNING AREA ACREAGE.
  - THE SPECIFIC LOCATIONS AND SIZES OF SHOP-N-RIDES WILL BE DETERMINED BY PRECISE ENGINEERING STUDIES. THE FACILITIES INDICATED ON THE PLAN ARE SYMBOLIC ONLY.
  - COMMUNITY PARK SITES DESIGNATED ON THE DEVELOPMENT PLAN ARE SYMBOLIC ONLY.
  - PLANNING AREA BOUNDARIES OTHER THAN THOSE DELINEATED BY STREETS ARE SHOWN BY THE FOLLOWING SYMBOL: \_\_\_\_\_
  - HIGHLANDS RANCH BOUNDARY IS SHOWN BY THE FOLLOWING SYMBOL: - - - - -
  - OFF-STREET HIKING AND BIKING TRAIL . . . . .
  - THE CULTURAL AND HISTORICAL PROTECTION OVERLAY ZONE IS DELINEATED BY THE FOLLOWING SYMBOL: \_\_\_\_\_
  - SOME NONURBAN AREAS EXIST INTERIOR TO ADJACENT PLANNING AREAS, AND ARE NOT GRAPHICALLY REPRESENTED. THESE NONURBAN AREAS REMAIN SUBJECT TO SECTION XIII OF THE HIGHLANDS RANCH DEVELOPMENT GUIDE.

I HEREBY CERTIFY THAT THIS PLAN WAS FILED IN MY OFFICE ON THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_, A.D. AT \_\_\_\_\_ O'CLOCK A.M./P.M., AND WAS RECORDED PER RECEPTION NO. \_\_\_\_\_

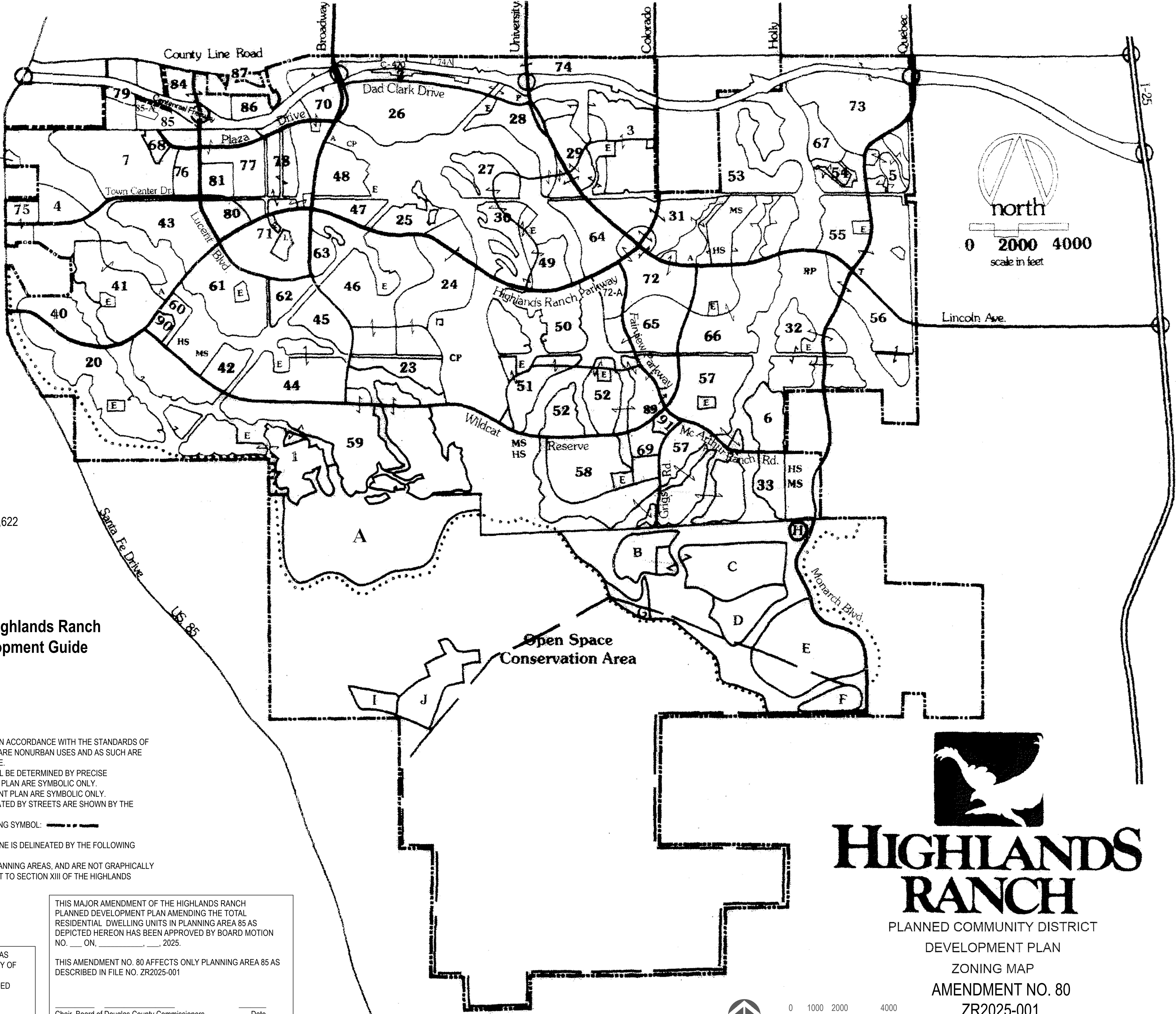
Douglas County Clerk and Recorder

THIS MAJOR AMENDMENT OF THE HIGHLANDS RANCH PLANNED DEVELOPMENT PLAN AMENDING THE TOTAL RESIDENTIAL DWELLING UNITS IN PLANNING AREA 85 AS DEPICTED HEREON HAS BEEN APPROVED BY BOARD MOTION NO. \_\_\_\_ ON, \_\_\_\_\_, \_\_\_\_ 2025.

THIS AMENDMENT NO. 80 AFFECTS ONLY PLANNING AREA 85 AS DESCRIBED IN FILE NO. ZR2025-001

Chair, Board of Douglas County Commissioners \_\_\_\_\_ Date \_\_\_\_\_

Director of Community Development \_\_\_\_\_ Date \_\_\_\_\_



HIGHLANDS RANCH

PLANNED COMMUNITY DISTRICT

DEVELOPMENT PLAN

ZONING MAP

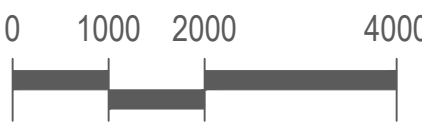
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NORTH



SCALE: 1" = 2000'