CITY OF BOULDER
PLANNING BOARD MEETING AGENDA
DATE: February 4, 2025
TIME: 6:00 PM
PLACE: Hybrid Meeting

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1. **CALL TO ORDER**

2. **PUBLIC PARTICIPATION**

3. **DISCUSSION OF DISPOSITIONS, PLANNING BOARD CALL-UPS/CONTINUATIONS**

4. **PUBLIC HEARING ITEMS**

   A. **AGENDA TITLE: PUBLIC HEARING CONTINUED FROM JANUARY 21, 2025 PLANNING BOARD MEETING. The opportunity for public comment for this item has closed and will not be reopened.**

   Public hearing and consideration of a Site Review for the redevelopment of a 9.87-acre site at 1855 S Flatiron Ct. with three Research and Development buildings totaling 207,011 square feet. The proposal includes a request for a height modification to allow for two three-story buildings up to 50' in height, a request for a 23% parking reduction, and a modification to site access control to allow for two access points. The applicant has requested Vested Rights for a period of nine years. Reviewed under case no. LUR2024-00036.

5. **MATTERS FROM THE PLANNING BOARD, PLANNING DIRECTOR, AND CITY ATTORNEY**

6. **DEBRIEF MEETING/CALENDAR CHECK**

7. **ADJOURNMENT**

CITY OF BOULDER PLANNING BOARD
VIRTUAL AND HYBRID MEETING GUIDELINES

These guidelines apply to electronic meetings and hybrid meetings. Hybrid meetings permit simultaneous in-person and electronic participation.

CALL TO ORDER
The Board must have a quorum (four members present) before the meeting can be called to order.

AGENDA
The Board may rearrange the order of the agenda or delete items for good cause. The Board may not add items requiring public notice.

PUBLIC PARTICIPATION
The public is welcome to address the Board (3 minutes* maximum per speaker) during the Public Participation portion of the meeting regarding any item not scheduled for a public hearing. The only items scheduled for a public hearing are those listed under the category PUBLIC HEARING ITEMS on the Agenda. **Any exhibits introduced into the record must be provided to the Board Secretary for distribution to the Board and admission into the record via email 24 hours prior to the scheduled meeting time**.

DISCUSSION AND STUDY SESSION ITEMS
Discussion and study session items do not require motions of approval or recommendation.

PUBLIC HEARING ITEMS
A Public Hearing item requires a motion and a vote. The general format for hearing of an action item is as follows:

1. Presentations

- Staff presentation (10 minutes maximum*).
- Applicant presentation (15-minute maximum*). Any exhibits introduced into the record at this time must be provided to the Board Secretary by email, no later than 24 hours prior to the scheduled meeting time, for distribution to the Board and admission into the record.
- Planning Board questioning of staff or applicant for information only.

2. Public Hearing

Each speaker will be allowed an oral presentation of up to three minutes*. Three or more people may pool their allotted time so one speaker can speak for five minutes*. To pool time, all the people pooling time must be present in-person in the physical meeting room or present electronically when the spokesperson is called to speak. Speakers with pooled time must identify the people they are pooling time with by first and last name when called upon to speak, so they can be called upon to confirm their presence and willingness to pool their speaking time.

- Speakers should introduce themselves, giving name and address. If officially representing a person, entity, group, homeowners' association, etc., please state that for the record as well.
- The board requests that, prior to offering testimony, the speaker disclose any financial or business relationship with the applicant, the project, or neighbors. This includes any paid compensation. It would also be helpful if the speaker disclosed any membership or affiliation that would affect their testimony.
- Speakers are requested not to repeat items addressed by previous speakers other than to express points of agreement or disagreement. Refrain from reading long documents and summarize comments wherever possible. Documents and other physical evidence must be submitted via email 24 hours prior to the scheduled meeting to become a part of the official record.
- Speakers should address the applicable Land Use Code criteria and, if possible, reference the criteria that the Board uses to decide a case.
- Any exhibits intended to be introduced into the record at the hearing must be emailed to the Secretary for distribution to the Board and admission into the record **24 hours prior to the meeting**.
- Citizens can email correspondence to the Planning Board and staff at boulderplanningboard@bouldercolorado.gov, up to **24 hours prior to the Planning Board meeting**, to be included as a part of the record.
- Applicants under Title 9, B.R.C. 1981, will be provided the opportunity to speak for up to 3 minutes* prior to the close of the public hearing. The board chair may allow additional time.

3. Board Action

- Board motion. Motions may take any number of forms. With regard to a specific development proposal, the motion generally is to either approve the project (with or without conditions), to deny it, or to continue the matter to a date certain (generally in order to obtain additional information).
- Board discussion. This is undertaken entirely by members of the Board. The applicant, members of the public or city staff participate only if called upon by the Chair.
- Board action (the vote). An affirmative vote of at least four members of the Board is required to pass a motion approving any action. If the vote taken results in either a tie, a vote of three to two, or a vote of three to one in favor of approval, the applicant shall be automatically allowed a rehearing upon requesting the same in writing within seven days.

MATTERS FROM THE PLANNING BOARD, DIRECTOR, AND CITY ATTORNEY
Any Planning Board member, the Planning Director, or the City Attorney may introduce before the Board matters which are not included in the formal agenda.

ADJOURNMENT
The Board's goal is that regular meetings adjourn by 10:30 p.m. and that study sessions adjourn by 10:00 p.m. New agenda items will generally not

be commenced after 10:00 p.m.

VIRTUAL MEETINGS
For Virtual Meeting Guidelines, refer to https://bouldercolorado.gov/government/board-commission/planning-board page for the approved Planning Board Participation Rule for Electronic and Hybrid Hearings.

*The Chair may lengthen or shorten the time allotted as appropriate. If the allotted time is exceeded, the Chair may request that the speaker conclude his or her comments

CITY OF BOULDER PLANNING BOARD

MEETING DATE: February 4, 2025

AGENDA TITLE: Continued public hearing and consideration of a Site Review for the redevelopment of a 9.87-acre site at 1855 S Flatiron Ct. with three Research and Development buildings totaling 207,011 square feet. The proposal includes a request for a height modification to allow for two three-story buildings up to 50' in height, a request for a 23% parking reduction, and a modification to site access control to allow for two access points. The applicant has requested Vested Rights for a period of nine years. Reviewed under case no. LUR2024-00036.
Applicant: Andrew Faulkner, BioMed Realty
Owners: BRE-BMR 1855 FLATIRON LLC
BRE-BMR FLATIRON VIII LLC

REQUESTING DEPARTMENT / PRESENTERS
Brad Mueller, Planning & Development Services Director
Charles Ferro, Senior Planning Manager
Alison Blaine, Senior Planner

OBJECTIVE

1. Planning Board hears applicant and staff presentations.
2. Hold quasi-judicial public hearing.
3. Planning Board action to approve, approve with conditions, or deny.

SUMMARY

Project Name:	1855 S. Flatiron Ct.
Location:	1855 S. Flatiron Ct., 1985 N. 57th St. (Outlot A), and 1987 N. 57th St. (Outlot B)
Size of Property	9.87 acres (Lots 3 and 4 contain 8.95 acres and two outlots contain 0.92 acres)
Zoning:	IG (Industrial – General)

Comprehensive Plan: Mixed Use Industrial

EXECUTIVE SUMMARY

The purpose of this item is for the Planning Board to review and take action on the Site Review Application for the redevelopment of a 9.87-acre site including the properties generally known as 1855 S. Flatiron Ct., 1985 N. 57th St. (Outlot A), 1987 N. 57th St. (Outlot B) with three Research and Development buildings. The proposal includes a request for a height modification for two of the three buildings to allow for two three-story buildings up to 50 feet in height. One building is proposed to be 45 feet in height and meets the conditional height requirements of Section 9-7-6. The proposal also includes a request for a 23% parking reduction to allow for 398 parking spaces to be provided where 518 spaces are required and a site access modification to allow for two access points. Because this item includes a request for a height modification and the applicant intends to create Vested Rights for nine years, Planning Board approval of the Site Review application is required at a public hearing.

Staff is recommending approval of the Site Review application finding the proposal consistent with relevant Boulder Valley Comprehensive Plan (BVCP) policies and the Site Review criteria as outlined in within this memorandum, subject to conditions of approval.

The applicant's proposed plans can be found in **Attachment A**. The full list of staff responses to the Site Review criteria for the approval recommendation by staff can be found in **Attachment B**. Although the applicant is submitting all three buildings and the site for approval, they have indicated that actual construction is anticipated to only be of a single building at a time, based on market demand. Refer to "Phasing and Vested Rights," below for more detail on the proposed phasing plan.

STAFF RECOMMENDATION

Staff has found that the proposed project meets criteria of Section 9-2-14, B.R.C. 1981 and is recommending that Planning Board approve the application in the form of the following motions:

Suggested Motion Language:

Motion to approve Site Review application #LUR2024-00036, adopting the staff memorandum as findings of fact, including the attached analysis of review criteria, and subject to the recommended conditions of approval.

Motion to recommend approval of Ordinance 8685 granting a nine year vested property right for the approved site-specific development plan for a property located at 1855 S. Flatiron Ct., and setting forth related details.

KEY ISSUES

1. **Is the proposed project consistent with the Site Review Criteria of the Land Use Code section 9-2-14(h), B.R.C. 1981, including the Additional Criteria for Buildings Requiring Height Modification?**

2. **Is the proposed project consistent with the Site Review Criteria of the Land Use Code section 9-2-14(h)(3)(B)(i), B.R.C. 1981 for larger floor plate buildings and projects with multiple buildings?**

3. **Is the proposed vehicular parking reduction consistent with Parking Reduction Criteria of the Land Use Code section 9-9-6(f), B.R.C. 1981, as well as applicable Site Review criteria?**

4. **Is the proposal consistent with the East Boulder Subcommunity Plan?**

PUBLIC FEEDBACK

Consistent with section 9-4-3, Public Notice Requirements, B.R.C. 1981, staff provided notification to all property owners within 600 feet of the subject location of the application, and signs have been posted by the applicant indicating the review requested. Staff did not receive comments from neighboring property owners as part of the Site Review application.

BACKGROUND

Existing Conditions: As shown in **Figure 1**, the site is located at the terminus of S. Flatiron Ct. within the Flatirons Industrial Park. The site at 1855 S Flatiron Ct. was developed in the early 1970s and currently contains the offices for Lumen, a telecommunications company. Much of the site is covered by surface parking lots and lacks significant vegetation or mature trees. The South Boulder Creek Multi-Use Path runs north-south and crosses the eastern edge of the property.

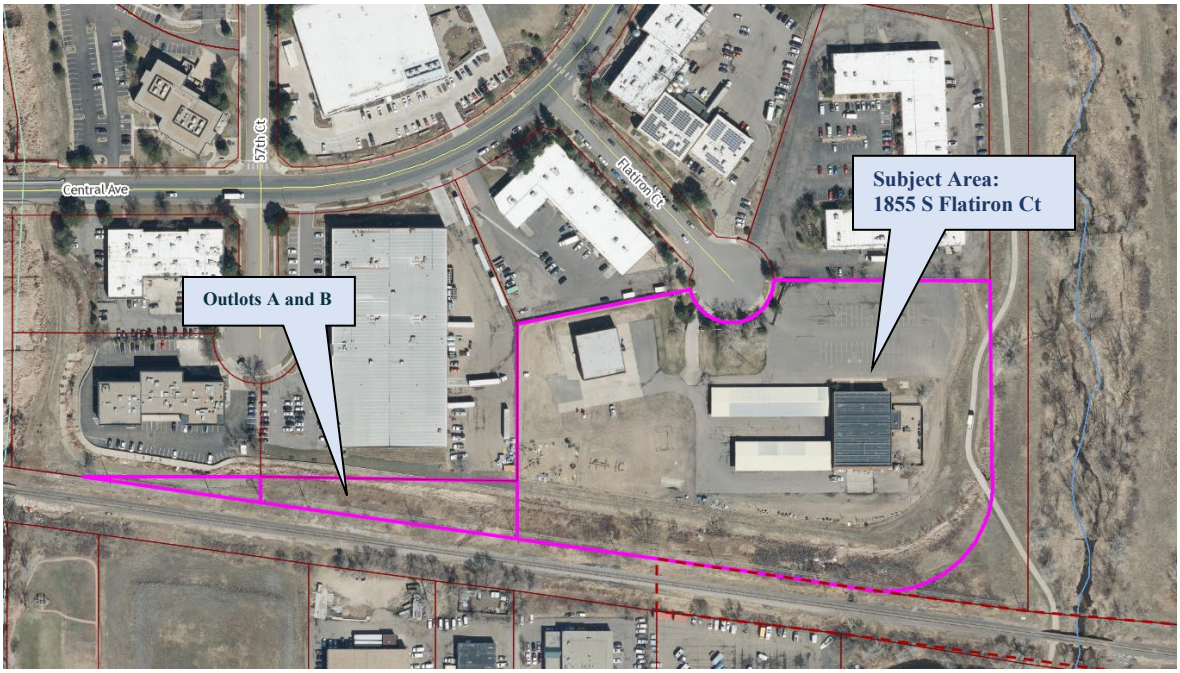


Figure 1. Existing Site

The entire site is roughly 9.87 acres and includes two outlots totaling 0.92 acres. The developable

lot at 1855 S Flatiron Ct. is comprised of Lot 3 and Lot 4, per the original plat (Flatiron Industrial Park Filing No. 2) but is mapped as one lot. The outlots will remain as originally intended and will not be developed as they are covered by flood and drainage easements. Because the outlots are proposed to be included in a future Site Review application, the area can count towards the maximum FAR for the proposed project.

Figure 2. Existing Site

Figure 3. South Boulder Creek Path east of the site

Due to the proximity to the South Boulder creek (immediately east of the site) and Dry Creek Ditch

No. 2 further west, the site contains high functioning wetlands along the southern and eastern property line. The site is also impacted by 100-year, 500-year, high hazard, and conveyance flood zones, as shown below in **Figure 4.**

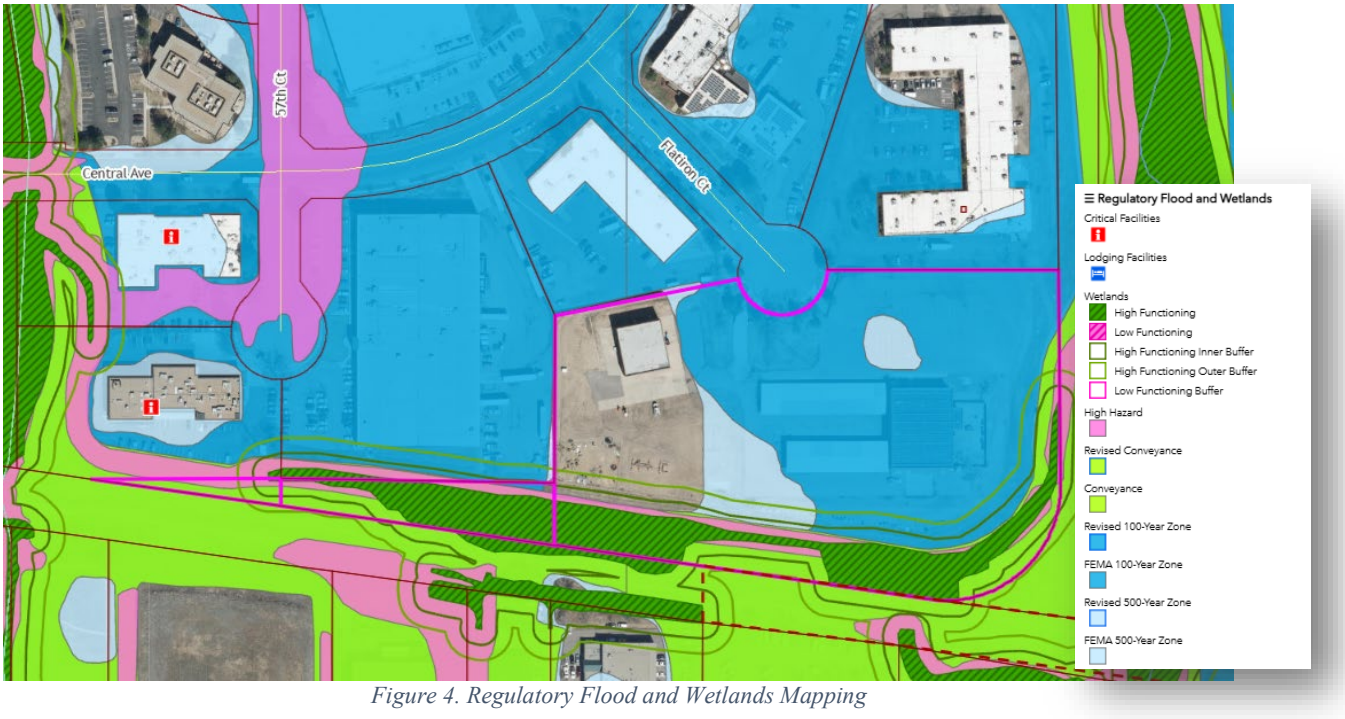


Figure 4. Regulatory Flood and Wetlands Mapping

Surrounding Context.

The site is part of the Flatiron Industrial Park in East Boulder and is surrounded by a hub of industrial and commercial uses including technical offices, biosciences, manufacturing uses, and Boulder businesses like Upslope Brewery and Taproom and the Chocolove industrial building. The BNSF railway runs just south of the site and separates the lot from the Arapahoe and 55th Street station and other commercial uses along Arapahoe Avenue. Immediately to the east is OSMP property containing the South Boulder Creek and adjacent multi-use path. The broader context of the surrounding uses include the Flatirons Golf Course, Valmont Lake, Hillcrest, and Leggett reservoirs, mixed-density residential, and industrial uses.

Figure 5. Industrial and office uses near the site

Figure 6. Manufacturing and Brewery Uses on Central Ave.

Boulder Valley Comprehensive Plan (BVCP) Land Use Designation:

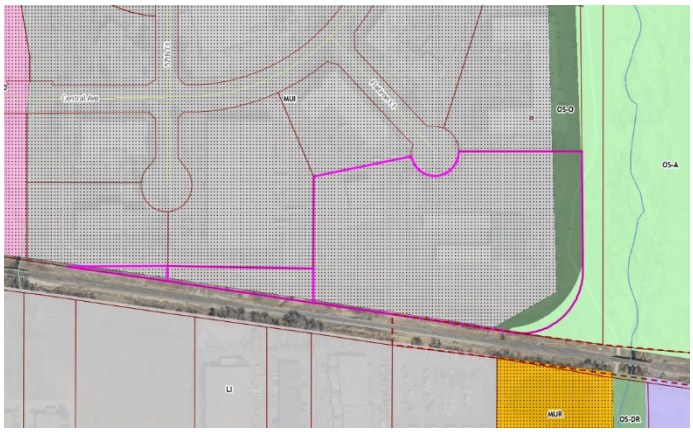


Figure 7. BVCP Land Use Designation

The BVCP Land Use designation for the site is majority Mixed Use Industrial (MUI), which is defined as: "*MUI areas should integrate diverse housing, commercial and retail options into industrial areas to create vibrant, walkable, working neighborhoods that offer employers, employees and residents a variety of local services and amenities. MUI areas will often provide a transition between existing or planned residential or mixed-use neighborhoods and Light, Community or General Industrial land use area. Uses: Consists predominantly of light industrial use on ground floors. Supporting uses include light-industrial, attached residential, retail, service, office and commercial.*" A portion of the site is also zoned Open-Space Other (OS-O). This designation applies to other public and private land designated prior to 1981 that the city and county would like to preserve through various preservation methods, including but not limited to intergovernmental agreements, dedications or acquisitions.

Zoning. As shown in **Figure 8**, the zoning on the site is Industrial – General (IG), consistent with the Land Use and where Research and Development is an allowed use. The defined intent for IG per section 9-5-2, B.R.C. 1981 is as follows:

> *"General industrial areas where a wide range of light industrial uses, including research and development, manufacturing, service industrial uses, media production, storage, and other intensive employment uses are located. Residential uses and other complementary uses may be*

allowed in appropriate locations."

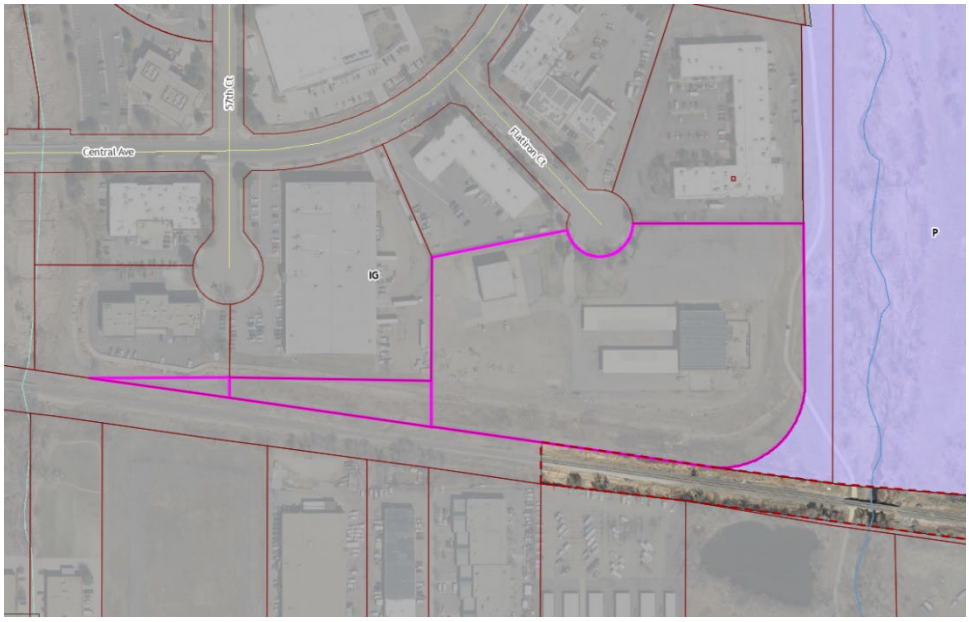


Figure 8. Zoning on and around the site

Area Plans. The site is located within the East Boulder Subcommunity Plan, which envisions mixed-use developments with residential that integrate with the proposed Flatiron Greenway and the 55th and Arapahoe Station. Per the plan, the Flatirons Business Park is designated as an "area of change" with a goal to provide high-quality industrial and office spaces while creating opportunities for introducing residential uses and an active lifestyle for area workers. Specifically, the area is proposed to be a walkable hub for workers and nearby residents.

The East Boulder Subcommunity Plan also includes a variety of defined place types. Much of the Flatiron Business Park, including 1855 S Flatiron Ct., is considered "Destination Workplace," which prioritizes business and industry uses, while supporting the introduction of housing uses and ground floor activation and commercial spaces. The "Destination Workplace" place type calls for improved access and mobility to encourage walkability and access for all users. Specifically, the place type proposes options for first and last mile connections. The place type also calls for street level activation and streetscape character.

Project Description

As described above, the purpose of the Site Review is to allow for redevelopment of the project site with Research and Development uses in three buildings totaling 207,011 square feet. The three buildings are oriented around a courtyard with landscaping, open space amenities, and a drop-off/pick-up plaza. Internal pedestrian paths allow convenient access to all three buildings and are separated from primary vehicle traffic along the perimeter of the site. In keeping with the East Boulder Subcommunity Plan, Building 3 has a ground-floor café amenity space for users of the site and business park. The proposed site plan is shown below in **Figure 9**.

Figure 9. Illustrative Site Plan

Open Space

The IG zone requires a minimum of 20% of total lot area to be provided as useable open space, which for this site equates to 83,528 square feet. The applicant is proposing approximately 30% of the site as useable open space (128,176 square feet). The site plan provides usable open space between and around the buildings with landscaped shrub beds, decorative paved walkways, rain gardens, and dispersed seating areas. A large portion of the site is encumbered by a drainage easement, which restricts development in the area and counts towards open space, buffering the site from adjacent uses. Open space has been designed to be flexible and serve the needs of future tenants. For instance, the central drop-off/pick-up area also functions as an event space by closing off the vehicle access to allow for food trucks or other services. Other amenities include tables and chairs, fire pit, and space for potential outdoor fitness classes. See **Figure 10** for Landscape and Open Space perspectives.

Figure 10. Landscape and Open Space Perspectives

Building Massing and Architecture

Per the applicant's written statement (**Attachment A**), the architectural design embodies textures and materials inspired by the environmental context. The number of building material types is limited to concrete, metal panels, and glazing for windows and the curtain walls. The materials are applied to complement the form of the building and express primary building features. Primary building entries and building lobbies are delineated by glazing/a curtain wall and metal trim. Accent features used only for the entries assist in wayfinding. For instance, the soffits of each primary entry consists of wood panels. The first-floor elevations minimize the visual impact of ground floor parking with concrete walls. First and second floor elevations have a higher percentage of transparency and glazing to optimize views, encourage passive solar gains, and facilitate indoor-outdoor connections. The materiality has repeating patterns of alternating metal panels and window glazing.

Building form incorporates terraces, overhangs, and cantilevers that frame the primary entryways. Front doors are oriented around the entry courtyard and interior circulation route, which acts as a drop-off/pick-up area and mixing area for open space. Building 3 is located along the multi-use path and introduces additional architectural elements to provide a sense of human scale to both occupants and the public. A vertical and transparent façade recession and roof line variations are incorporated to provide relief along the multi-use path.

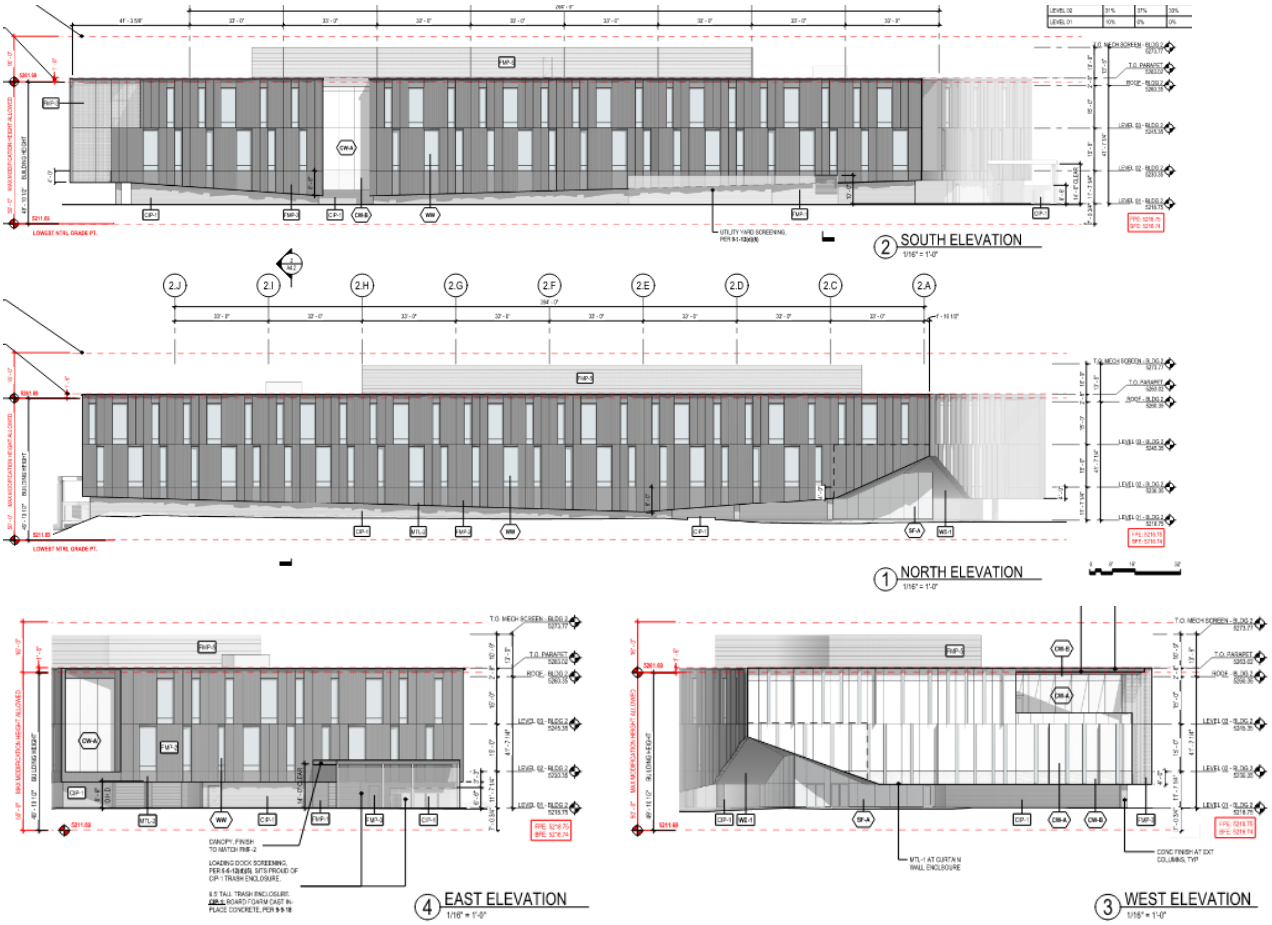


Figure 11. Building 2 Elevations

Each building has also been designed with a third level terrace on the primary corner that is meant to be expressed as a lantern. The top floor of each terrace is setback from the building below to bring relief to the massing. Perforated metal panels at the edge and an overhead trellis bring variation to the roof line and visual interest by creating a “glow” in evening hours and a moving pattern of shadows during the day. The introduction of perforated panels and overhead trellis provides surfaces that support the dynamic movements of light and shadow. See **Figure 12.**

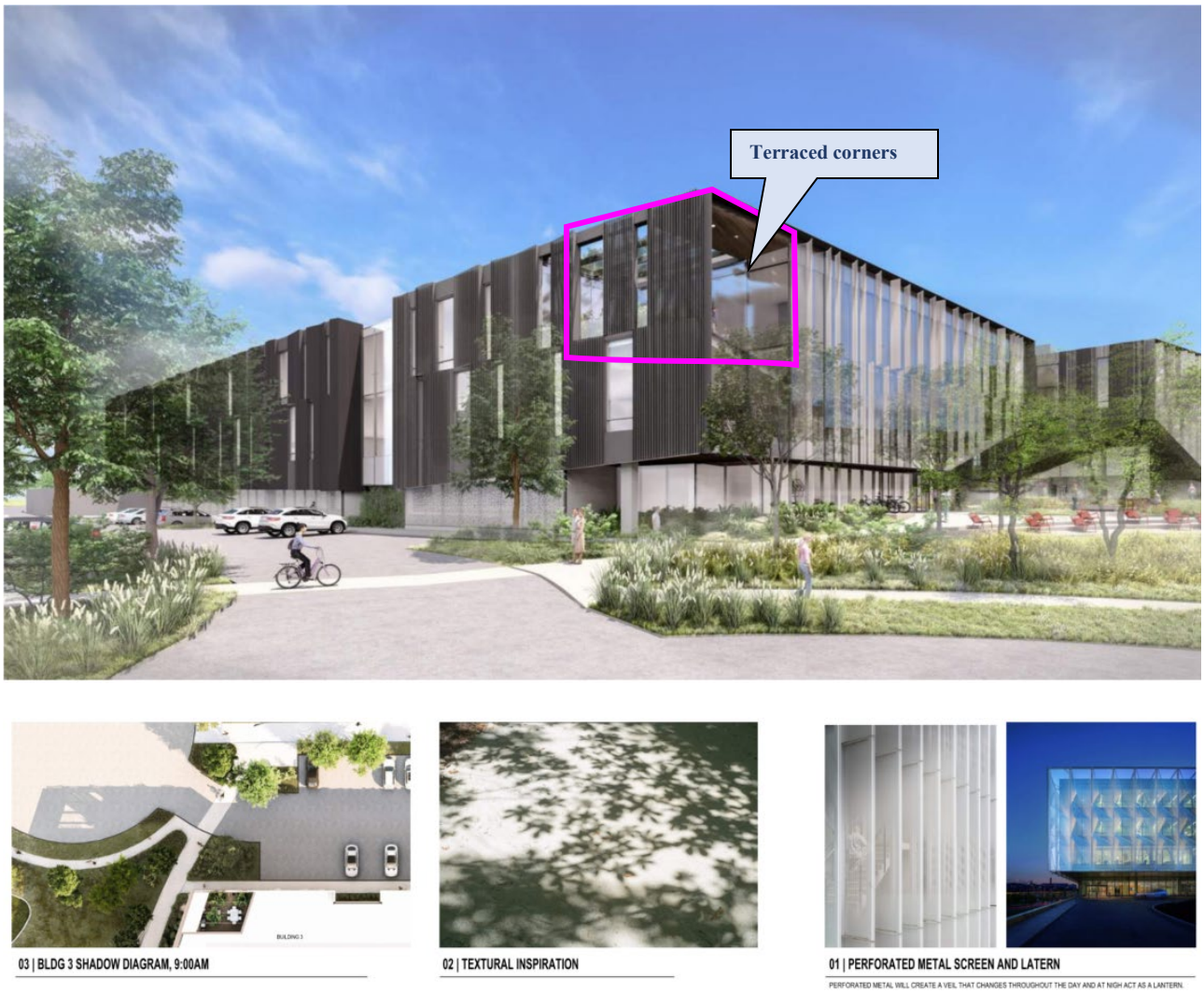


Figure 12. Primary Corner Visual Elements

Access, Parking and Circulation

Existing vehicle access to the site is from S. Flatiron Ct. The site currently contains two access points to serve each of the originally platted lots. The proposal will maintain the two access points to facilitate vehicle and emergency access circulation with a two-way road pattern. The two access points remove the need for a T-shaped fire apparatus turnaround, which would have created additional hardscape and circulation area. The access points also allow for a fire loop with several hydrants to access all sides of the three buildings. Maintaining the existing vehicle access is compatible with the surrounding area and will not create safety or operational problems, consistent with Section 9-9-5(c)(9).

Bike access to the site is from S. Flatiron Ct. as well as a new multi-use path connection proposed along the northern side of the site, as shown in the East Boulder Subcommunity Plan. The multi-use path will connect to the South Boulder Creek path to the east of the site. See **Figure 13.**

Vehicles will primarily move through the site via the surrounding perimeter road, which leads to nearby parking for each building. Traffic calming measures such as narrowing the southern drive aisle are incorporated into the design. The center of the site also includes a roundabout, which functions as a vehicle drop-off/pick-up point and emergency access point. The circulation pattern directs the majority of vehicle traffic to the outer edge of the development, while separated internal walkways are proposed for pedestrian circulation. The bike access from the multi-use path is buffered from drive aisles and parking by landscaping and safe crossings.

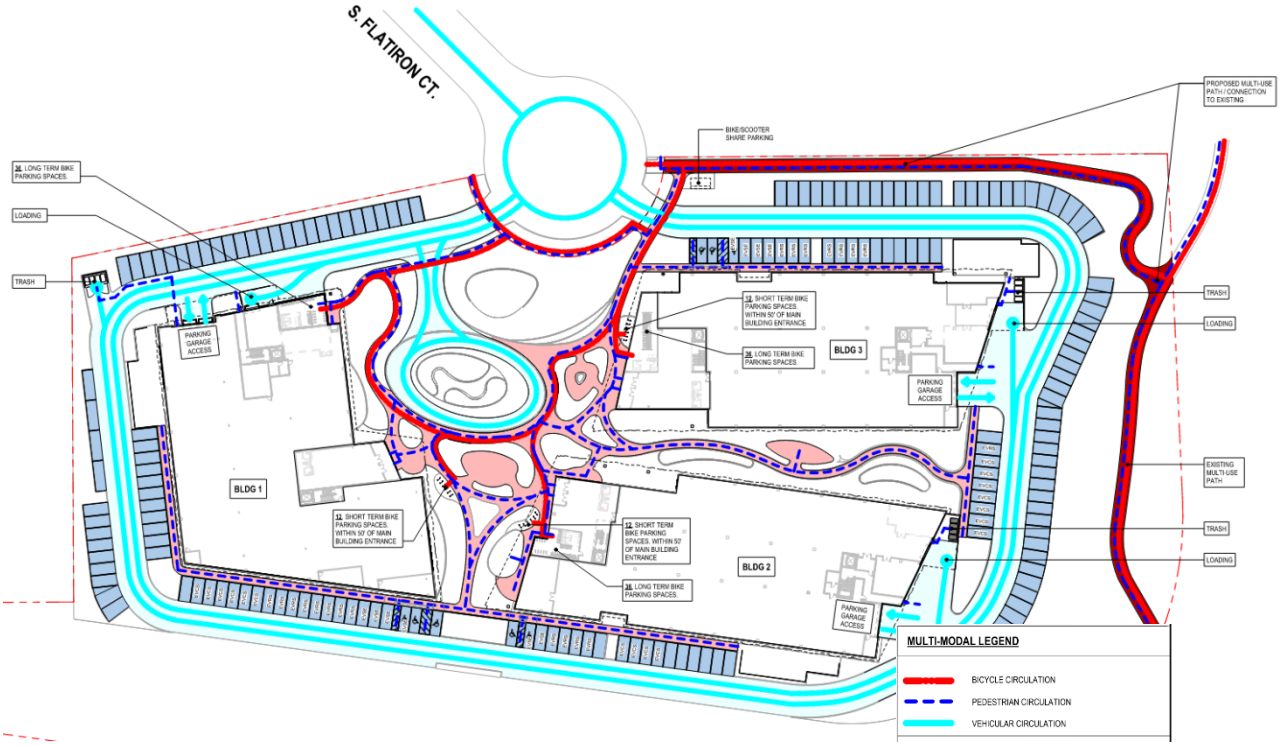


Figure 13. Bike and Ped. Connections Diagram

A total of 398 parking spaces are proposed throughout the site. Parking will be located on the ground floor of each building, along the perimeter road, and adjacent to each building. Each building will have one dedicated carshare space within the garage for a total of three spaces on-site. Sixty-six EV parking spaces are proposed throughout all three buildings. Long-term and short-term bike parking is provided for a total of 144 spaces.

As mentioned above, the proposal includes a request for a 23% parking reduction to allow for 398 spaces to be provided where 519 are required. The applicant has provided a TDM Plan, which outlines the site characteristics and TDM strategies that support of the requested reduction (See **Attachment C**).

Phasing and Vested Rights

The proposed project will be developed in three phases. Phase 1 will include construction of Building 3 and the ground floor commercial space, the multi-use path, associated improvements for Building 3, and the full perimeter access road. Building 2 and associated improvements will be constructed during Phase 2. Building 1 and the remainder of site improvements will be developed in Phase 3.

The applicant expects the proposed project and phasing plan will take nine years to implement and is requesting an extension of vested rights from a period of three years to a period of nine years pursuant to Section 9-2-20, B.R.C. 1981. An extension of the three-year vesting period requires the approval of an ordinance by City Council. (See **Attachment D**)

PROCESS

Per Section 9-2-14, B.R.C. 1981, the project required Concept Plan review and comment prior to Site Review because the site is over 5 acres, the proposal is greater than 100,000 square feet in size (Table 2-2 of Section 9-2-14, B.R.C. 1981).

The initial design submitted for Concept Plan and Review in December 2023 proposed two larger buildings for the Research and Development use with a third building used for a parking garage. Overall, Planning Board found the project generally consistent with the BVCP and East Boulder Subcommunity Plan. The Board was supportive of the proposed materials and the connection to the multi-use path but encouraged the applicant to introduce more human-scale elements, reduce the amount of pavement, improve circulation, and provide a more robust TDM.

City Council did not call-up the project but referred it to the Transportation Advisory Board (TAB) for review and recommendation. The TAB hearing took place on August 12, 2024 after the first submittal of the Site Review Application. TAB reviewed the TDM, alignment with Site Review criteria related to impervious surfaces for site circulation, and the proposed multi-use path connection. TAB was supportive of the parking reduction requestion and the strength of the TDM. TAB was also supportive of the parking locations and the circulation pattern that pushes vehicle traffic to the edge of the development. The Board highlighted a few concerns and made the following recommendations:

- Review the width and design of the perimeter road, especially along the southern side where the road becomes a straightaway and encourages faster vehicle traffic. There was concern about excessive width along this edge due to the adjacent parking and full-width access drive. TAB recommended the applicant review the design to avoid conflicts.
- Review the proposed landscaping along the multi-use path connection. TAB expressed concerned with landscaping that could cast shadows and create icy conditions in the winter.

Upon resubmitting, the applicant included traffic slowing measures along the southern edge of the perimeter road by reducing the aisle width and removing parking spaces in the middle of the straightaway. The applicant also altered the landscaping plan to use deciduous trees instead of evergreen trees along the multi-use path to mitigate potential icy conditions from landscape shading. Staff's memo is found here and a link to the recording of the August 12, 2024 TAB meeting is found here (item starts at 16:30).

The current proposal is subject to the Site Review criteria in Section 9-2-14, B.R.C. 1981. The following modifications under the Land Use Code are requested:

- 9-7-1, Schedule of Form and Bulk Standards: **Height modification** for two 50-foot-tall structures, where a maximum of 40 feet is otherwise allowed by-right. One structure will be 45 feet, which is allowed by-right pursuant to Section 9-7-6 (Conditional Building Height) and is not requesting a height modification.
- 9-9-5, Site Access Control: **Site Access** modification to allow for two access points off of S. Flatiron Ct.
- 9-9-6, Parking Standards: **Parking** modification to allow for a 23% parking reduction.

Per Section 9-2-14(g), B.R.C 1981, an application for any principal or accessory building above the permitted height for principal buildings set forth in Section 9-7-1, "Schedule of Form and Bulk Standards," B.R.C. 1981 requires a staff recommendation and final decision by the Planning Board at a public hearing, subject to call-up by City Council. The applicant has also requested an extension to Vested Rights, which requires the Planning Board to be the decision authority on the application and an ordinance approved by City Council.

ANALYSIS/ KEY ISSUES

1. Is the proposed project consistent with the Site Review Criteria of the Land Use Code section 9-2-14(h), B.R.C. 1981, including the Additional Criteria for Buildings Requiring Height Modification?

Staff finds that the proposed project is consistent with the Site Review criteria found in Section 9-2-14(h), B.R.C. 1981, including the Additional Criteria for Buildings Requiring Height Modification and with the goals and policies of the BVCP. Please see **Attachment B** for Staff's Analysis of the Site Review Criteria.

In terms of consistency with the Site Review criteria, staff finds that the project promotes alternatives to the automobile by incorporating site design techniques, land use patterns, and infrastructure that support and encourage walking, biking, and other alternatives to the single-occupant vehicle, provides common open space areas that is available for use by tenants, occupants, customers, and visitors of buildings, and incorporates landscaping design that includes a variety of plants providing a variety of colors and contrasts in terms of texture and seasonality. In addition, staff finds the proposed building and siting design to be compatible with the character of the surrounding area and that the building design successfully creates visual interest and a vibrant pedestrian experience while remaining simple, human-scaled and high quality. Refer to the full analysis of the Site Review criteria provided in **Attachment B**.

2. Is the proposed project consistent with the Site Review Criteria of the Land Use Code section 9-2-14(h)(3)(B)(i), B.R.C. 1981 for larger floor plate buildings and projects with multiple buildings?

Section 9-2-14(h)(3)(B)(i) states that "Larger floor plate buildings and projects with multiple buildings have a variety of forms and heights." This criterion was introduced as part of Ordinance 8515, which updated the Site Review criteria in 2022. The introduction of this criterion was a result of growing concerns about the prevalence of large, flat-roofed buildings and was intended to promote more diversity in forms and heights. Staff finds that the Applicant

has taken some measures to add roofline variation and incorporate varied heights for multiple buildings. Overall, staff appreciates the design decision to create visual interest with the anchor corners using a lantern effect and third floor covered terrace. The terraced corners were designed to be enclosed to provide shelter throughout all seasons. There are small adjustments to the parapet and eroded corners or façade recessions for each building.

Staff encouraged the applicant to pursue more expressive measures throughout the review process that would add more variation to the heights and roofline of all three buildings. Overall, the three buildings are mostly uniform at similar heights and with matching form and mass. Building 1 is proposed to be 45 feet in height while Buildings 2 and 3 will be 50 feet in height.

Because the proposal was found consistent with the remaining Site Review criteria, staff is recommending approval of the application. However, staff is also recommending a condition of approval requiring the applicant to propose additional design elements that will be reviewed by staff at time of Technical Document application. Such changes may include greater adjustments to parapet heights and uncovering the terraced balconies.

3. Is the proposed vehicular parking reduction consistent with Parking Reduction Criteria of the Land Use Code section 9-9-6(f), B.R.C. 1981 as well as applicable Site Review criteria?

Staff finds the requested 23% parking reduction to be consistent with the criteria for parking reductions as set forth in Section 9-2-14(h) and 9-9-6(f), B.R.C. 1981. Staff's detailed analysis of the Parking Reduction Criteria can be found in **Attachment B.**

4. Is the proposed project consistent with the East Boulder Subcommunity Plan?

Staff finds that overall the project is consistent with the East Boulder Subcommunity Plan. The provision of high-quality industrial and office spaces aligns with the vision for the Flatirons Business Park, as identified in the area plan. The proposal includes a ground floor commercial space, which is most likely to be used as a café amenity space serving the entire business park and aligns with the goal to create opportunities for commercial uses and create an active area for area workers.

The proposed multi-use path connection to the north is in keeping with the area plan's Destination Workplace place type, which calls for strengthened access and mobility connections for all users. The site design of the proposed project encourages pedestrian circulation with interior walkways buffered from the exterior vehicle circulation patterns. Parking is consolidated as much as possible, with close access to each building and located within the structure where possible. There are no large parking lots.

RECOMMENDED CONDITIONS OF APPROVAL

1. The Applicant shall ensure that the **development shall be in compliance with all plans prepared by the Applicant** on _____ and the Transportation Demand Management ("TDM") Plan dated _____, all on file in the City of Boulder Planning Department, except to the extent that the development may be modified by the conditions of this approval.

2. Prior to a building permit application, the Applicant shall submit, and obtain City Manager approval of, a Technical Document Review application for the following items:

a. **Final architectural plans**, including material samples and colors, to ensure compliance with the intent of this approval and compatibility with the surrounding area. The architectural intent shown on the plans prepared by the Applicant on _____ is acceptable; however, the Applicant shall revise the building plans to incorporate additional design elements that provide roofline and height variation to the three buildings. Such elements may include adjustments to parapet heights or uncovered terraces.

b. A **final site plan** which includes detailed floor plans and section drawings.

c. A **final utility plan** meeting the City of Boulder Design and Construction Standards.

d. A **final storm water report and plan** meeting the City of Boulder Design and Construction Standards.

e. **Final transportation plans** meeting the City of Boulder Design and Construction Standards, for all transportation improvements. These plans must include, but are not limited to: street plan and profile drawings, street cross-sectional drawings, signage and striping plans in conformance with Manual on Uniform Traffic Control Devices (MUTCD) standards, transportation detail drawings, geotechnical soils report, and pavement analysis.

f. A **detailed landscape plan**, consistent with the Boulder Revised Code including size, quantity, and type of plants existing and proposed; type and quality of non-living landscaping materials; any site grading proposed; and any irrigation system proposed consistent with the Boulder Revised Code, to ensure compliance with this approval and the City's landscaping requirements. Removal of trees must receive prior approval of the Planning Department. Removal of any tree in City right of way must also receive prior approval of the City Forester.

g. A **detailed outdoor lighting plan** showing location, size, and intensity of illumination units, indicating compliance with section 9-9-16, B.R.C.1981.

h. A **detailed shadow analysis** to ensure compliance with the City's solar access requirements of section 9-9-17, B.R.C. 1981.

i. An **address plat** following the city's addressing policy to create a new address.

3. Prior a building permit application, the Applicant shall dedicate to the City, at no cost, the easements necessary to serve the development, including but not limited to the following easements as shown on the plans prepared by the Applicant on _____, meeting the City of Boulder Design and Construction Standards, as part of Technical Document Review applications, the form and final location of which shall be subject to the approval of the City Manager:

a. A 15-foot-wide **Emergency Access Easement** located in the center of the site.
b. A 20-foot-wide **Emergency Access Easement** connected to the above-referenced 15-foot wide Emergency Access easement.
c. A **Drainage Easement (**Variable width) located off of S. Flatiron Ct.
d. A 25-foot-wide **Utility Easement** located off of S. Flatiron Ct.
e. A 25-foot-wide **Utility Easement** across the north portion of Outlot B
f. A 25-foot-wide Utility and **Emergency Access Easement** along the perimeter of the site.
g. Variable width **Drainage Easements** for Bioretention Facilities between Buildings 2 and 3.
h. 14-foot-wide **Public Access Easement** along the northern edge of the site, east of S. Flatiron Ct.
i. A one-foot-wide **Public Access Easement** along S. Flatiron Ct.
j. Variable width **Drainage Easement** for the Permeable Paver system along the northern edge of the property, east of S. Flatiron Ct.
k. Variable width **Drainage Easement** for the Permeable Paver system along the northern edge of the property, west of S. Flatiron Ct.
l. Variable width **Drainage Easements** for the Bioretention systems adjacent to Building 1 and between Building 1 and Building 2.
m. Updates to the existing variable width **Drainage Easement** to the south and west of the property.
n. Variable width **Utility Easements** along the perimeter road.

4. Prior to a Building Permit, the Applicant shall submit to the City, and obtain approval of, the following lot line elimination or the equivalent meeting the requirements of Chapter 9-12, "Subdivision," B.R.C. 1981, as part of Technical Document Review application:

a. A **lot line elimination** between Lot 4 and Lot 3 of the Flatiron Industrial Park Filing No. 2.

5. Prior to issuance of any building permit, the Applicant shall submit a **financial guarantee, in a form** acceptable **to the Director of Public Works,** in an amount equal to the cost of providing eco-passes to the employees of the development for three years after the issuance of a certificate of occupancy as proposed in the Applicant's Transportation Demand Management (TDM) plan.

6. Prior to issuance of any building permit, the Applicant shall submit a **financial guarantee,** in a form acceptable to the Director of Public Works**,** in an amount equal to $100,000 for the Alternative Transportation Subsidy Fund as proposed in the TDM Plan.

7. Prior to building permit issuance, the Applicant shall construct and complete, subject to acceptance by the City, **the water main through the site including the connection and upsizing**

through 57th Ct. in conformance with the approved engineering plans and with the City of Boulder Design and Construction Standards.

8. Pursuant to Subsection 9-2-12(a), "Three Year Rule," B.R.C. 1981, the following **development/phasing plan** is approved:

a. Phase I includes the construction of Building #3 as shown on the final approved site plan for Site Review Case No. LUR2024-00036 (the "Site Plan Approval") including the improvements and infrastructure as shown on the approved Phasing Plan for Phase 1.

Pursuant to 9-2-12(a), B.R.C. 1981, for Phase 1 the three-year period in which applicant shall obtain applicable building permit approvals and start construction shall commence on the date of final approval of the Site Review, unless modified by the Development Agreement.

b. Phase 2 includes the construction of Building #2 as shown on the Site Plan Approval including the improvements and infrastructure as shown on the approved Phasing Plan for Phase 2.

Pursuant to 9-2-12(a), B.R.C. 1981, for Phase 2, the three-year period in which applicant shall obtain applicable building permit approvals and start construction shall commence on the date that is three (3) years after the date of final approval of the Site Review, unless modified by the Development Agreement.

c. Phase 3 includes the construction of Building #1 as shown on the Site Plan Approval including the including the improvements and infrastructure as shown on the approved Phasing Plan for Phase 3.

Pursuant to 9-2-12(a), B.R.C. 1981, for Phase 3 the three-year period in which applicant shall obtain applicable building permit approvals and start construction shall commence on the date that is six (6) years after the date of final approval of the Site Review, unless modified by the Development Agreement.

9. Concurrent with the Technical Document Review application, the Applicant shall submit an application for, and obtain City Manager approval of, a **Wetland Permit**.

10. The **Applicant shall be responsible for maintaining** all stormwater quality improvements and stormwater detention improvements, including but not limited to permeable parking lot paving.

11. Prior to building permit issuance for any new commercial building or addition greater than 30,000 square feet in floor area, the **Applicant shall demonstrate** that the building will either have a net site energy usage index (EUI) of zero or is designed to achieve a net site EUI that is 10 percent lower than required under the City of Boulder Energy Conservation Code, consistent with Subparagraph 9-2-14(h)(1)(C), B.R.C. 1981. For the purpose of this requirement, "commercial building" shall have the meaning defined in the City of Boulder Energy Conservation Code.

By: _____

Brad Mueller, Secretary to the Planning Board

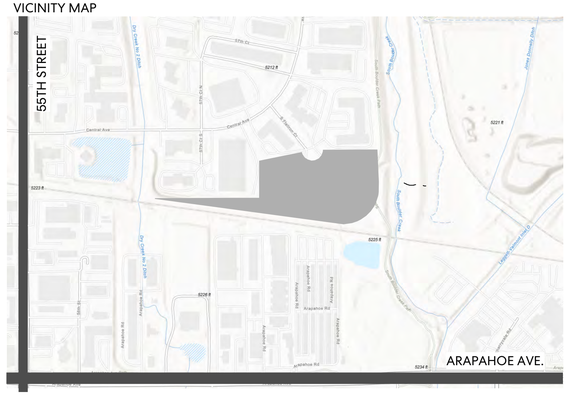
ATTACHMENTS
Attachment A – Applicant's Proposed Plans and Written Statement
Attachment B – Staff Analysis
Attachment C – Applicant's TDM Plan
Attachment D – Ordinance 8685

SHEET INDEX

PROJECT DATA:

Address:	1855 S. Flatiron Ct. Boulder, CO 80301		
Legal Description:	Lot 3 & 4 & OUTLOTS A & B, FLATIRON INDUSTRIAL PARKWAY FILING NO. 2, LOCATED IN THE SOUTHWEST QUARTER OF SECTION 27, TOWNSHIP 1 NORTH, RANGE 70 WEST OF THE 6TH P.M., CITY OF BOULDER, COUNTY OF BOULDER, STATE OF COLORADO.		
Zoning:	IG		
Intensity Module:	22		
Form Module:	I2		
Use Module:	f		
FAR:	.5		9-8-2, Table 8-2
Lot Area:	417,640 sqft.		
Max Floor Area Allowable:	208,820 sqft		
Max height Allowable:	45'		9-7-6(b)
Max number of stories:	3		9-7-1, Table 7-1
Nonresidential Parking required:	1:400 = 518		9-9-6, Table 9-3
Bike parking required:	1:1,500 = 139. Long term (75%) = 104, Short term (25%) = 35		9-9-6, Table 9-8
Open space required:	20% = 83,528 sqft		9-9-11(c)(3)
Proposed FAR:	.495		
Proposed Floor Area:	207,011 sqft		
Proposed number of stories:	3		
Proposed height:	BLDG 1:	44' - 11"	
	BLDG 2 and 3:	49' - 10 1/2"	*Height Modification, 9-2-14(b)(1)(E)(iv)
Proposed Parking:	398. (23% Reduction)		*Parking Modification, 9-9-6(f)
Bike Parking provided:	144. Long term = 108. Short term = 36		
Open space provided:	29.18% = 121,872.05 sqft		

VICINITY MAP



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PROJECT

1855 S. FLATIRON COURT

1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA 92121

ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

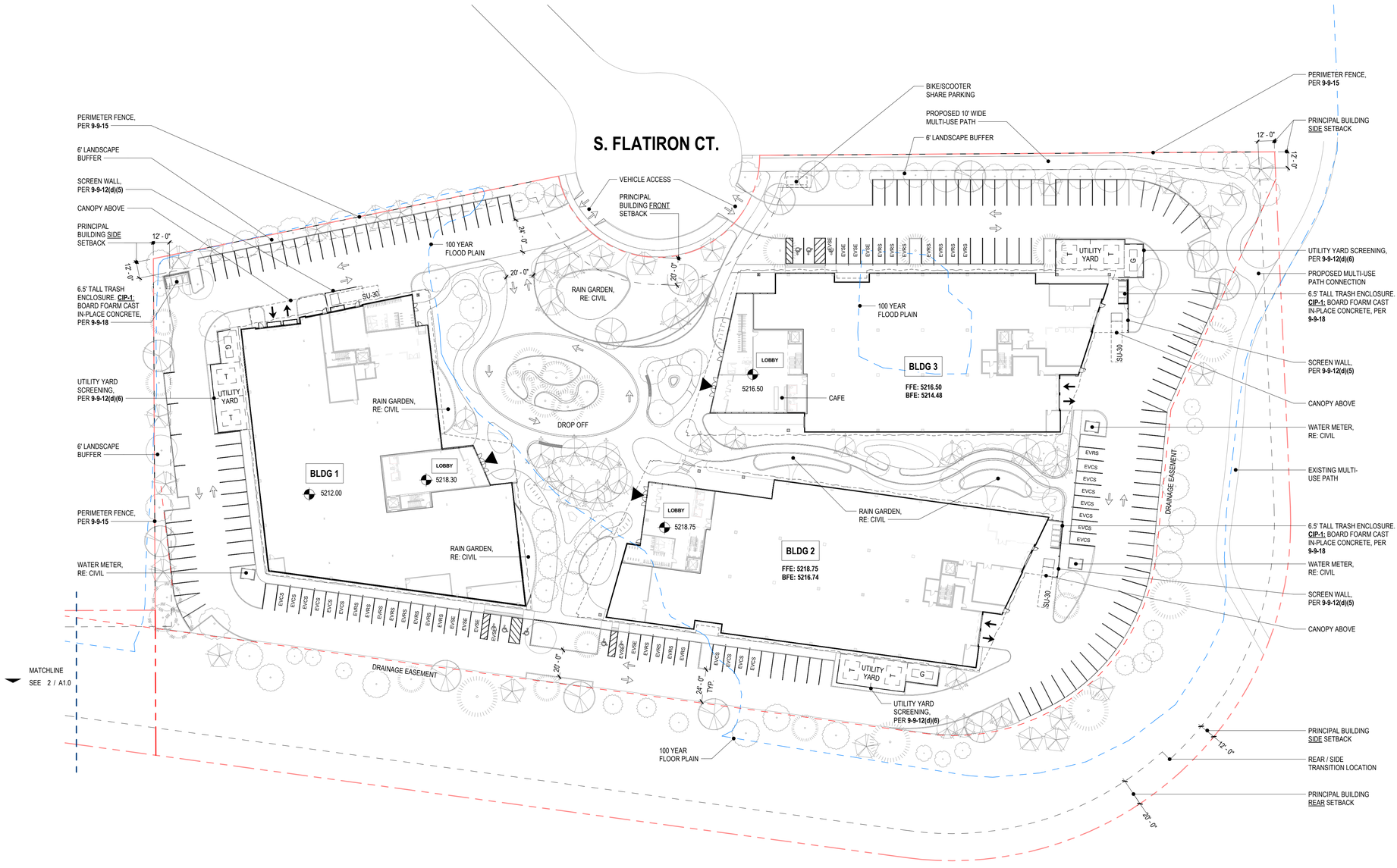
Job Number 222308

TITLE

COVER SHEET

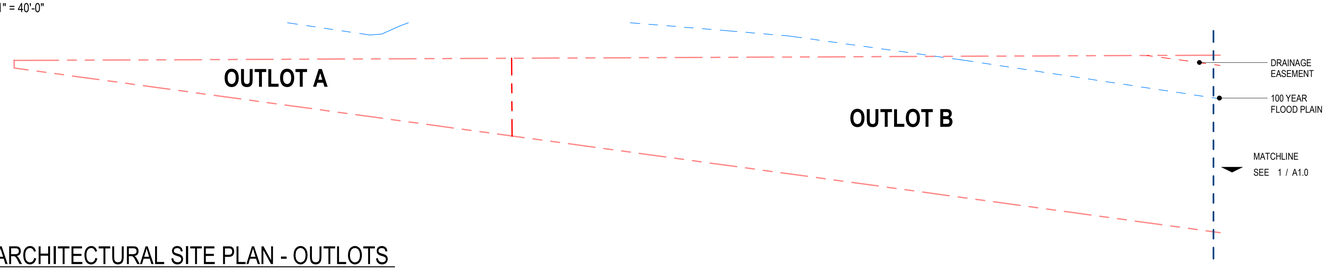
SHEET NUMBER

0.0



1 ARCHITECTURAL SITE PLAN

1" = 40'-0"



2 ARCHITECTURAL SITE PLAN - OUTLOTS

1" = 40'-0"

LEGEND

	BUILDING OVERHEAD
	LOT LINE
	100 YEAR FLOODPLAIN

0 20 40 80

PARKING CALCULATIONS

VEHICLE PARKING

COUNT	STALL TYPE	DESCRIPTION
BLDG 1		
1	ACCESSIBLE STALL	8'-0" x 19'-0" + 5'-0" AISLE
1	ACCESSIBLE STALL - EVSE	8'-0" x 19'-0" + 5'-0" AISLE
1	ACCESSIBLE STALL - VAN	8'-0" x 19'-0" + 8'-0" AISLE
51	COMPACT	7'-9" x 15'-0"
7	COMPACT - EVCS	7'-9" x 15'-0"
8	COMPACT - EVRS	7'-9" x 15'-0"
3	COMPACT - EVSE	7'-9" x 15'-0"
9	COMPACT - TANDEM	7'-9" x 15'-0"
2	STANDARD STALL, CAR SHARE	9'-0" x 19'-0"
83		
BLDG 2		
1	ACCESSIBLE STALL	8'-0" x 19'-0" + 5'-0" AISLE
1	ACCESSIBLE STALL - EVSE	8'-0" x 19'-0" + 5'-0" AISLE
1	ACCESSIBLE STALL - VAN	8'-0" x 19'-0" + 8'-0" AISLE
40	COMPACT	7'-9" x 15'-0"
8	COMPACT - EVCS	7'-9" x 15'-0"
8	COMPACT - EVRS	7'-9" x 15'-0"
2	COMPACT - EVSE	7'-9" x 15'-0"
11	STANDARD STALL	9'-0" x 19'-0"
1	STANDARD STALL - EVSE	9'-0" x 19'-0"
2	STANDARD STALL - PARALLEL, CAR SHARE	8'-0" x 23'-0"
75		
BLDG 3		
1	ACCESSIBLE STALL	8'-0" x 19'-0" + 5'-0" AISLE
1	ACCESSIBLE STALL - EVSE	8'-0" x 19'-0" + 5'-0" AISLE
1	ACCESSIBLE STALL - VAN	8'-0" x 19'-0" + 8'-0" AISLE
37	COMPACT	7'-9" x 15'-0"
7	COMPACT - EVCS	7'-9" x 15'-0"
7	COMPACT - EVRS	7'-9" x 15'-0"
2	COMPACT - EVSE	7'-9" x 15'-0"
8	STANDARD STALL	9'-0" x 19'-0"
1	STANDARD STALL - EVSE	9'-0" x 19'-0"
2	STANDARD STALL - PARALLEL, CAR SHARE	8'-0" x 23'-0"
67		
SITE		
5	ACCESSIBLE STALL	8'-0" x 19'-0" + 5'-0" AISLE
1	ACCESSIBLE STALL - EVSE	8'-0" x 19'-0" + 5'-0" AISLE
2	ACCESSIBLE STALL - VAN	8'-0" x 19'-0" + 8'-0" AISLE
126	STANDARD STALL	9'-0" x 19'-0"
17	STANDARD STALL - EVCS	9'-0" x 19'-0"
20	STANDARD STALL - EVRS	9'-0" x 19'-0"
7	STANDARD STALL - EVSE	9'-0" x 19'-0"
4	STANDARD STALL - PARALLEL	8'-0" x 23'-0"
182		
Grand total: 407		

TOTAL REQUIRED	**518,**	9-9-6, TABLE 9-3
TOTAL PROVIDED	**398,**	***9-9-6(f): 23% Reduction**
		***9 TANDEMS ARE NOT COUNTED**
COMPACT STALLS	180 STALLS (46%*)	
	**60% MAX (TABLE 9-7: SMALL CAR STALLS)*	

TYPICAL PARKING STALL SIZES, MIN. SIZES

SMALL CAR STALL:	7'-9" x 15'-0"
STANDARD STALL:	9'-0" x 19'-0"
ACCESSIBLE STALL:	8'-0" x 19'-0" + 5'-0" AISLE
ACCESSIBLE STALL VAN:	8'-0" x 19'-0" + 8'-0" AISLE

ELECTRIC VEHICLE SUMMERY

EVSE	INSTALLED DAY 1:	5% OF TOTAL
•	BLDG 1:	4
•	BLDG 2:	4
•	BLDG 3:	4
•	SITE:	10
	TOTAL:	22

EVRS	READY SPACE:	10% OF TOTAL
•	BLDG 1:	8
•	BLDG 2:	8
•	BLDG 3:	7
•	SITE:	20
	TOTAL:	43

EVCS	CAPABLE:	10% OF REMAINING
•	BLDG 1:	7
•	BLDG 2:	8
•	BLDG 3:	7
•	SITE:	17
	TOTAL:	39

PARKING SUMMARY

PHASE 1 / BLDG 3:
65,593 SF/400 = 164 Required (9-9-6, TABLE 9-3)
67 STALLS IN BUILDING + 81 SITE PARKING = 148 Total provided

PHASE 2 / BLDG 2:
72,154 SF/400 = 180 Required (9-9-6, TABLE 9-3)
75 STALLS IN BUILDING + 32 SITE PARKING = 107 Total provided

PHASE 3 / BLDG 1:
69,264 SF/400 = 174 Required (9-9-6, TABLE 9-3)
74 STALLS IN BUILDING + 69 SITE PARKING = 143 Total provided

BICYCLE PARKING SUMMARY

PHASE 1 / BLDG 3:		
SHORT TERM:	12	
LONG TERM:	36	
PHASE 2 / BLDG 2:		
SHORT TERM:	12	
LONG TERM:	36	
PHASE 3 / BLDG 1:		
SHORT TERM:	12	
LONG TERM:	36	

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PROJECT

1855 S. FLATIRON COURT

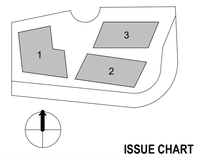
1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA
92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

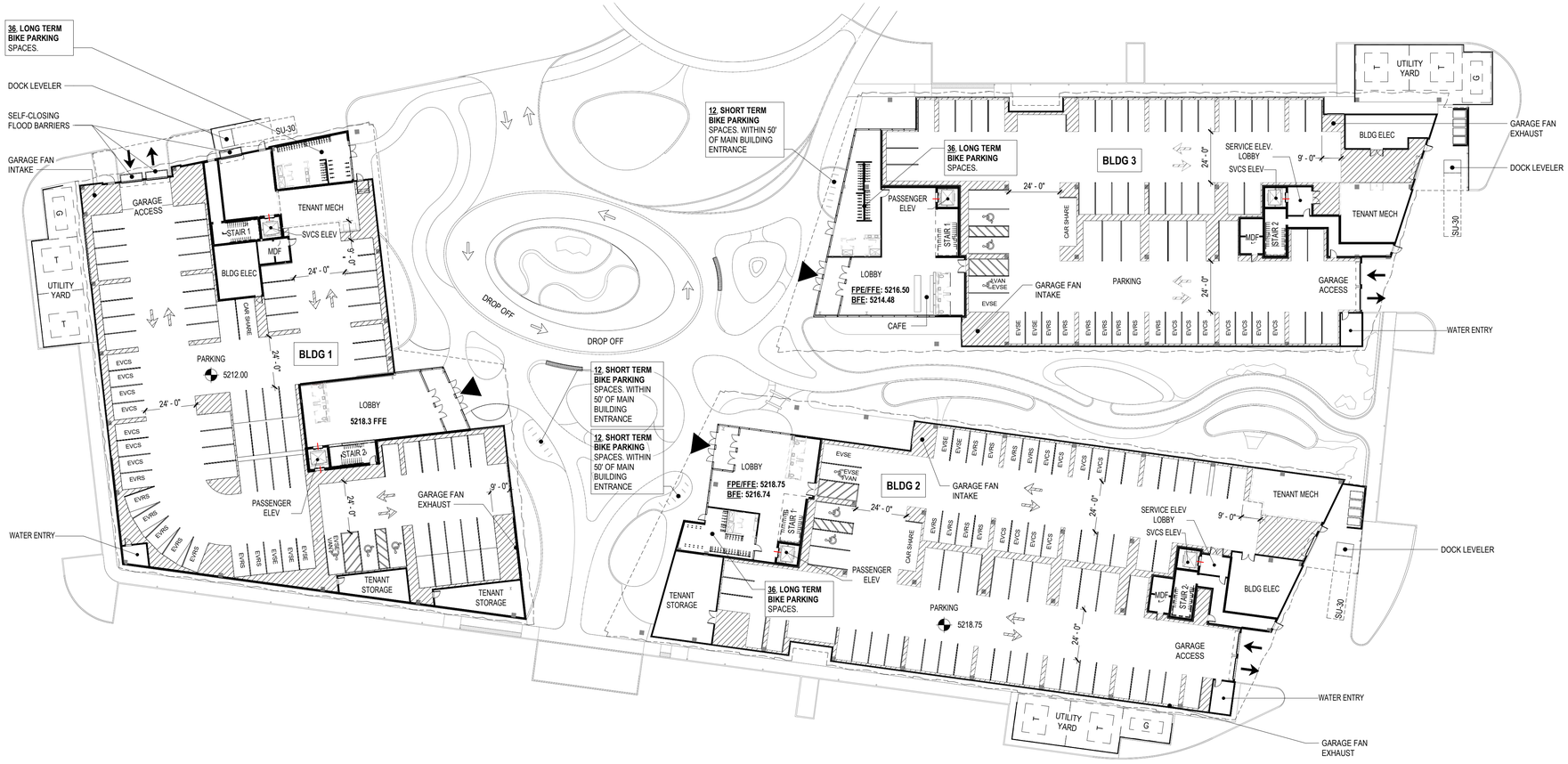
Job Number 222308

TITLE

ARCHITECTURAL SITE PLAN

SHEET NUMBER

A1.0



1 LEVEL 01 - FLOOR PLAN
1" = 30'-0"

LEGEND

BUILDING OVERHEAD

0 15' 30' 60

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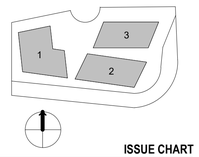

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	SITE REVIEW #1	07.05.2024

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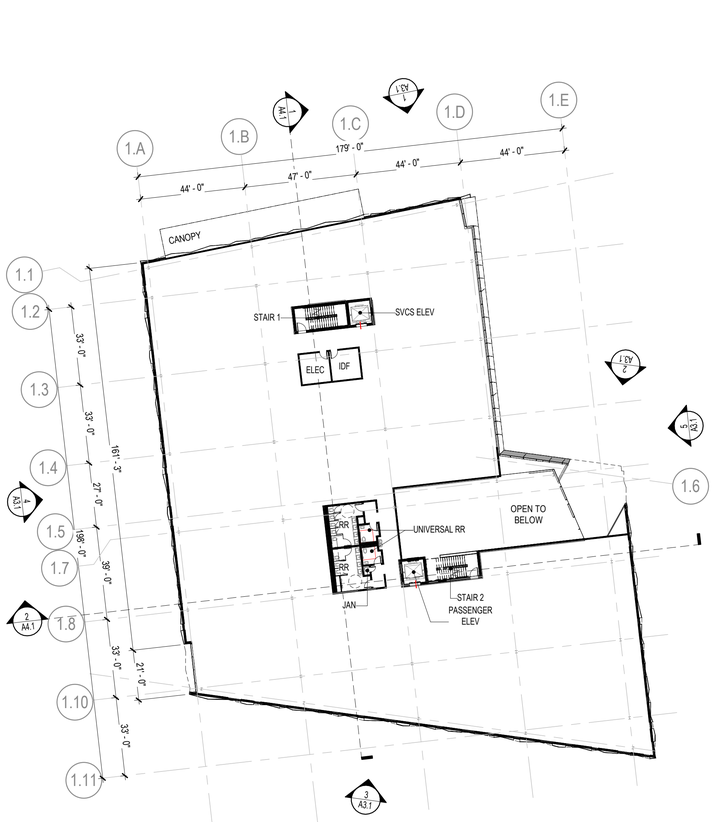
TITLE

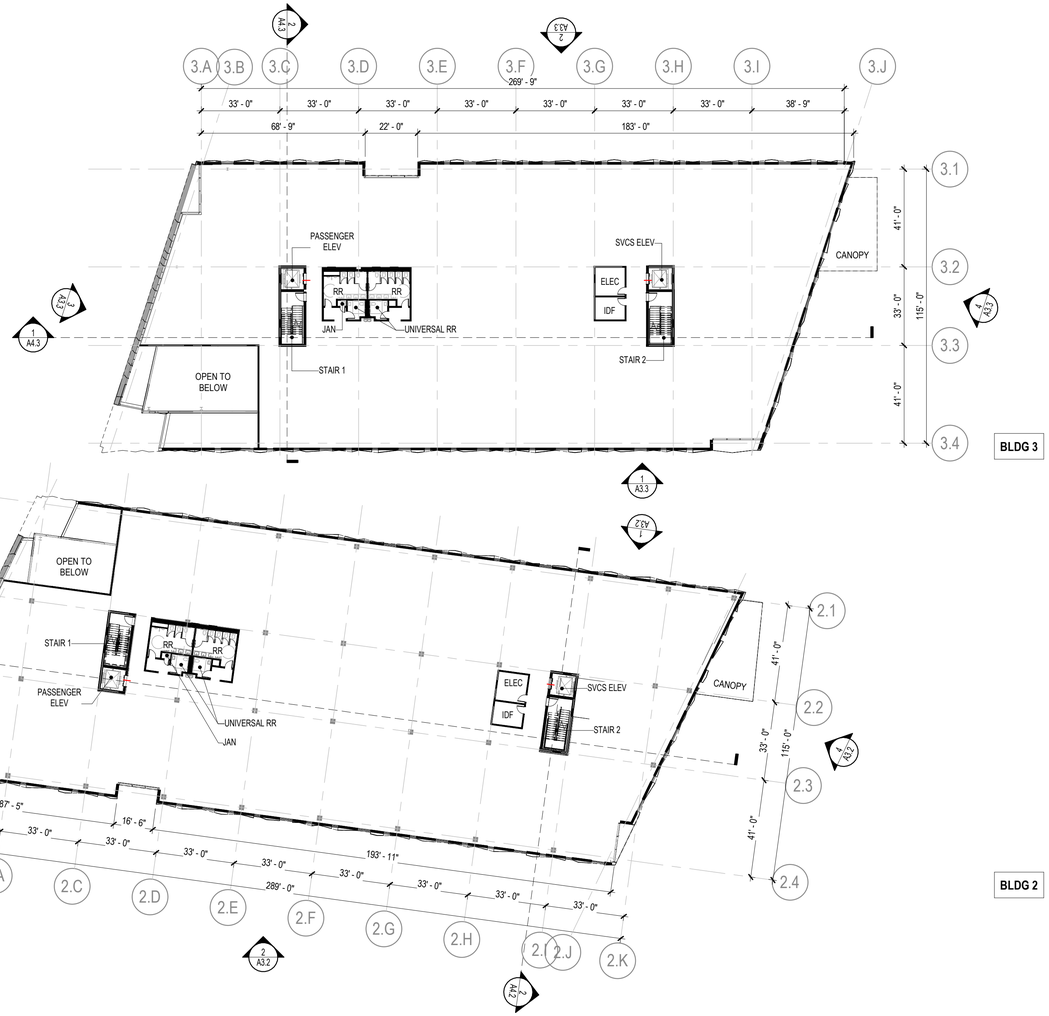
LEVEL 1 - FLOOR PLANS

SHEET NUMBER

A1.1



BLDG 1



BLDG 2

BLDG 3

1 LEVEL 02 - FLOOR PLAN
1" = 30'-0"

0 15' 30' 60

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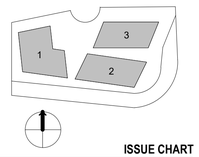

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	SITE REVIEW #1	07.05.2024

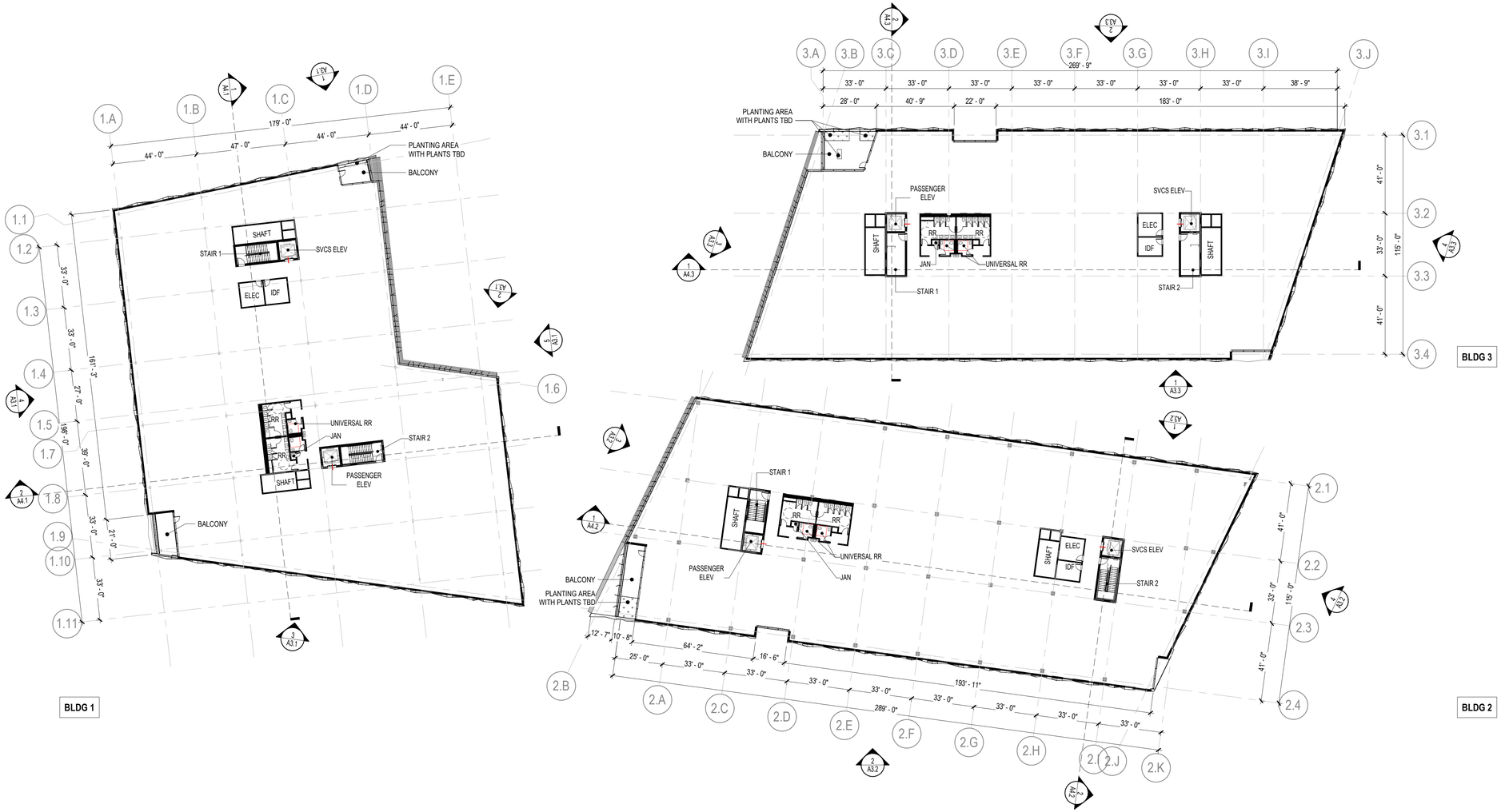
Job Number 222308

TITLE

LEVEL 2 - FLOOR PLANS

SHEET NUMBER

A1.2



1 LEVEL 03 - FLOOR PLAN
1" = 30'-0"

0 15' 30' 60

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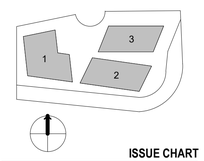

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	SITE REVIEW #3	11.27.2024
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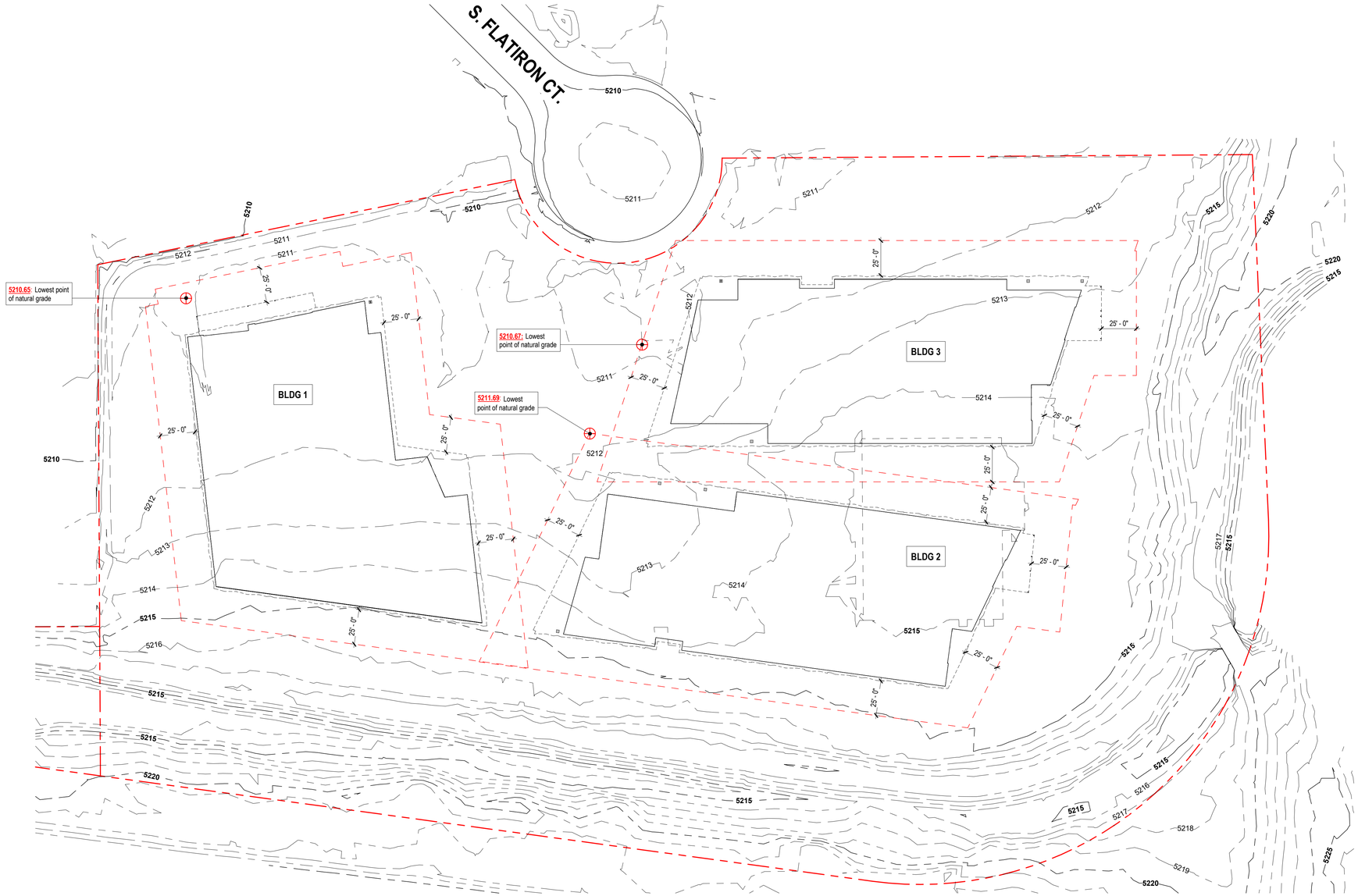
Job Number 222308

TITLE

LEVEL 3 - FLOOR PLANS

SHEET NUMBER

A1.3



1 HEIGHT MEASUREMENT -EXHIBIT
1" = 40'-0"

0 15' 30' 60

LEGEND

	BUILDING HEIGHT: • 9-7-5(b): Lowest point of natural grade within 25' horizontal of the tallest side of the structure to the uppermost point of the roof or structure.
	BUILDING OVERHEAD OUTLINE
	LOT LINE

HEIGHT MEASUREMENT NOTES

- TOPOGRAPHY INFORMATION PROVIDED FROM SURVEY DATED: 11/3/2023.

LOWEST POINT OF NATURAL GRADE: 9-7-5(b)

BLDG 1: 5210.65

BLDG 2: 5211.69

BLDG 3: 5210.67

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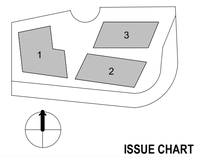

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	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024

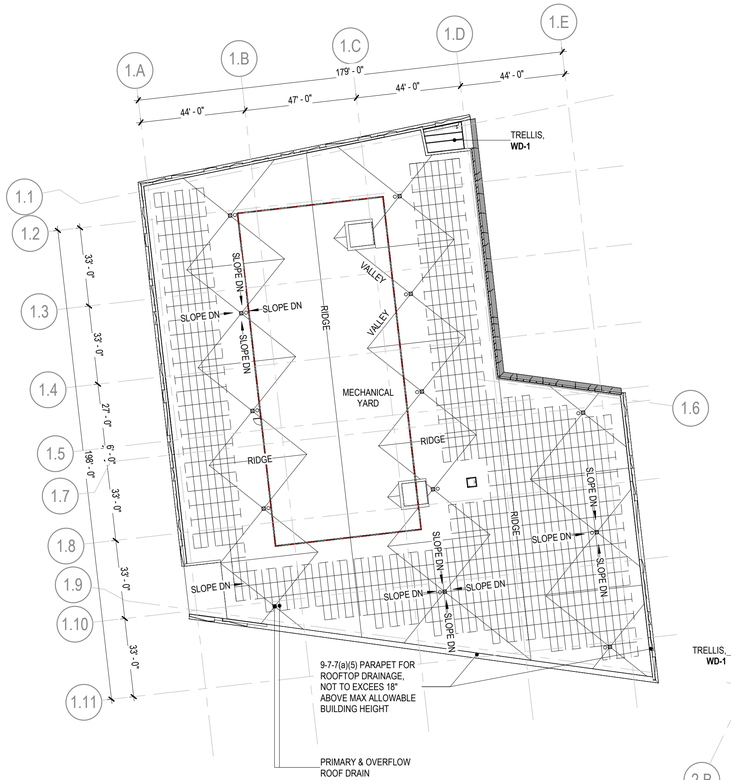
Job Number 222308

TITLE

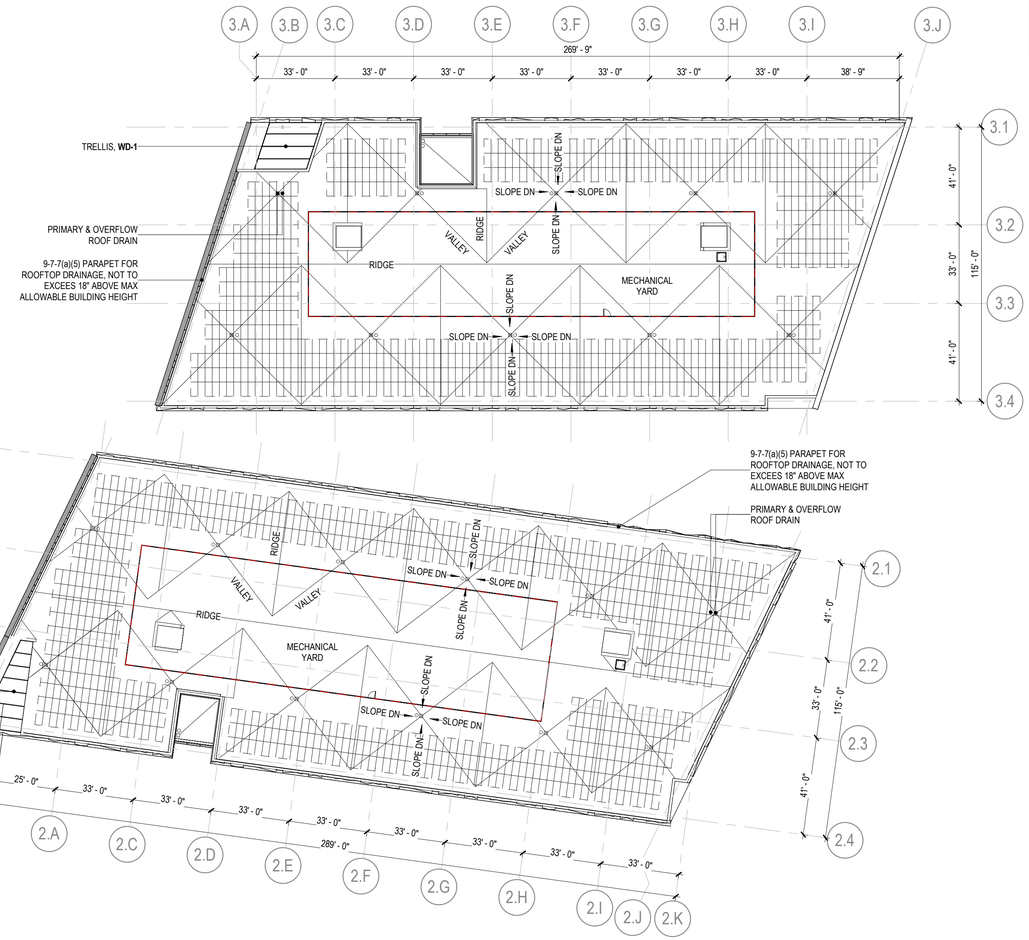
HEIGHT MEASURMENT

SHEET NUMBER

A1.4



BLDG 1



BLDG 2

BLDG 3

LEGEND

9-7-7(a)(3)
- MECHANICAL EQUIPMENT, CONSIDERED CUMULATIVELY, MAY NOT COVER MORE THAN 25% OF THE ROOF AREA OF THE BUILDING

2020 COBEC, C406 SOLAR READINESS:
- THE SOLAR ZONE SHALL COVER NOT LESS THAN 40% OF THE TOTAL ROOF AREA, AS MEASURED BY THE AREA OF THE ROOF PLANES.

ROOF GENERAL NOTES

- ALL ROOF DRAINAGE SLOPES DOWN 1/4" / 12" TOWARDS PRIMARY AND OVERFLOW DRAINS.
- ALL PARAPETS, NECCESSARY TO ACCOMODATE ROOFTOP DRAINAGE, DO NOT EXCEED 18" ABOVE MAX ALLOWABLE BUILDING HEIGHT PER 9-7-7(a)(5).

BLDG 1	BLDG 2	BLDG 3
ROOF AREA: 35,815 SQFT	ROOF AREA: 35,863 SQFT	ROOF AREA: 32,993 SQFT
MECHANICAL SCREENING: 8,711 (24.32%)	MECHANICAL SCREENING: 8,960 (24.98%)	MECHANICAL SCREENING: 8,240 (24.97%)
SOLAR READINESS ZONE: 14,545 (40.61%)	SOLAR READINESS ZONE: 14,438 (41%)	SOLAR READINESS ZONE: 13,246 (40.14%)

1 ROOF LEVEL - FLOOR PLAN
1" = 30'-0"

0 20 40 80

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PROJECT

1855 S. FLATIRON COURT

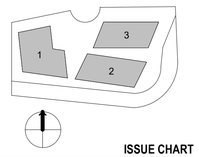
1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA 92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

ROOF LEVEL - FLOOR PLANS

SHEET NUMBER

A2.0

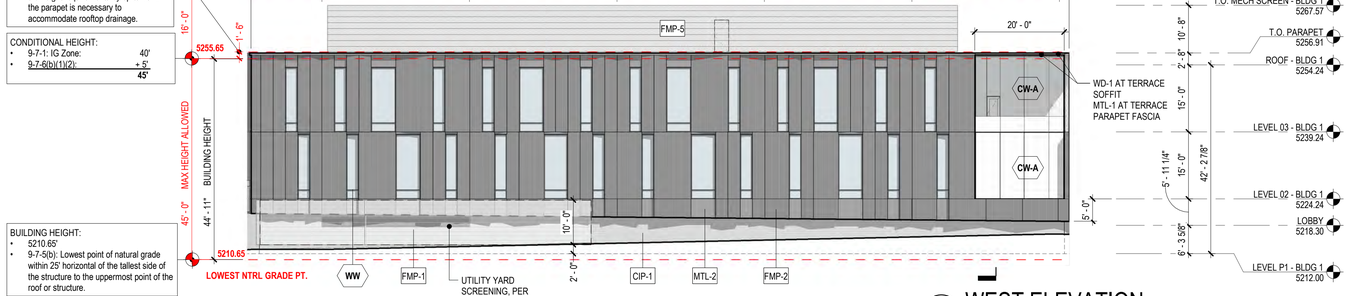
5 EAST ELEVATION
1/16" = 1'-0"

7 BLDG 1 - TRASH ENCLOSURE, NORTH
3/32" = 1'-0"

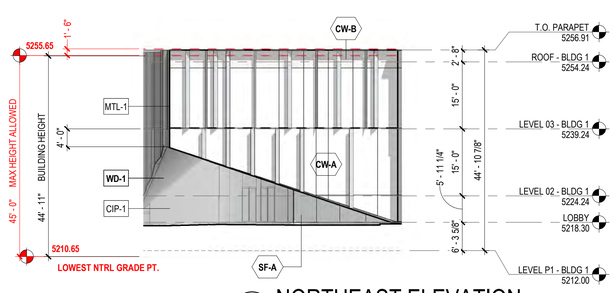
8 BLDG 1 - TRASH ENCLOSURE, SOUTH
3/32" = 1'-0"

6 BLDG 1 - TRASH ENCLOSURE, EAST
3/32" = 1'-0"

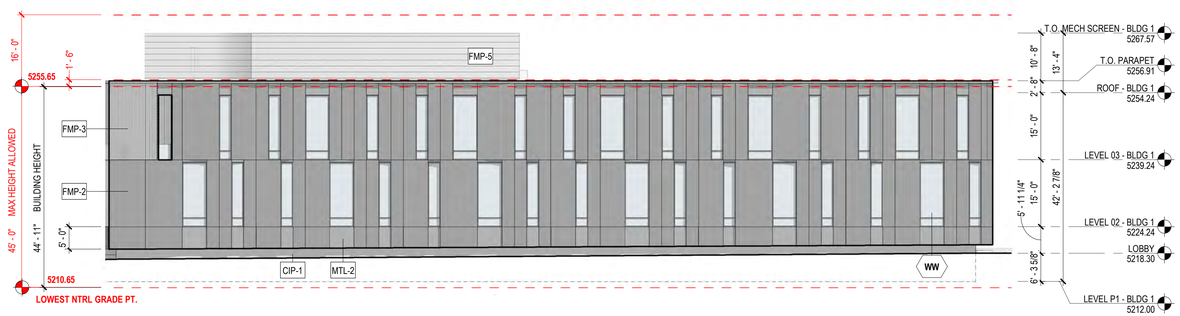
9 BLDG 1 - TRASH ENCLOSURE, WEST
3/32" = 1'-0"



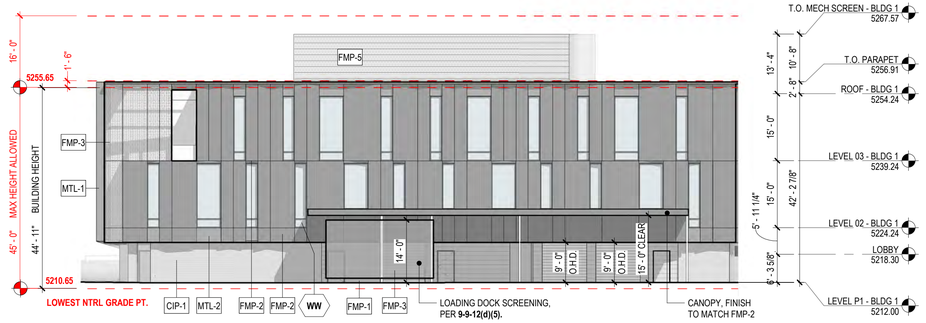
4 WEST ELEVATION
1/16" = 1'-0"



2 NORTHEAST ELEVATION
1/16" = 1'-0"



3 SOUTH ELEVATION
1/16" = 1'-0"



1 NORTH ELEVATION
1/16" = 1'-0"

0 8' 16' 32'

ELEVATION LEGEND

VERTICAL GLAZING ASSEMBLIES

	WW	WINDOW WALL - VISION GLASS
	CW-A	CURTAIN WALL - VISION GLASS
	CW-B	CURTAIN WALL - SHADOW BOX
	SF-A	STOREFRONT - VISION GLASS
	FG-1	FROSTED GLASS (AT CURTAIN WALL FINS)

FINISH

	CIP-1	BOARD FORM CAST-IN-PLACE CONCRETE (AT LEVEL 1)
	FMP-1	FORMED METAL PANEL (AT LEVEL 1 AND UTILITY YARD SCREEN)
	FMP-2	FORMED METAL PANEL (AT LEVEL 2 AND 3)
	FMP-3	FORMED METAL PANEL (PERFORATED) (AT TERRACE AND LOADING SCREEN)
	FMP-5	FORMED METAL PANEL (PERFORATED) (AT MECHANICAL PENTHOUSE SCREEN)
	MTL-1	ALUMINUM METAL PLATE
	MTL-2	FORMED METAL PANEL (FLAT) (AT LEVEL 2 AND 3 REVEALS)
	WD-1	WOOD, ACCOYA SOFFIT (AT LEVEL 1 SOFFITS)

9-2-14(h)(B)(iii) - BUILDING DESIGN, TRANSPARENCY

PERCENTAGE OF GLAZING	NORTH / NORTHEAST	EAST	SOUTH	WEST
LEVEL 03	46%	57%	94%	37%
LEVEL 02	39%	62%	31%	37%
LEVEL 01	4%	16%	0%	0%

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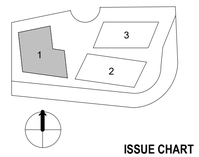
KEYPLAN



ISSUE CHART

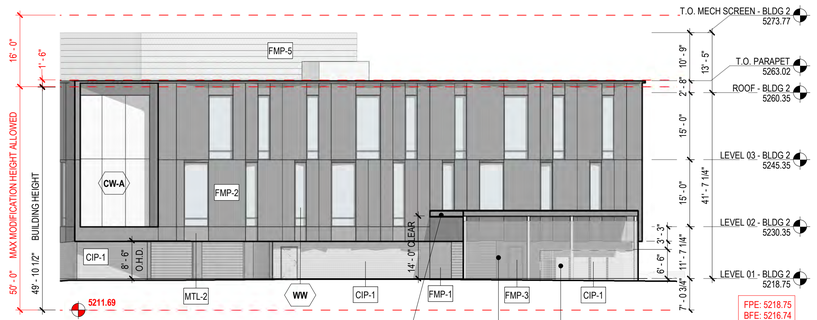
MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024
	Job Number	222308

TITLE

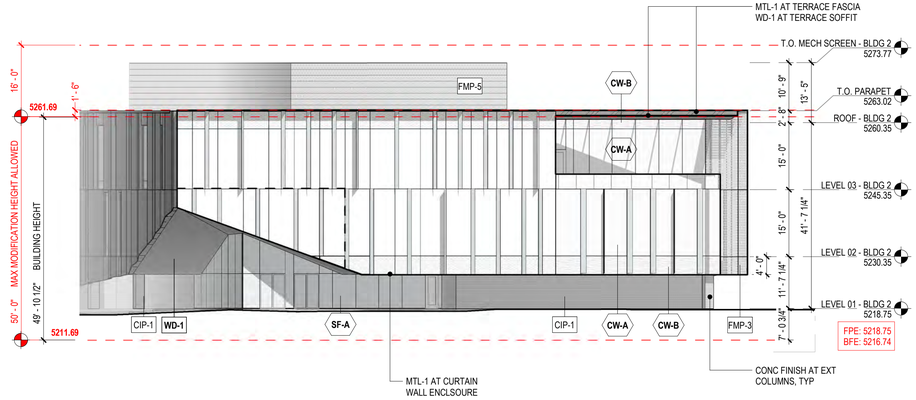
ARCHITECTURAL ELEVATIONS - BLDG 1

SHEET NUMBER

A3.1



4 EAST ELEVATION
1/16" = 1'-0"



3 WEST ELEVATION
1/16" = 1'-0"

ELEVATION LEGEND

VERTICAL GLAZING ASSEMBLIES

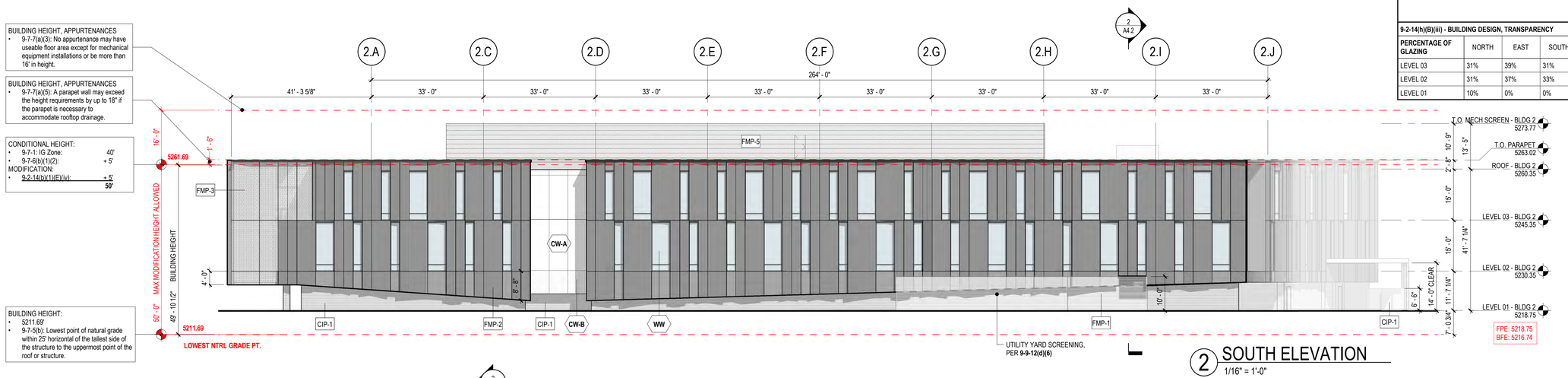
	WW	WINDOW WALL - VISION GLASS
	CW-A	CURTAIN WALL - VISION GLASS
	CW-B	CURTAIN WALL - SHADOW BOX
	SF-A	STOREFRONT - VISION GLASS
	FG-1	FROSTED GLASS (AT CURTAIN WALL FINS)

FINISH

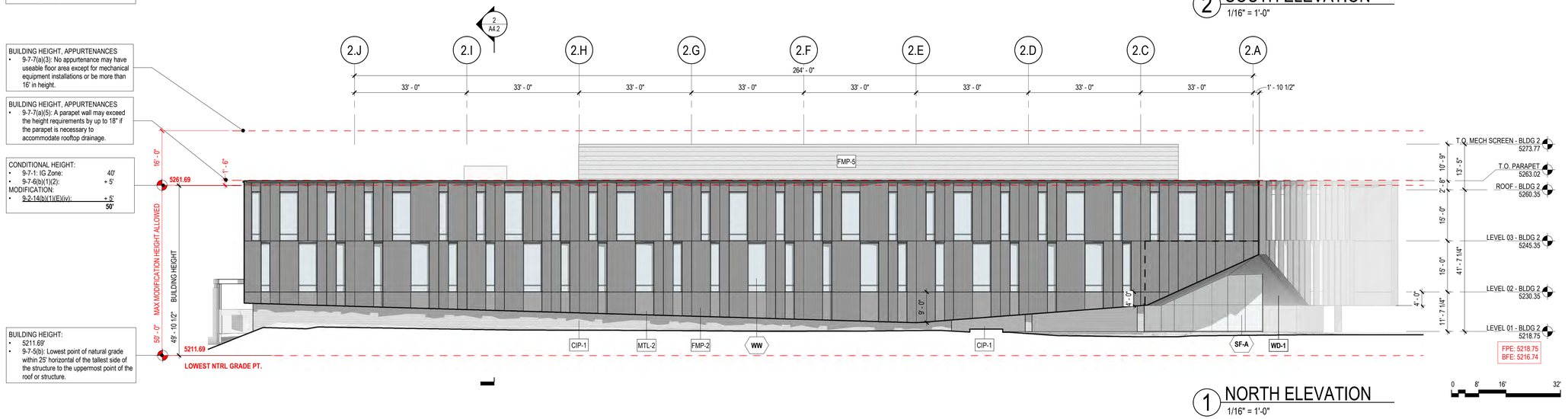
	CIP-1	BOARD FORM CAST-IN-PLACE CONCRETE (AT LEVEL 1)
	FMP-1	FORMED METAL PANEL (AT LEVEL 1 AND UTILITY YARD SCREEN)
	FMP-2	FORMED METAL PANEL (AT LEVEL 2 AND 3)
	FMP-3	FORMED METAL PANEL (PERFORATED) (AT TERRACE AND LOADING SCREEN)
	FMP-5	FORMED METAL PANEL (PERFORATED) (AT MECHANICAL PENTHOUSE SCREEN)
	MTL-1	ALUMINUM METAL PLATE
	MTL-2	FORMED METAL PANEL (AT LEVEL 2 AND 3 REVEALS)
	WD-1	WOOD, ACCOYA SOFFIT (AT LEVEL 1 SOFFITS)

9-2-14(h)(B)(iii) - BUILDING DESIGN, TRANSPARENCY

PERCENTAGE OF GLAZING	NORTH	EAST	SOUTH	WEST
LEVEL 03	31%	39%	31%	91%
LEVEL 02	31%	37%	33%	93%
LEVEL 01	10%	0%	0%	33%



2 SOUTH ELEVATION
1/16" = 1'-0"



1 NORTH ELEVATION
1/16" = 1'-0"

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BioMed Realty

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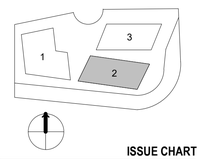
92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

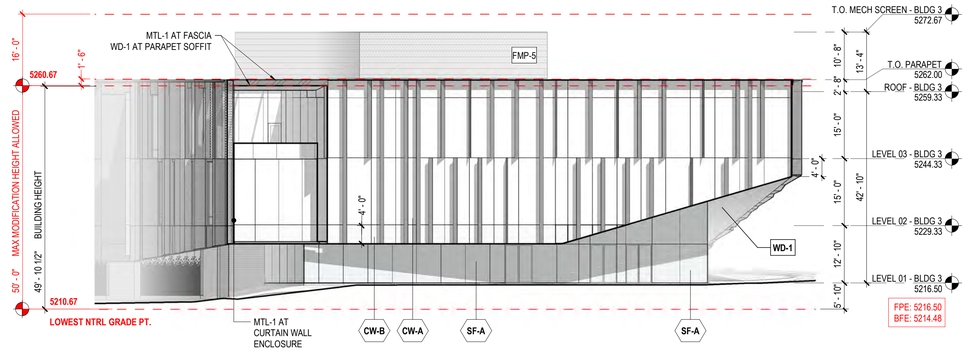
TITLE

ARCHITECTURAL ELEVATIONS - BLDG 2

SHEET NUMBER

A3.2

4 EAST ELEVATION
1/16" = 1'-0"



3 WEST ELEVATION
1/16" = 1'-0"

BUILDING HEIGHT, APPURTENANCES:
- 9-7-7(a)(3): No appurtenance may have useable floor area except for mechanical equipment installations or be more than 16' in height.

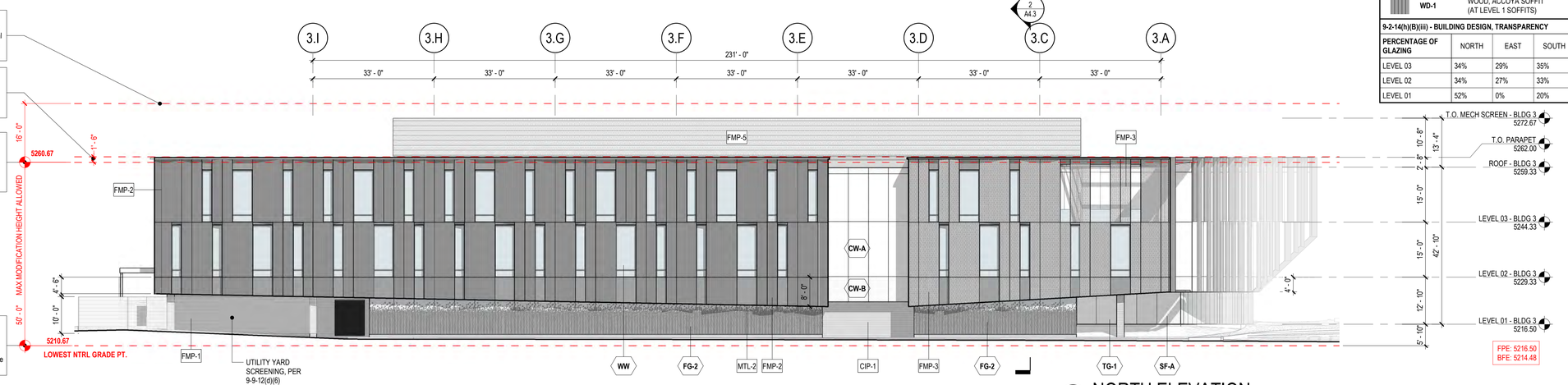
BUILDING HEIGHT, APPURTENANCES:
- 9-7-7(a)(5): A parapet wall may exceed the height requirements by up to 18" if the parapet is necessary to accommodate rooftop drainage.

CONDITIONAL HEIGHT:
- 9-7-1: IG Zone: 40'
- 9-7-6(b)(1)(2): + 5'

MODIFICATION:
- 9-2-14(b)(1)(E)(iv): + 5'

50'

BUILDING HEIGHT:
- 5210.67'
- 9-7-5(b): Lowest point of natural grade within 25' horizontal of the tallest side of the structure to the uppermost point of the roof or structure.



2 NORTH ELEVATION
1/16" = 1'-0"

BUILDING HEIGHT, APPURTENANCES:
- 9-7-7(a)(3): No appurtenance may have useable floor area except for mechanical equipment installations or be more than 16' in height.

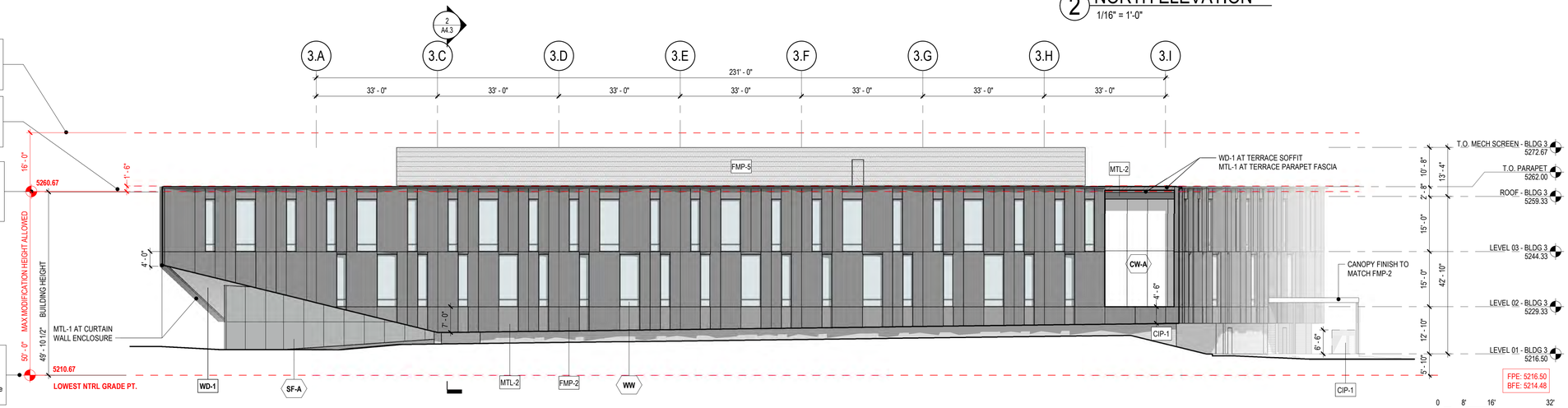
BUILDING HEIGHT, APPURTENANCES:
- 9-7-7(a)(5): A parapet wall may exceed the height requirements by up to 18" if the parapet is necessary to accommodate rooftop drainage.

CONDITIONAL HEIGHT:
- 9-7-1: IG Zone: 40'
- 9-7-6(b)(1)(2): + 5'

MODIFICATION:
- 9-2-14(b)(1)(E)(iv): + 5'

50'

BUILDING HEIGHT:
- 5210.67'
- 9-7-5(b): Lowest point of natural grade within 25' horizontal of the tallest side of the structure to the uppermost point of the roof or structure.



1 SOUTH ELEVATION
1/16" = 1'-0"

ELEVATION LEGEND

VERTICAL GLAZING ASSEMBLIES

	WW	WINDOW WALL - VISION GLASS
	CW-A	CURTAIN WALL - VISION GLASS
	CW-B	CURTAIN WALL - SHADOW BOX
	SF-A	STOREFRONT - VISION GLASS
	FG-1	FROSTED GLASS (AT CURTAIN WALL FINS)
	FG-2	STOREFRONT - GLASS WITH DECORATIVE FRIT (AT PARKING/ NORTH OF L1)
	TG-1	STOREFRONT - GLASS WITH TRANSLUSCENT INTERLAYER (AT PARKING/ NORTH OF L1)

FINISH

	CIP-1	BOARD FORM CAST-IN-PLACE CONCRETE (AT LEVEL 1)
	FMP-1	FORMED METAL PANEL (AT LEVEL 1 AND UTILITY YARD SCREEN)
	FMP-2	FORMED METAL PANEL (AT LEVEL 2 AND 3)
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	MTL-1	ALUMINUM METAL PLATE
	MTL-2	ALUMINUM METAL PANEL (FLAT) (AT LEVEL 2 AND 3 REVEALS)
	WD-1	WOOD, ACCOYA SOFFIT (AT LEVEL 1 SOFFITS)

9-2-14(h)(B)(iii) - BUILDING DESIGN, TRANSPARENCY

PERCENTAGE OF GLAZING	NORTH	EAST	SOUTH	WEST
LEVEL 03	34%	29%	35%	91%
LEVEL 02	34%	27%	33%	95%
LEVEL 01	52%	0%	20%	67%

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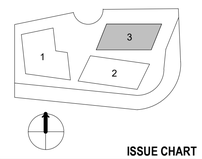
KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

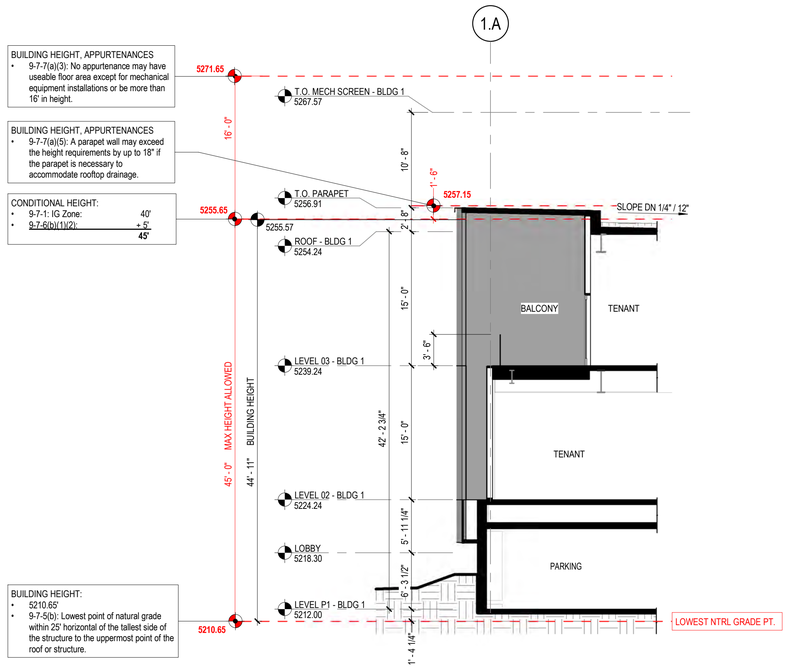
Job Number 222308

TITLE

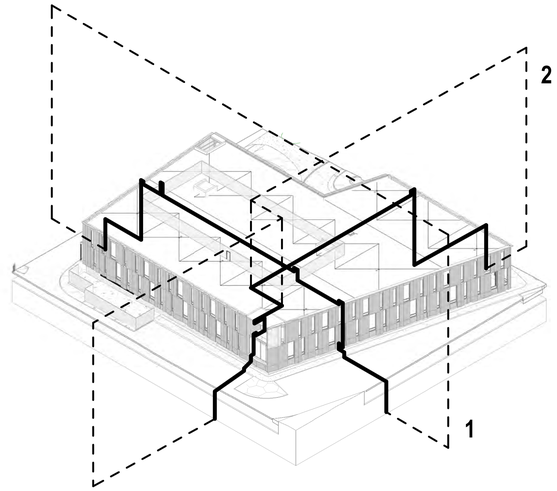
ARCHITECTURAL ELEVATIONS - BLDG 3

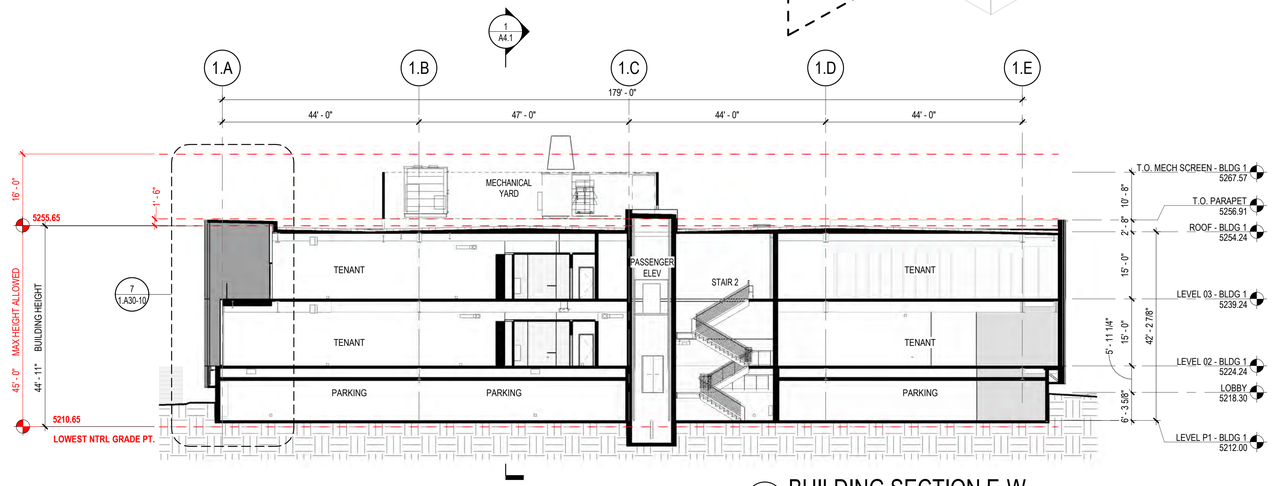
SHEET NUMBER

A3.3



3 WALL SECTION - BLDG 1
1/8" = 1'-0"





2 BUILDING SECTION E-W
1/16" = 1'-0"

1 BUILDING SECTION N-S
1/16" = 1'-0"

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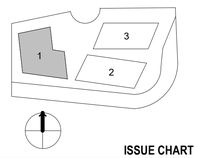

ISSUE CHART

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	SITE REVIEW #3	11.27.2024
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	SITE REVIEW #1	07.05.2024

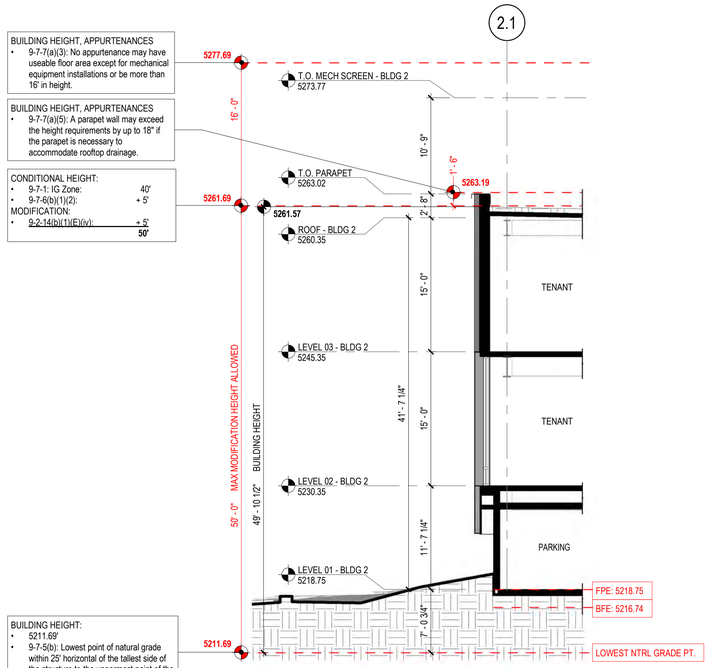
Job Number 222308

TITLE

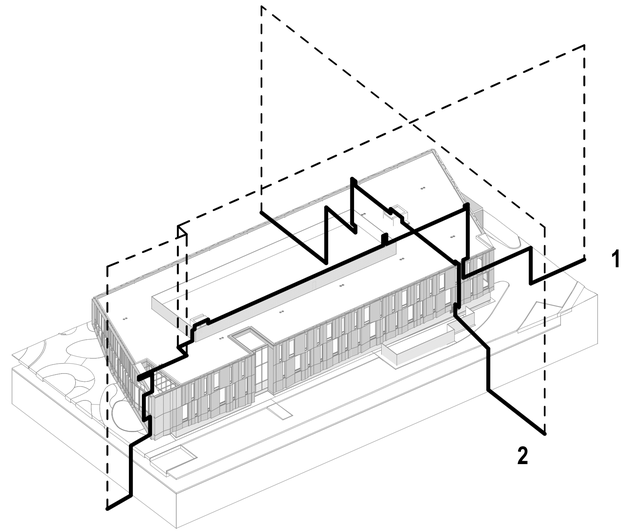
ARCHITECTURAL BUILDING SECTIONS - BLDG 1

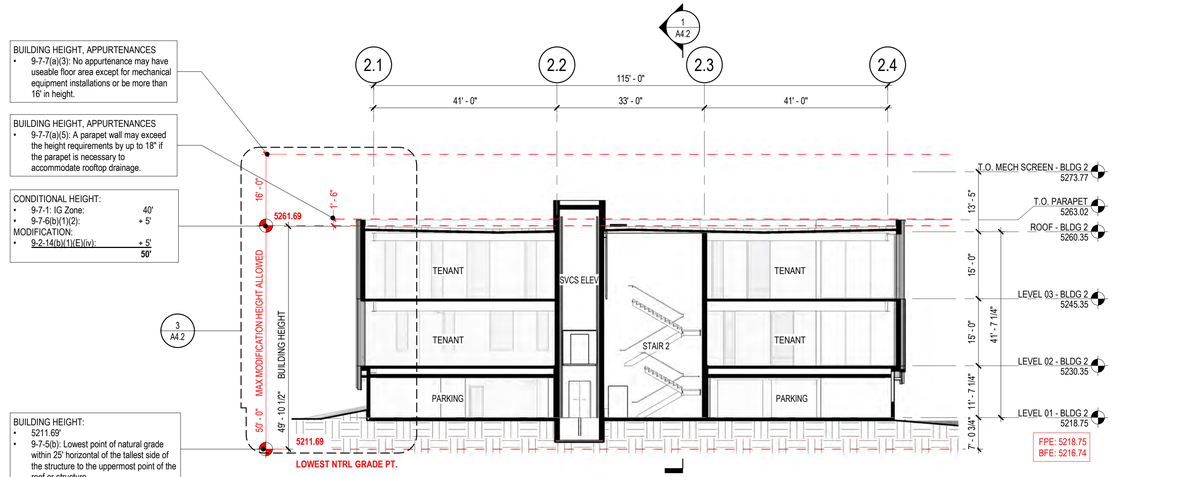
SHEET NUMBER

A4.1

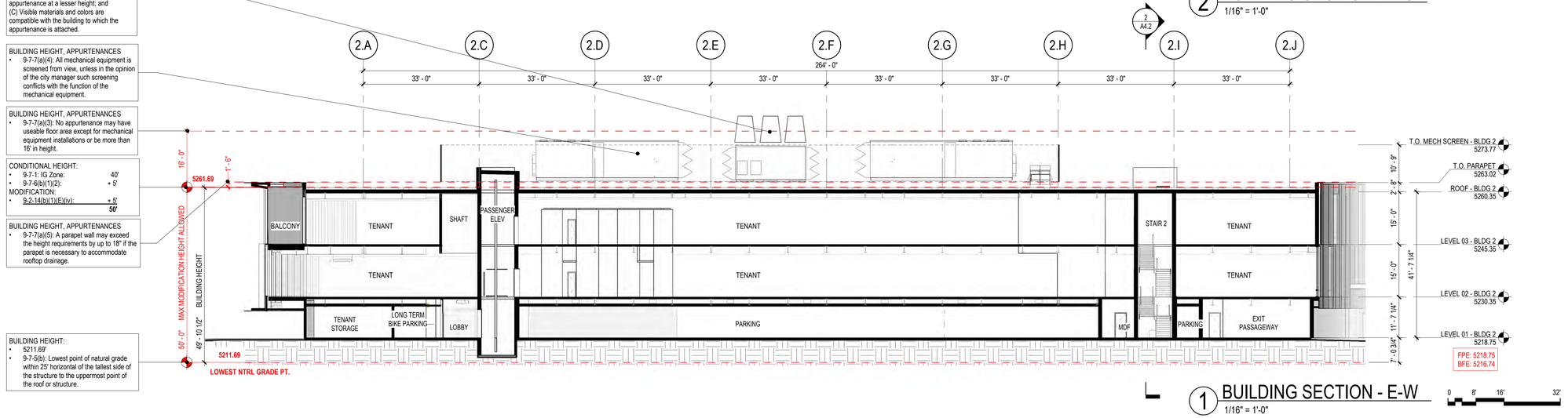


3 WALL SECTION - BLDG 2
1/8" = 1'-0"





2 BUILDING SECTION - N-S
1/16" = 1'-0"



1 BUILDING SECTION - E-W
1/16" = 1'-0"

0 8' 16' 32'

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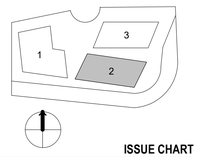
KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

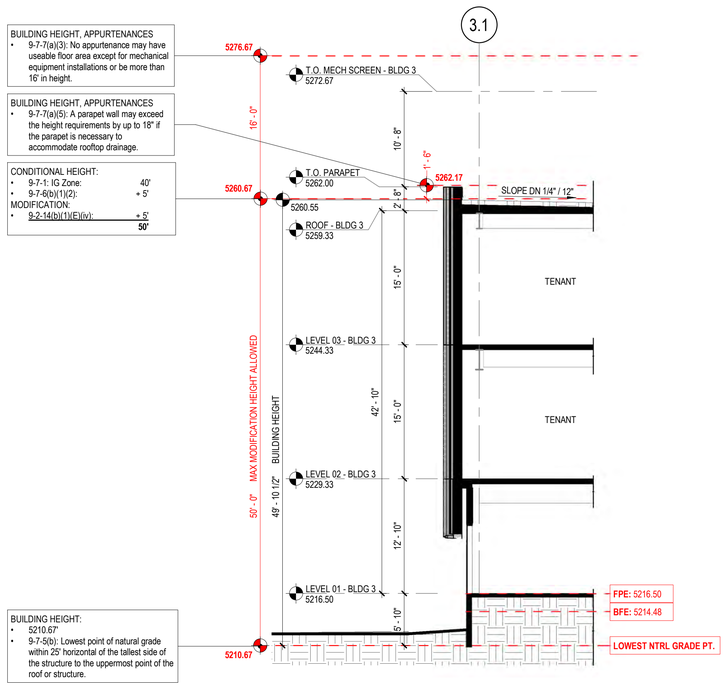
Job Number 222308

TITLE

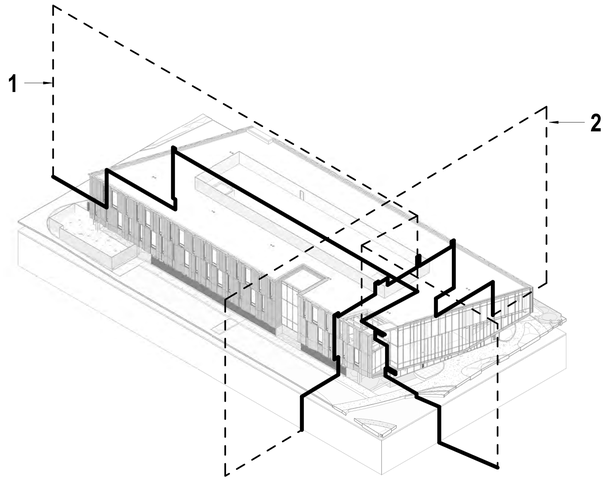
ARCHITECTURAL BUILDING SECTIONS - BLDG 2

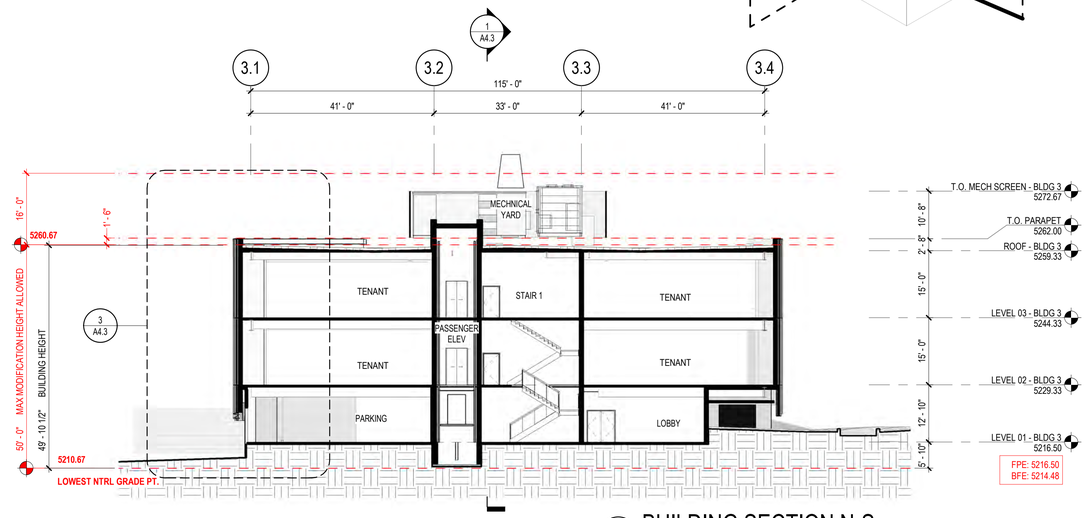
SHEET NUMBER

A4.2

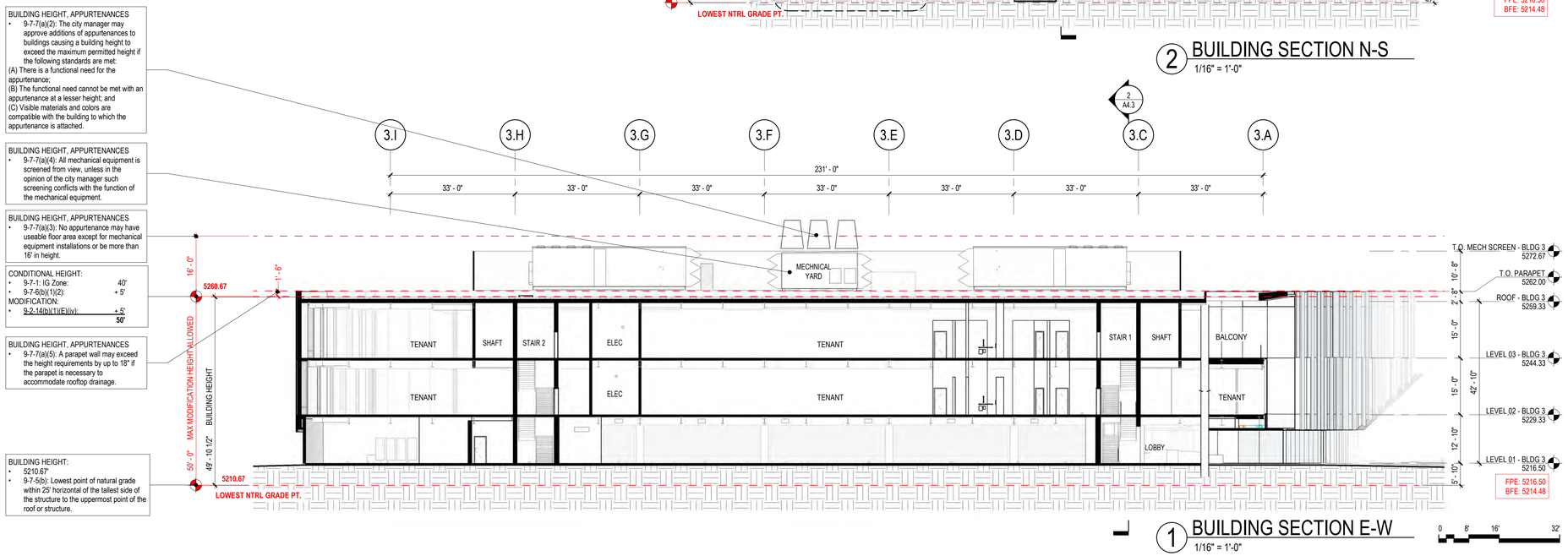


3 WALL SECTION - BLDG 3
1/8" = 1'-0"





2 BUILDING SECTION N-S
1/16" = 1'-0"



1 BUILDING SECTION E-W
1/16" = 1'-0"

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MEP
WB ENGINEERS + CONSULTANTS
1801 California Street, 24th Floor, Denver, CO 80202
LANDSCAPE
PERKINS&WILL
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PROJECT

1855 S. FLATIRON COURT

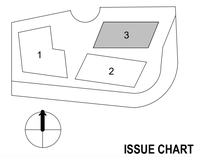
1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA 92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
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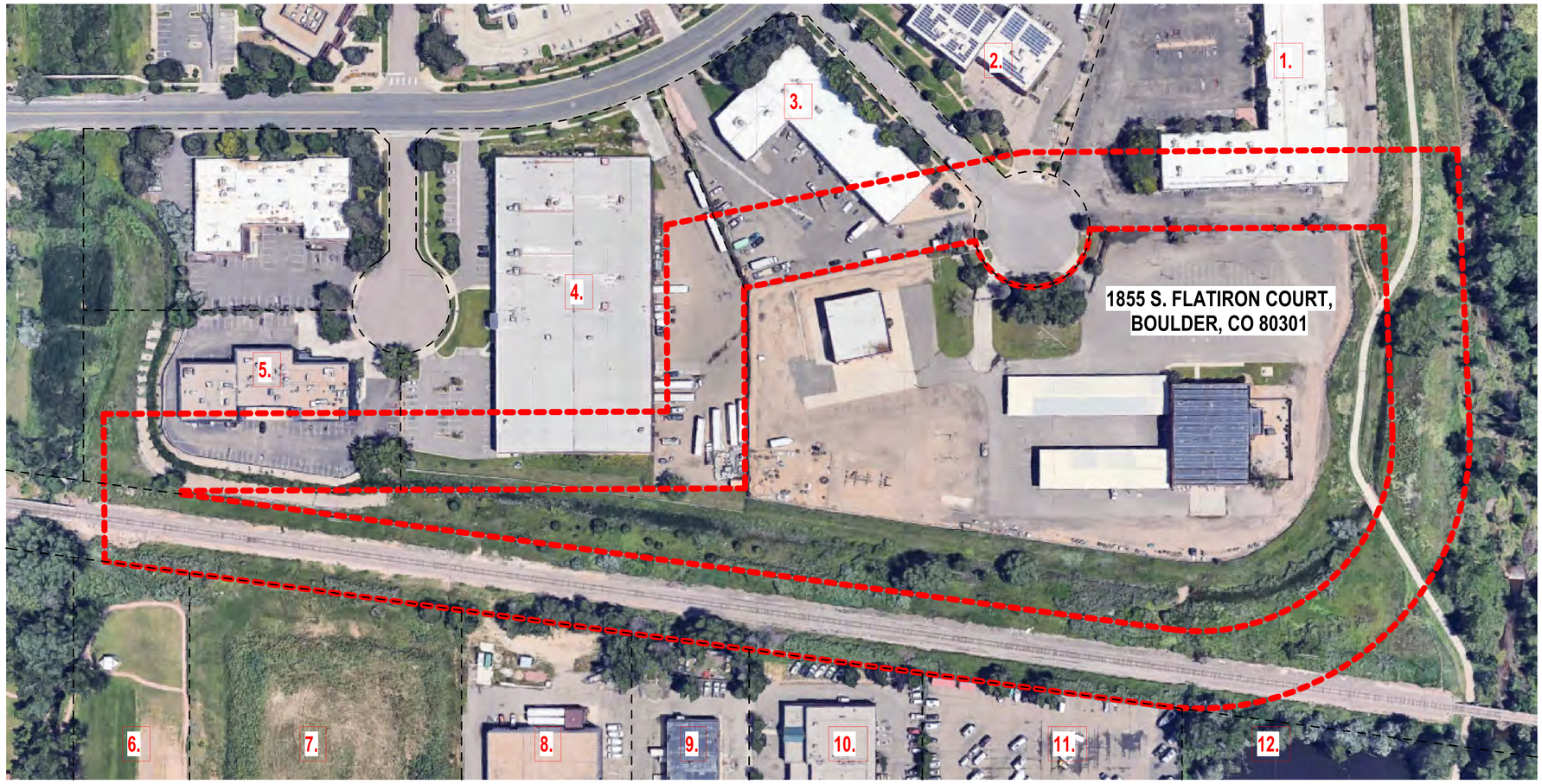
Job Number 222308

TITLE

ARCHITECTURAL BUILDING SECTIONS - BLDG 3

SHEET NUMBER

A4.3



1 PROXIMIAL BUILDINGS
1" = 80'-0"

1. 1880 S. FLATIRON CT.: **15'**

2. 1898 S. FLATIRON CT.: **22'**

3. 1930 CENTRAL AVE.: **15'**

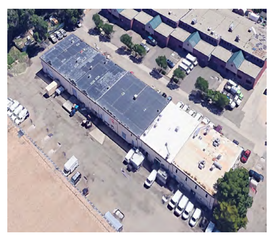
4. 1880 S. 57TH CT.: **23'**

5. 1885 S. 57TH CT.: **29'**

6. 1880 S. FLATIRON CT.: **20'**

7. 5675 ARAPAHOE AVE.: *PROPOSED:* **45'**

8. 5717 ARAPAHOE AVE.: **23'**



9. 5741 ARAPAHOE AVE.: **20'**

10. 5757 ARAPAHOE AVE.: **25'**

11. 5815 ARAPAHOE AVE.: **15'**

12. 5875 ARAPAHOE AVE.: **50'**

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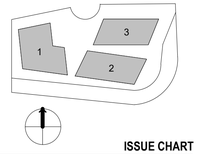
92121

KEYPLAN



ISSUE CHART

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Job Number 222308

TITLE

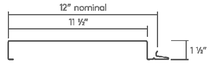
PROXIMAL BUILDINGS

SHEET NUMBER

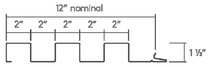
A5.6

TYP WINDOW WALL SECTION AXO

FMP-5: FORMED METAL PANEL

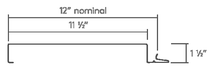


FMP-2: FORMED METAL PANEL

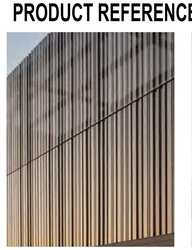


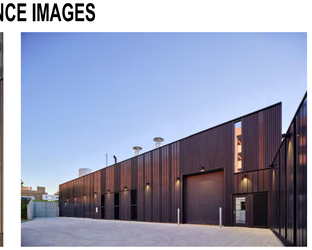
CIP-1: BOARD FORM CONCRETE

FMP-1: FORMED METAL PANEL



PRODUCT REFERENCE IMAGES





TYP CURTAIN WALL SECTION AXO

FG-1: FROSTED GLASS FINS
LAMINATED TEMPERED
LOW IRON GLASS W/
TRANSLUCENT INTERLAYER

CW-A: CURTAIN WALL - VISION GLASS

REFLECTED COLOR

TRANSMITTED COLOR

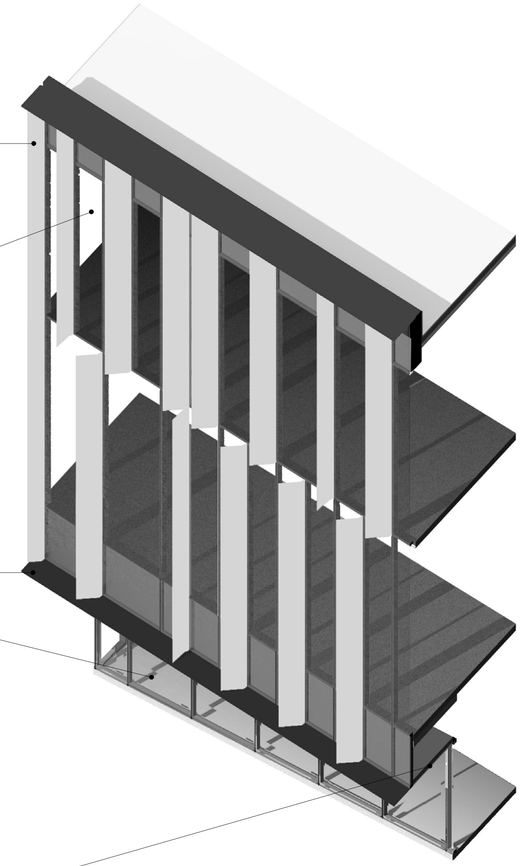
MTL-1: ALUMINUM METAL PLATE

SF-A: STOREFRONT - VISION GLASS

REFLECTED COLOR

TRANSMITTED COLOR

WD-1: WOOD, ACCOYA SOFFIT



PRODUCT REFERENCE IMAGES

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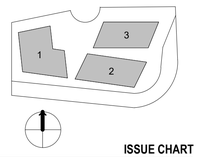
KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
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Job Number 222308

TITLE

MATERIAL EXAMPLES

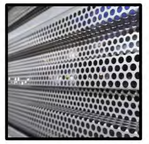
SHEET NUMBER

A6.0

VERTICAL GLAZING ASSEMBLIES

	WW	WINDOW WALL - VISION GLASS
	CW-A	CURTAIN WALL - VISION GLASS
	CW-B	CURTAIN WALL - SHADOW BOX
	SF-A	STOREFRONT - VISION GLASS
	FG-1	FROSTED GLASS (AT CURTAIN WALL FINS)
	FG-2	STOREFRONT - GLASS WITH DECORATIVE FRIT
	TG-1	STOREFRONT - GLASS WITH TRANSLUSCENT INTERLAYER

FINISH

	CIP-1	BOARD FORM CAST-IN-PLACE CONCRETE (AT LEVEL 1)
	FMP-1	FORMED METAL PANEL (AT LEVEL 1 AND UTILITY YARD SCREEN)
	FMP-2	FORMED METAL PANEL (AT LEVEL 2 AND 3)
	FMP-3	FORMED METAL PANEL (PERFORATED) (AT TERRACE AND LOADING SCREEN)
	FMP-5	FORMED METAL PANEL (PERFORATED) (AT MECHANICAL PENTHOUSE SCREEN)
	MTL-1	ALUMINUM METAL PLATE
	MTL-2	ALUMINUM METAL PANEL (FLAT) (AT LEVEL 2 AND 3 REVEALS)
	WD-1	WOOD, ACCOYA SOFFIT (AT LEVEL 1 SOFFITS)

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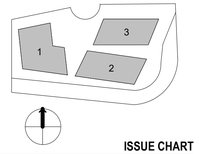
KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024

Job Number 222308

TITLE

MATERIAL BOARD

SHEET NUMBER

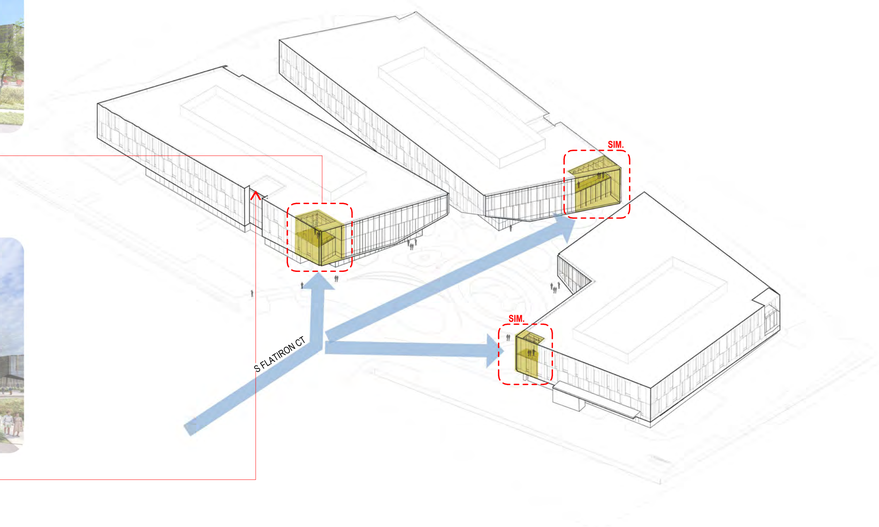
A6.1

TOP-FLOOR SETBACK & TERRACE

1. PERFORATED PANELS AND OVERHEAD TRELLIS DEFINE TERRACE VOLUME AND INTRODUCE PLAY OF LIGHT AND SHADOW
2. TOP-FLOOR FACADE SUBSTANTIALLY SET BACK AT COURTYARD-FACING FACADE

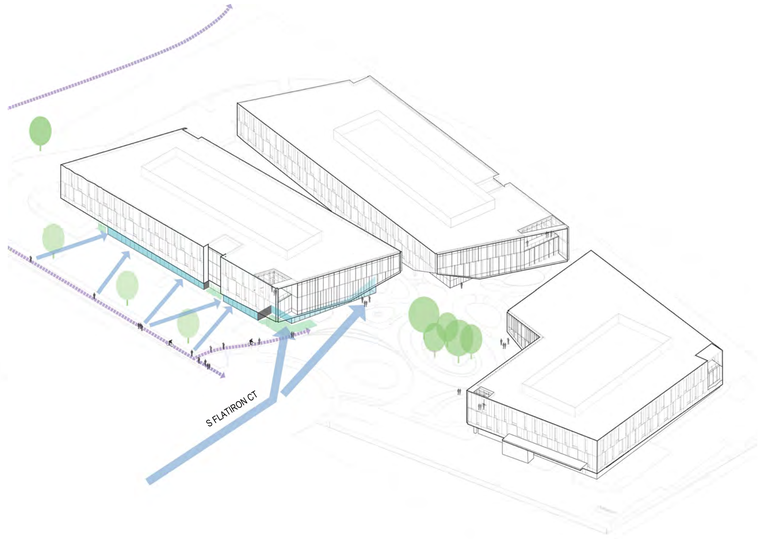
VARYING ROOF EDGE CONDITIONS

1. RIBBED METAL PANEL IN 'FOLDING' GEOMETRY
2. FLAT METAL PANEL, RECESSED
3. GLAZED PARAPET, 2'-6" LOWER THAN ADJACENT METAL PARAPETS
4. TRELLIS WITH OPENING BEHIND



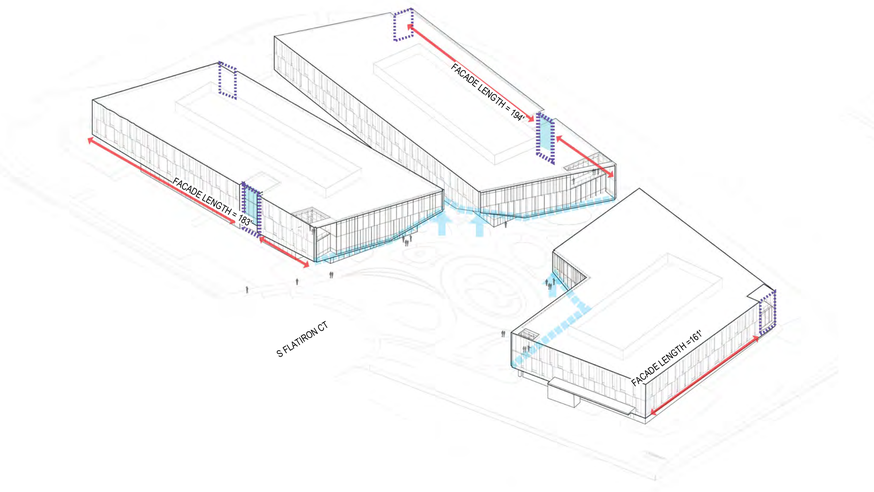
01 | ROOF LINE VARIATION/ LANTERN TYPOLOGY

EACH BUILDING CONTAINS A LEVEL 03 TERRACE EXPRESSED AS A 'LANTERN'. THE COURTYARD-FACING TOP-FLOOR FAÇADE AT THESE TERRACES IS SUBSTANTIALLY SET BACK FROM THE BUILDING BELOW TO BRING RELIEF TO THE MASSING. PERFORATED METAL PANELS AT THE ALTERNATE EDGE AND AN OVERHEAD TRELLIS STRUCTURE BRING VARIATION TO THE ROOF LINE AS THEY GIVE THIS CORNER ELEMENT AN INVITING 'GLOW' IN EVENING HOURS AND A MOVING PATTERN OF SHADOWS DURING THE DAYTIME HOURS. ADDITIONAL ROOF LINE VARIATION IS ACHIEVED THROUGH DETAILED MATERIAL ARTICULATION AT METAL PANELS AND LARGER ROOF LINE DEPRESSIONS AT BUILDING 'SLOTS'. THESE CONCEPTS WORK TOGETHER TO PROVIDE A COHESIVE, PROGRAMMATICALLY FUNCTIONAL RESPONSE TO ROOF LINE VARIATION.



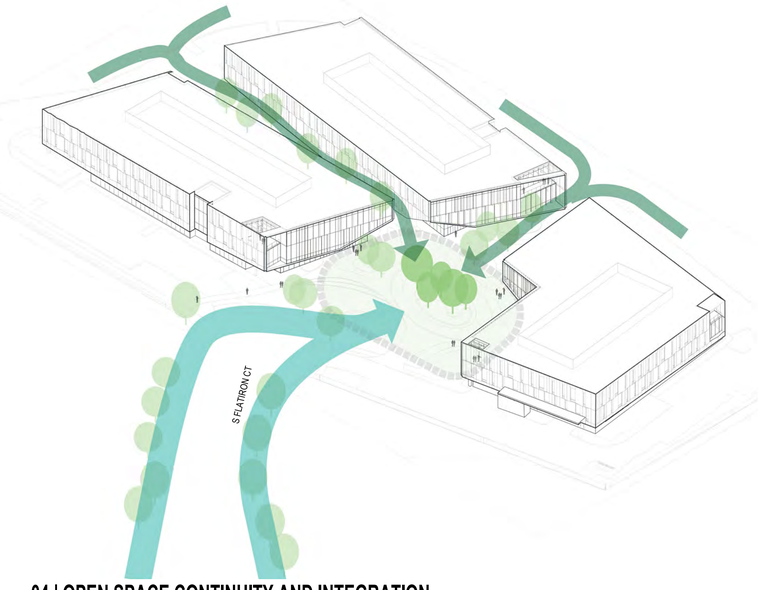
02 | GROUND LEVEL TRANSPARENCY ALONG THE MULTI-USE PATH

THE NEW MULTI-USE PATH CONNECTOR (IN PURPLE) IS FRONTED AT THE GROUND FLOOR WITH ADDITIONAL RECESSES, POCKET PLANTINGS AND MATERIAL CHANGES TO CREATE A MODULATED STREET WALL AND A CLEAR READING OF A BASE. THE GROUND FLOOR HAS BEEN CLAD WITH DECORATIVE TRANSLUCENT GLAZED AND CLEAR GLAZING, TO INCREASE THE GROUND FLOOR TRANSPARENCY AND ACTIVATE AND ENGAGE PASSERSBY AT THIS NEW PUBLIC FACE.



03 | REVEALS - FACADE LENGTH REDUCTION & ARTICULATION

TO REDUCE THE FACADE LENGTH, BREAK THE ROOFLINE AND ADD ADDITIONAL VISUAL INTEREST, LARGE GLAZED REVEALS HAVE BEEN INTRODUCED ON THE LONGEST FACADES/ METAL CLAD ELEVATIONS OF THE BUILDINGS. IN ADDITION, GLAZED/ RECESSED FRAMED WINDOW ELEMENTS ADD ADDITIONAL MOMENTS OF ARTICULATION. AS INDICATED IN BLUE, CONTRASTING FACADES OF GLAZING SURROUND THE CENTRAL OPEN SPACE AND HAVE LIFTED CORNERS THAT ACT AS GATEWAYS TO THE RAMBLE AND GLADE LANDSCAPES.



04 | OPEN SPACE CONTINUITY AND INTEGRATION

THE CENTRAL OPEN SPACE IS AN EXTENSION OF BOTH THE SURROUNDING COMMUNITY GREEN SPACE AND PLANTINGS ALONG FLATIRON COURT MERGING WITH THE OPEN SPACE AND NATIVE PLANTINGS TO THE SOUTH AND EAST.

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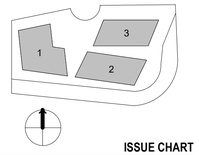

ISSUE CHART

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	SITE REVIEW #3	11.27.2024
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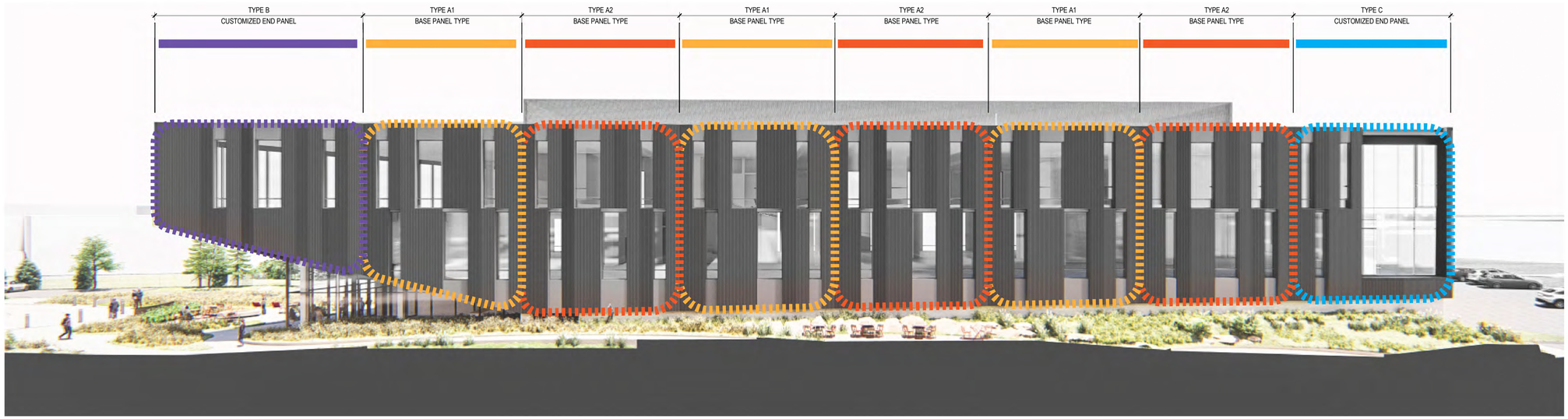
Job Number 222308

TITLE

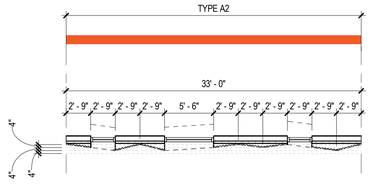
ARCHITECTURAL DESIGN - PARTI

SHEET NUMBER

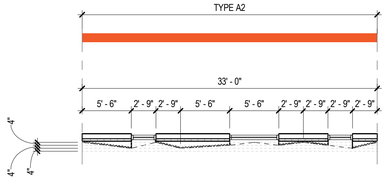
A6.2



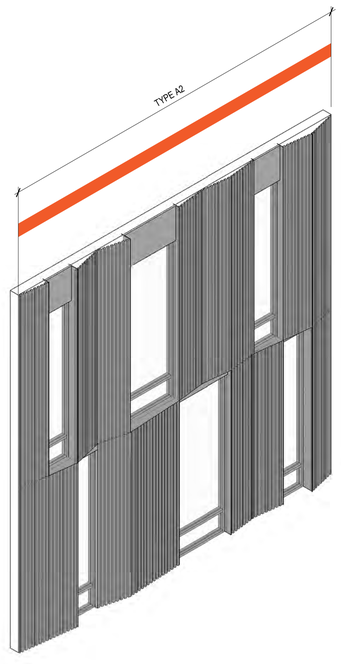
ELEVATION MODULE DIAGRAM
*COLORS FOR REFERENCE ONLY



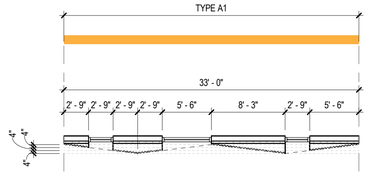
6 PLAN - LEVEL 03 - TYPE A2
1/8" = 1'-0"



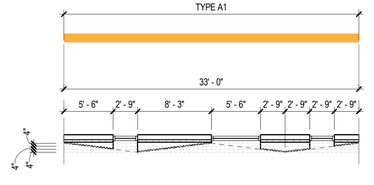
5 PLAN - LEVEL 02 - TYPE A2
1/8" = 1'-0"



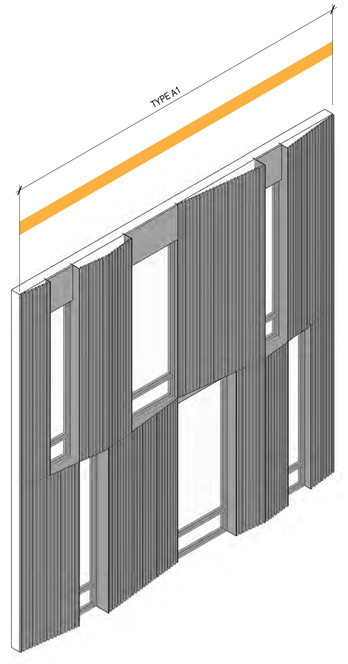
2 3D - TYPE A2



4 PLAN - LEVEL 03 - TYPE A1
1/8" = 1'-0"



3 PLAN - LEVEL 02 - TYPE A1
1/8" = 1'-0"



1 3D - TYPE A1

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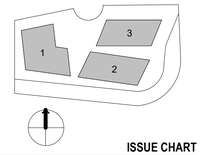

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	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

ARCHITECTURAL DESIGN - MODULE

SHEET NUMBER

A6.3

04 | BLDG 3 NORTHERN FACADE

03 | BLDG 3 SHADOW IN AM

02 | TEXTURAL INSPIRATION

01 | PERFORATED METAL SCREEN AND LATERN

PERFORATED METAL WILL CREATE A VEIL THAT CHANGES THROUGHOUT THE DAY AND AT NIGHT ACTING AS A LANTERN.

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PROJECT

1855 S. FLATIRON COURT

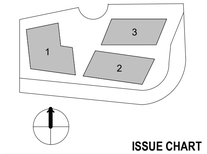
1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA
92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
Job Number		222308

TITLE

ARCHITECTURAL DESIGN - BLDG 3 NORTH

SHEET NUMBER

A6.4

VIEW 1

VIEW 2

VIEW 3

VIEW 4

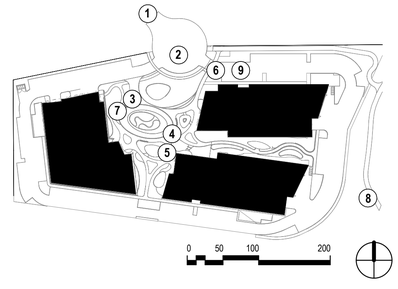
VIEW 5

VIEW 6

VIEW 7

VIEW 8

VIEW 9



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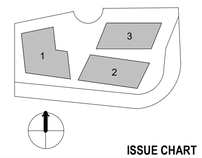


ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

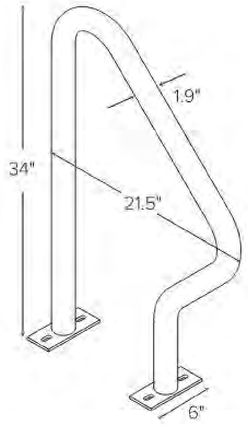
ARCHITECTURAL RENDERINGS

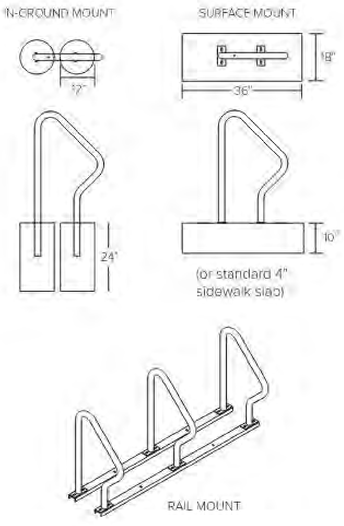
SHEET NUMBER

A6.5

DERO | **Swerve** Rack

Submittal Sheet





CAPACITY 2 Bikes

MATERIALS 1.9" OD schedule 40 pipe

FINISHES

☐ **Galvanized**
An after fabrication hot dipped galvanized finish is our standard option.

☐ **Powder Coat**
Our powder coat finish assures a high level of adhesion and durability by following these steps:
1. Sandblast
2. Epoxy primer electrostatically applied
3. Final thick TGIC polyester powder coat

☐ **Stainless**
Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.

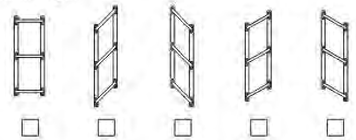
MOUNT OPTIONS

☐ **Surface**
Foot Mount has two 2.5" x 6" x .25" feet with two anchors per foot. Specify foot mount for this option. Tamper-resistant fasteners available upon request.

☐ **In-Ground**
In-ground mount is embedded into concrete base. Specify in-ground mount for this option.

☐ **Rail**
Rail Mounted Downtown Racks are bolted to two parallel rails which can be left freestanding or anchored to the ground. Rails are heavy duty 3" x 1.4" x 3/16" thick galvanized mounting rails. Specify rail mount for this option.

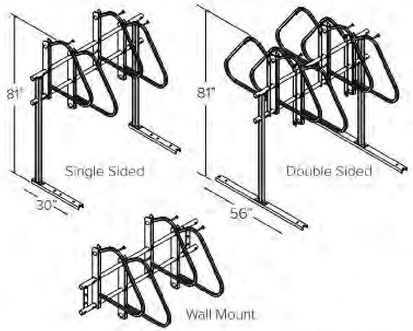
Rack Angle:



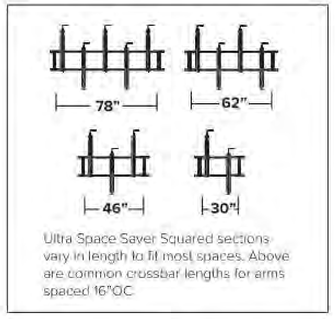
☐ 90 ☐ 45A ☐ 45B ☐ 60A ☐ 60B

DERO | **Ultra Space Saver™** Squared

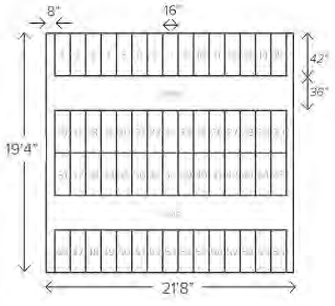
Submittal Sheet



(Examples above show 62" long crossbar sections)



Ultra Space Saver Squared sections vary in length to fit most spaces. Above are common crossbar lengths for arms spaced 16"OC.



As a general guideline, the above space can fit approximately 60 bicycles.

The Ultra Space Saver Squared parks one bike every 16" with a typical bike extending out 42" from the wall.

CAPACITY Modular construction
1 bike per arm

MATERIALS
Hanger: 1" square tube with steel slider head with tamperproof locking bolts.
Upright: 2" square tube.
Feet: AISI C3 x 4.1 galvanized steel channel.
Crossbeams: 1.25" sched. 40 galvanized pipe.

FINISHES

☐ **Black Powder Coat (Interior Use)**
Our interior powder coat finish assures a high level of adhesion and durability for indoor use by following these steps:
1. Sandblast
2. Final thick TGIC polyester powder coat

☐ **Black Powder Coat (Exterior Use)** Additional Cost
Our exterior powder coat finish assures a high level of adhesion and durability for outdoor or exposed air use by following these steps:
1. Sandblast
2. Epoxy primer electrostatically applied
3. Final thick TGIC polyester powder coat

MOUNT OPTIONS

☐ **Floor mount**
Ultra Space Saver Squared have steel channel feet (30" for single sided and 56" for double sided units) which must be anchored to the floor.

☐ **Wall mount**
A wall mounted unit which contains special brackets is also available for CMU or solid concrete walls. Cannot be used on sheetrock without additional support.

WHEEL STOPS

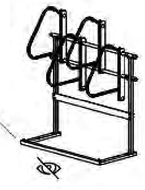
☐ **Include wheel stops**

Optional wheel stops are available for both floor and wall mounted racks for an additional cost

CANE STOPS

☐ **Include cane stops**

Optional cane-detectable stops are available for both floor and wall mounted racks for an additional cost



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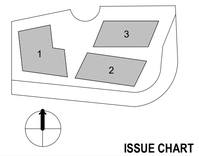
KEYPLAN



ISSUE CHART

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	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

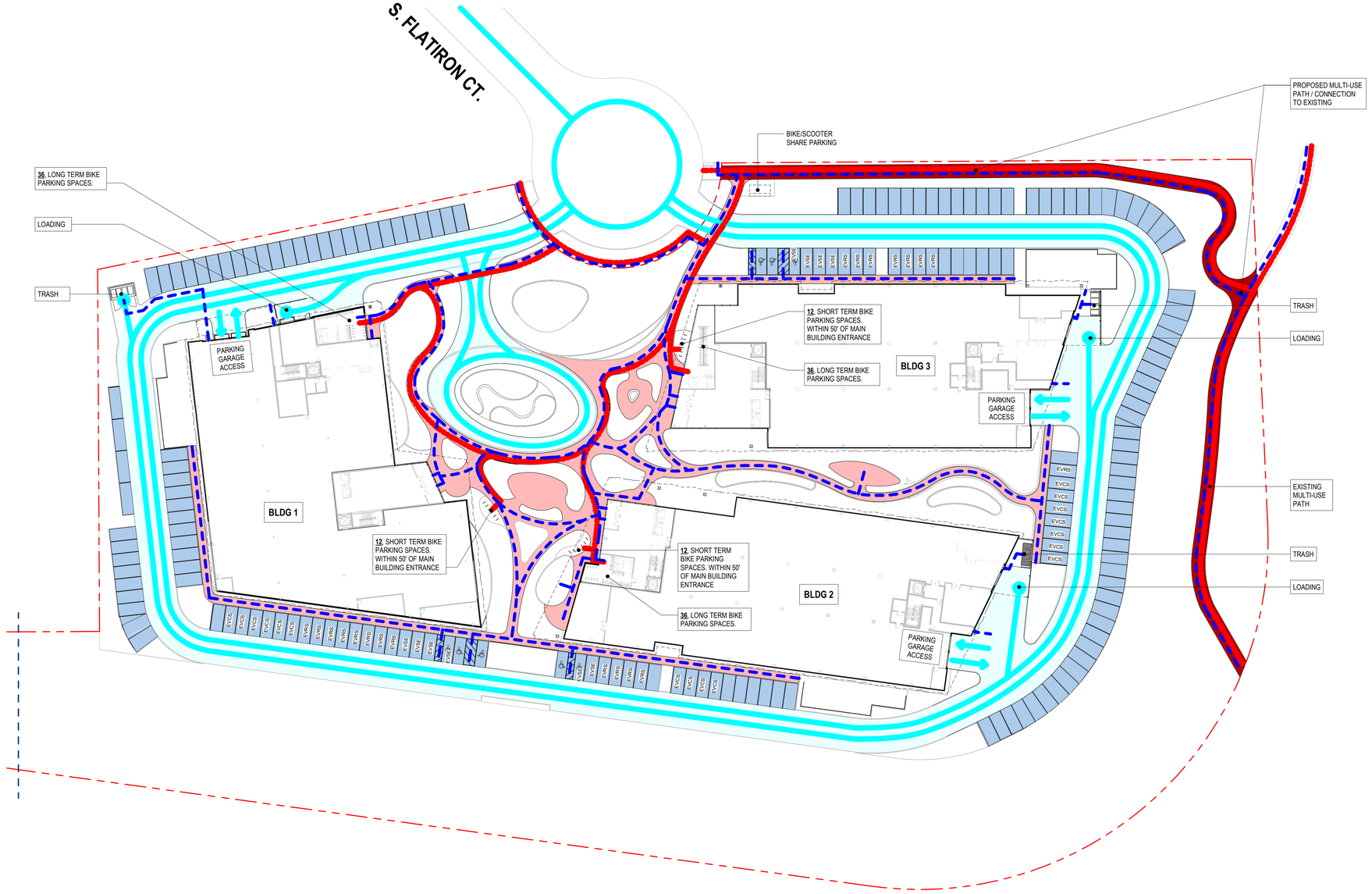
Job Number 222308

TITLE

SPEC DETAILS

SHEET NUMBER

A6.6



1 MULTI-MODAL PLAN
1" = 40'-0"

MULTI-MODAL LEGEND

- BICYCLE CIRCULATION
- PEDESTRIAN CIRCULATION
- VEHICULAR CIRCULATION

*ALL PEDESTRIAN CIRCULATION IS ADA ACCESSIBLE

SITE ACCESS CIRCULATION PERCENTAGES

SIDEWALKS	20,575 sqft	4.93%
MULTI-USE PATH	7,474 sqft	1.79%
VEHICLE ACCESS ROADS	54,679 sqft	13.09%
VEHICLE SURFACE PARKING	32,275 sqft	7.72%
TOTAL SITE CIRCULATION	**115,003 sqft**	**27.53%**
TOTAL SITE AREA	**417,640** sqft	

0 15' 30' 60

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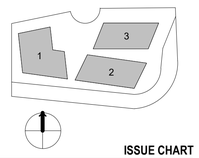

ISSUE CHART

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	SITE REVIEW #1	07.05.2024

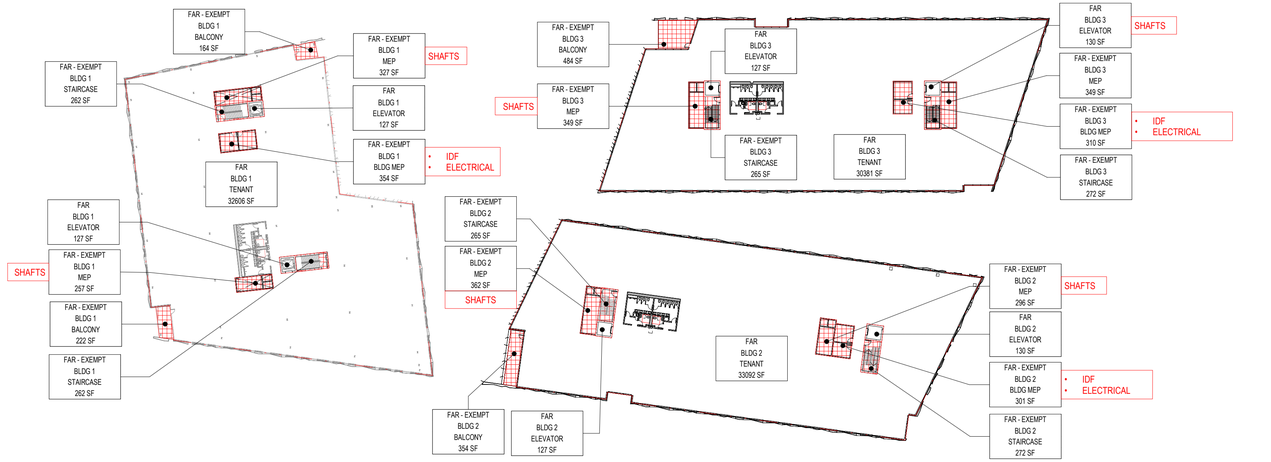
Job Number 222308

TITLE

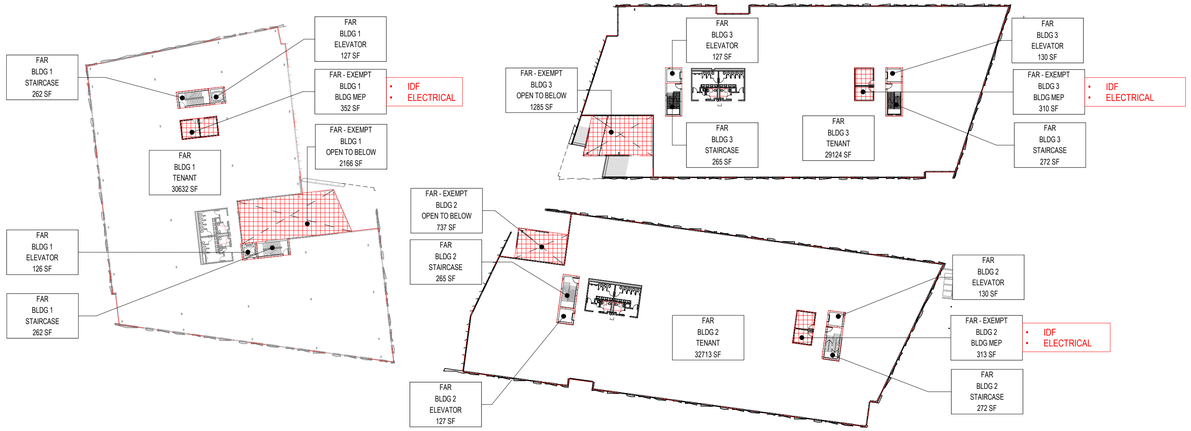
MULTI-MODAL PLAN

SHEET NUMBER

A8.0



3 FAR - LEVEL 3
1" = 50'-0"



2 FAR - LEVEL 2
1" = 50'-0"

1 FAR - LEVEL 1
1" = 50'-0"

FAR LEGEND

FAR

FAR - EXEMPT

GENERAL NOTES

FAR, DEFINITIONS, 9-16-1:

- *Floor area* means the total square footage of all levels measured to the outside surface of the exterior framing, or to the outside surface of the exterior walls if there is no exterior framing, of a building or portion thereof, which includes stairways, elevators, the portions of all exterior elevated above grade corridors, balconies, and walkways that are required for primary or secondary egress by Chapter 10-5, "Building Code," B.R.C. 1981, storage and mechanical rooms, whether internal or external to the structure, but excluding an atrium on the interior of a building where no floor exists, a courtyard, the stairway opening at the uppermost floor of a building, and floor area that meets the definition of uninhabitable space.
- *Uninhabitable space* means a room or portion thereof that is six feet or less in floor to ceiling height, OR a room solely used to house mechanical or electrical equipment that serves the building, including, without limitation, heating, cooling, electrical, ventilation and filtration systems, or any parking facility located completely below grade on all sides of the structure regardless of the topography of the site (see definition of "floor area").

FLOOR AREA RATIO REQUIREMENTS, 9-8-2:

- **IG ZONE**
  - BASE FAR: .5
- 4.) FLOOR AREA USED AS OFF-STREET **PARKING**, **BICYCLE PARKING**, AND **VEHICULAR CIRCULATION** THAT IS ABOVE GRADE AND PROVIDED ENTIRELY WITHIN THE STRUCTURE **NOT COUNTED**

FAR - CHARGEABLE		
Name	Level	Area
BLDG 1		
FAR	LEVEL 01 - BLDG 1	4997 SF
FAR	LEVEL 02 - BLDG 1	31408 SF
FAR	LEVEL 03 - BLDG 1	32859 SF
BLDG 1		69264 SF
BLDG 2		
FAR	LEVEL 01 - BLDG 2	5300 SF
FAR	LEVEL 02 - BLDG 2	33506 SF
FAR	LEVEL 03 - BLDG 2	33348 SF
BLDG 2		72154 SF
BLDG 3		
FAR	LEVEL 01 - BLDG 3	5038 SF
FAR	LEVEL 02 - BLDG 3	29917 SF
FAR	LEVEL 03 - BLDG 3	30638 SF
BLDG 3		65593 SF
Total FAR		207011 SF

LOT : 417,640 SF

MAX FAR : 0.50

MAX FLOOR AREA ALLOWED : 208,820 SF

FLOOR AREA PROVIDED : **207,011 SF**

FAR, ROOM TYPES EXEMPT FROM FAR CALCULATION PER UNIHABITABLE SPACE DEFINITION:

- ***Uninhabitable space*** means a room solely used to house mechanical or electrical equipment that serves the building, including, without limitation, heating, cooling, electrical, ventilation and filtration systems...

- MAIN ELEC RM:
  Houses main building electrical equipment including (2) 2000A panelboards, 1000A distribution panel, transformers, and panels serving 1st floor building mechanical, lighting (including site lighting), receptacles, and ATS. Room includes mechanical equipment as well for cooling of the electrical equipment and space heating.
- ELEC RM:
  Houses building distribution equipment only; including 1600A distribution panel, transformers, and panels feeding building mechanical, lighting, and receptacles in building areas only.
- MDF RM:
  MPOE for ISP provider (primary and secondary).
- IDF RM:
  1st floor LL IDF houses building IT rack, building mechanical controls and BMS headend unit. 2nd, 3rd floor IDF houses building floor IT racks.
- WATER ENTRY RM:
  New 6" FP service and 4" DCW service for building water systems, heating, cooling, ventilation... including respective backflow prevention devices.
- SHAFTS:
  Building main supply and exhaust ductwork and refrigerant piping.

0 25' 50' 100'

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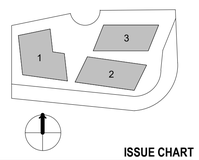

ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
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Job Number 222308

TITLE

FAR PLANS

SHEET NUMBER

A9.0

1855 S. Flatiron Ct. Boulder, CO 80301			
FAR			
	Site Area, SQFT	417,640	
	MAX FAR, 9-8-2 (Table 8-2)	0.50	**208,820**
	Proposed Chargeable FAR		**207,011**

Building Totals				
				FAR
Phase 1 / BLDG 3	Level 1			5,038
	Level 2			29,917
	Level 3			30,638
	Total			**65,593**
Phase 2 / BLDG 2	Level 1			5,300
	Level 2			33,506
	Level 3			33,348
	Total			**72,154**
Phase 3 / BLDG 1	Level 1			4,997
	Level 2			31,408
	Level 3			32,859
	Total			**69,264**
Total	**Total FAR**			**207,011**

Vehicle Parking Provided		Per phase		
	Location	Garage	Site/Surface	Total
Phase 1 / BLDG 3	Level 1	67	81	148
Phase 2 / BLDG 2	Level 1	75	32	107
Phase 3 / BLDG 1	Level 1	74	69	143
Total				**398**

Vehicle Parking, 9-6-6 (Table 9-3)		**518**
9-9-6(f) Percentage reduction from Boulder Zoning Code		*23*

EV Parking, COBECC (C405.11.2)		**EVSE (5%)**	**EVRS (10%)**	**EVCS (10% of remaining)**
Phase 1 / BLDG 3		8	15	13
Phase 2 / BLDG 2		6	12	12
Phase 3 / BLDG 1		8	16	14
Total		**22**	**43**	**39**

Car share Parking				
	Location	Garage		Total
BLDG 1	Level 1	1		1
BLDG 2	Level 1	1		1
BLDG 3	Level 1	1		1
Total				**3**

Bike Parking, 9-9-6 (Table 9-8)				
	Factor	**Long term (75%)**	**Short term (25%)**	**Total**
BLDG 1	1:1500 sqft	36	12	48
BLDG 2		36	12	48
BLDG 3		36	12	48
Total		108	36	**144**

Open Space, 9-9-11(c)(3)			**Percentage**
Required		**83,528**	20.00
Provided		**121,872.05**	29.18

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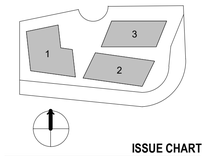

ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
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	SITE REVIEW #1	07.05.2024

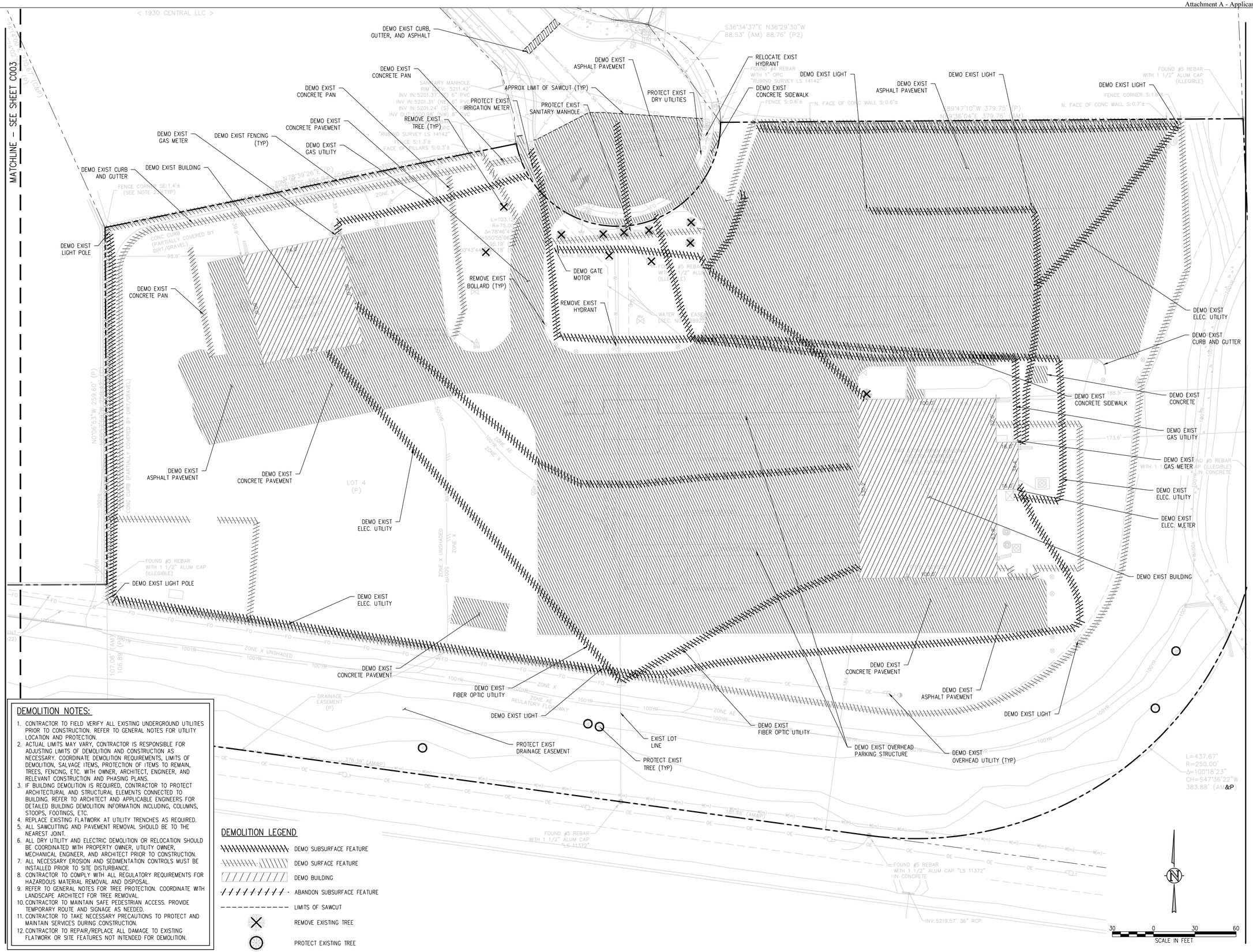
Job Number 222308

TITLE

DATA SHEET

SHEET NUMBER

A10.0



DEMOLITION NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. ACTUAL LIMITS MAY VARY, CONTRACTOR IS RESPONSIBLE FOR ADJUSTING LIMITS OF DEMOLITION AND CONSTRUCTION AS NECESSARY. COORDINATE DEMOLITION REQUIREMENTS, LIMITS OF DEMOLITION, SALVAGE ITEMS, PROTECTION OF ITEMS TO REMAIN, TREES, FENCING, ETC. WITH OWNER, ARCHITECT, ENGINEER, AND RELEVANT CONSTRUCTION AND PHASING PLANS.
3. IF BUILDING DEMOLITION IS REQUIRED, CONTRACTOR TO PROTECT ARCHITECTURAL AND STRUCTURAL ELEMENTS CONNECTED TO BUILDING. REFER TO ARCHITECT AND APPLICABLE ENGINEERS FOR DETAILED BUILDING DEMOLITION INFORMATION INCLUDING, COLUMNS, STOOPS, FOOTINGS, ETC.
4. REPLACE EXISTING FLATWORK AT UTILITY TRENCHES AS REQUIRED.
5. ALL SAWCUTTING AND PAVEMENT REMOVAL SHOULD BE TO THE NEAREST JOINT.
6. ALL DRY UTILITY AND ELECTRIC DEMOLITION OR RELOCATION SHOULD BE COORDINATED WITH PROPERTY OWNER, UTILITY OWNER, MECHANICAL ENGINEER, AND ARCHITECT PRIOR TO CONSTRUCTION.
7. ALL NECESSARY EROSION AND SEDIMENTATION CONTROLS MUST BE INSTALLED PRIOR TO SITE DISTURBANCE.
8. CONTRACTOR TO COMPLY WITH ALL REGULATORY REQUIREMENTS FOR HAZARDOUS MATERIAL REMOVAL AND DISPOSAL.
9. REFER TO GENERAL NOTES FOR TREE PROTECTION. COORDINATE WITH LANDSCAPE ARCHITECT FOR TREE REMOVAL.
10. CONTRACTOR TO MAINTAIN SAFE PEDESTRIAN ACCESS. PROVIDE TEMPORARY ROUTE AND SIGNAGE AS NEEDED.
11. CONTRACTOR TO TAKE NECESSARY PRECAUTIONS TO PROTECT AND MAINTAIN SERVICES DURING CONSTRUCTION.
12. CONTRACTOR TO REPAIR/REPLACE ALL DAMAGE TO EXISTING FLATWORK OR SITE FEATURES NOT INTENDED FOR DEMOLITION.

DEMOLITION LEGEND

- DEMO SUBSURFACE FEATURE
- DEMO SURFACE FEATURE
- DEMO BUILDING
- ABANDON SUBSURFACE FEATURE
- LIMITS OF SAWCUT
- REMOVE EXISTING TREE
- PROTECT EXISTING TREE

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ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #4 (CORRECTIONS)	01.13.2025
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

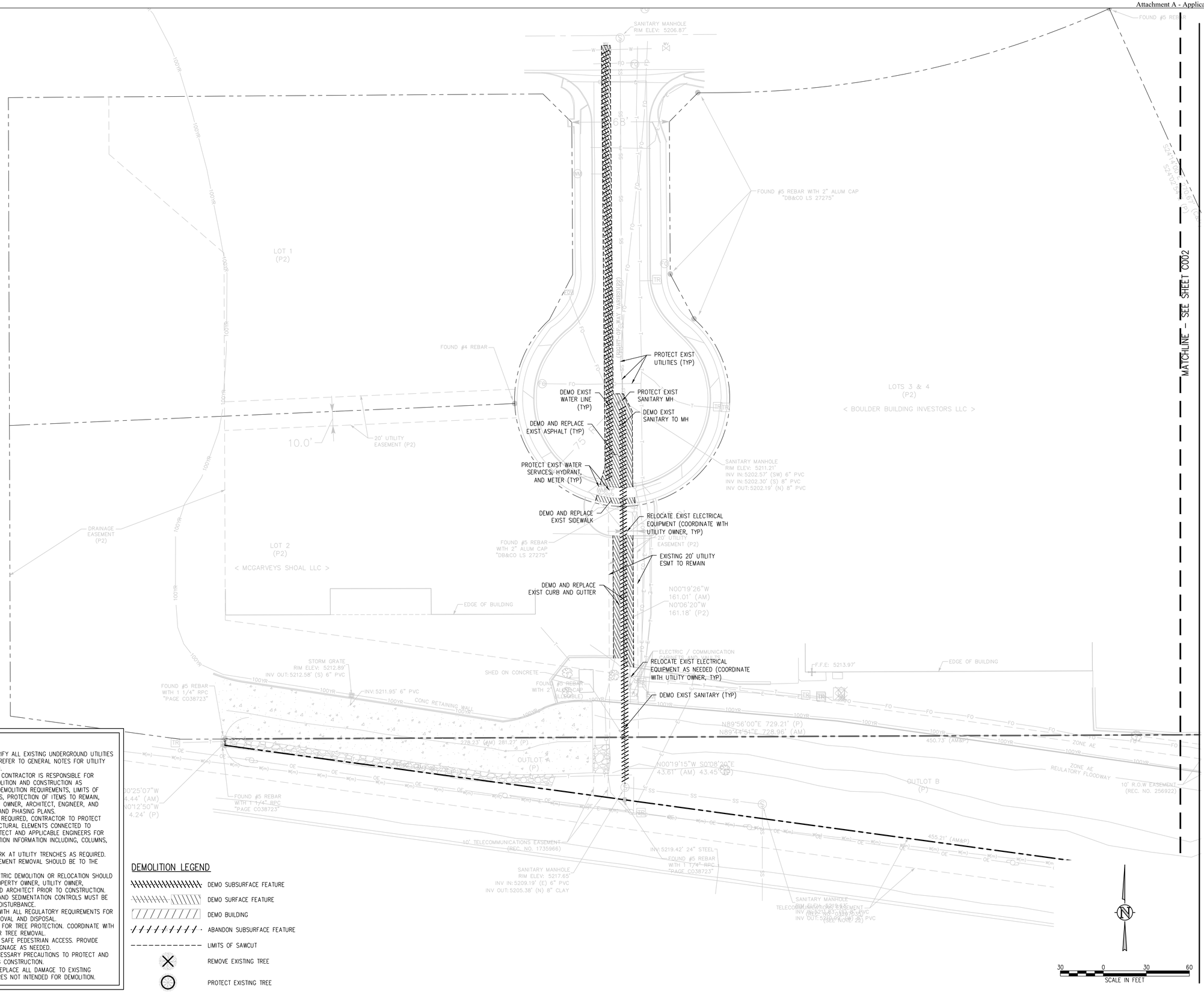
Job Number 222308

TITLE

DEMOLITION PLAN (EAST)

SHEET NUMBER

C002



DEMOLITION NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. ACTUAL LIMITS MAY VARY, CONTRACTOR IS RESPONSIBLE FOR ADJUSTING LIMITS OF DEMOLITION AND CONSTRUCTION AS NECESSARY. COORDINATE DEMOLITION REQUIREMENTS, LIMITS OF DEMOLITION, SALVAGE ITEMS, PROTECTION OF ITEMS TO REMAIN, TREES, FENCING, ETC. WITH OWNER, ARCHITECT, ENGINEER, AND RELEVANT CONSTRUCTION AND PHASING PLANS.
3. IF BUILDING DEMOLITION IS REQUIRED, CONTRACTOR TO PROTECT ARCHITECTURAL AND STRUCTURAL ELEMENTS CONNECTED TO BUILDING. REFER TO ARCHITECT AND APPLICABLE ENGINEERS FOR DETAILED BUILDING DEMOLITION INFORMATION INCLUDING, COLUMNS, STOOPS, FOOTINGS, ETC.
4. REPLACE EXISTING FLATWORK AT UTILITY TRENCHES AS REQUIRED.
5. ALL SAWCUTTING AND PAVEMENT REMOVAL SHOULD BE TO THE NEAREST JOINT.
6. ALL DRY UTILITY AND ELECTRIC DEMOLITION OR RELOCATION SHOULD BE COORDINATED WITH PROPERTY OWNER, UTILITY OWNER, MECHANICAL ENGINEER, AND ARCHITECT PRIOR TO CONSTRUCTION.
7. ALL NECESSARY EROSION AND SEDIMENTATION CONTROLS MUST BE INSTALLED PRIOR TO SITE DISTURBANCE.
8. CONTRACTOR TO COMPLY WITH ALL REGULATORY REQUIREMENTS FOR HAZARDOUS MATERIAL REMOVAL AND DISPOSAL.
9. REFER TO GENERAL NOTES FOR TREE PROTECTION. COORDINATE WITH LANDSCAPE ARCHITECT FOR TREE REMOVAL.
10. CONTRACTOR TO MAINTAIN SAFE PEDESTRIAN ACCESS. PROVIDE TEMPORARY ROUTE AND SIGNAGE AS NEEDED.
11. CONTRACTOR TO TAKE NECESSARY PRECAUTIONS TO PROTECT AND MAINTAIN SERVICES DURING CONSTRUCTION.
12. CONTRACTOR TO REPAIR/REPLACE ALL DAMAGE TO EXISTING FLATWORK OR SITE FEATURES NOT INTENDED FOR DEMOLITION.

DEMOLITION LEGEND

- DEMO SUBSURFACE FEATURE
- DEMO SURFACE FEATURE
- DEMO BUILDING
- ABANDON SUBSURFACE FEATURE
- LIMITS OF SAWCUT
- REMOVE EXISTING TREE
- PROTECT EXISTING TREE

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PROJECT

1855 S. FLATIRON COURT

1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA
92121

ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #4 (CORRECTIONS)	01.13.2025
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

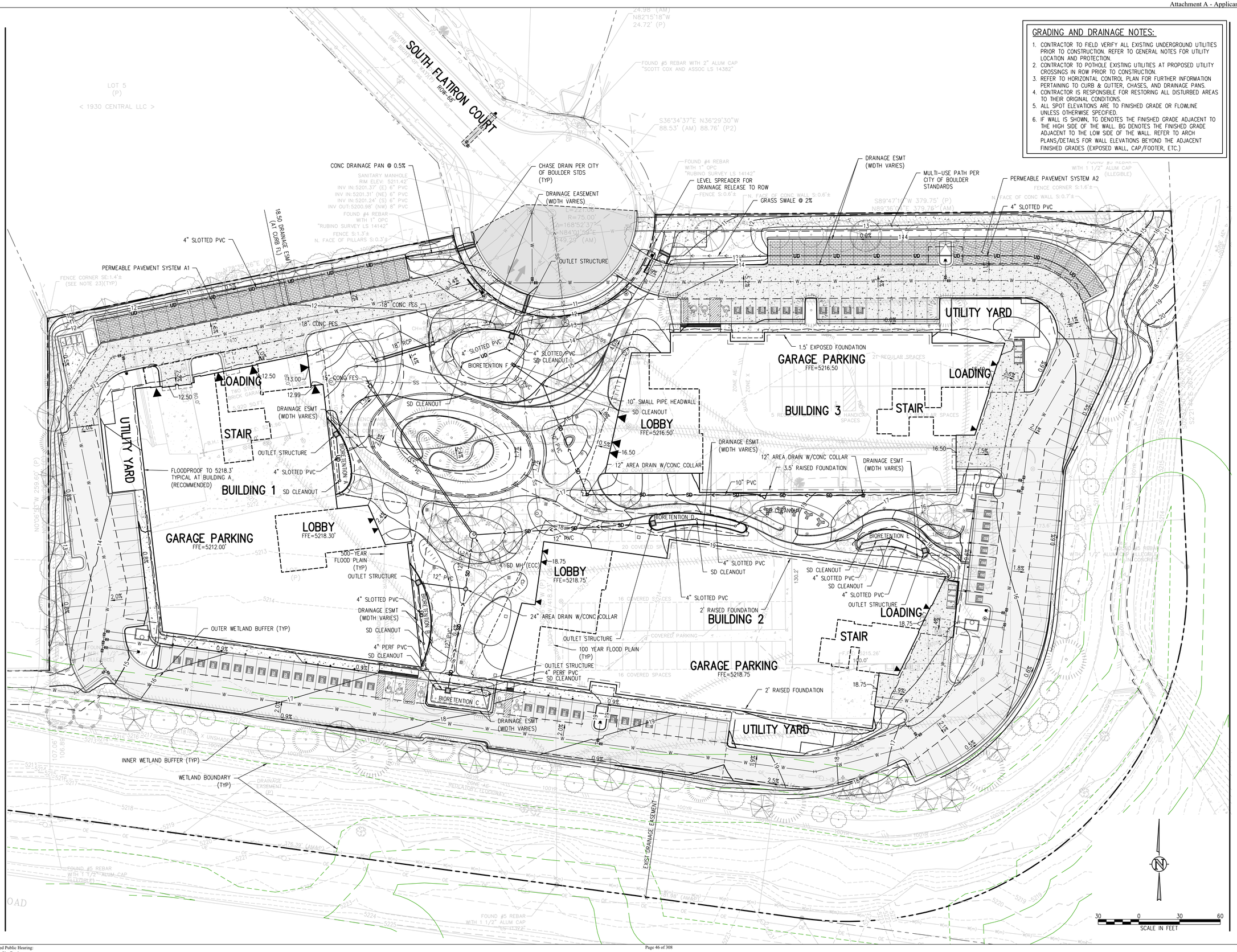
DEMOLITION PLAN (WEST)

SHEET NUMBER

C003

GRADING AND DRAINAGE NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. CONTRACTOR TO POTHOLE EXISTING UTILITIES AT PROPOSED UTILITY CROSSINGS IN ROW PRIOR TO CONSTRUCTION.
3. REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
4. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
5. ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
6. IF WALL IS SHOWN, TG DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)



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PROJECT

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	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

GRADING & DRAINAGE PLAN

SHEET NUMBER

C100

ELEVATION TABLE			
RANGE	MINUMUM ELEVATION	MAXIMUM ELEVATION	COLOR
1	0.0001	1.0000	
2	1.0001	1.5000	
3	1.5001	3.0000	

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Job Number 222308

TITLE

PARKING FLOOD HEAT MAP

SHEET NUMBER

C101

UTILITY NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. CONTRACTOR TO POTHOLE EXISTING UTILITIES AT PROPOSED UTILITY CROSSINGS IN ROW PRIOR TO CONSTRUCTION.
3. ALL DRY UTILITY AND ELECTRIC DESIGNS ARE PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. SEE MEP PLANS AND SPECIFICATIONS AND COORDINATE WITH ALL UTILITY OWNERS AS NEEDED.
4. CONTRACTOR TO MARK ALL UTILITY STUBS WITH MARKERS.
5. FINAL METER SIZING TO BE DETERMINED AT TIME OF BUILDING PERMIT.

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Job Number 222308

TITLE

UTILITY PLAN (EAST)

SHEET NUMBER

C200

SCALE IN FEET: 30 0 30 60

CONNECT TO EXISTING WATER MAIN W/ 12"X10" TEE W/ (2) GV (CONTRACTOR TO POTHOLE PRIOR TO CONSTRUCTION)

EXIST 12" WATER LINE, CONTRACTOR TO VERIFY EXISTING SIZE, LOCATION, ELEVATION, MATERIAL AND CONDITION PRIOR TO CONSTRUCTION AND REPORT TO ENGINEER (TYP)

10" PVC

22.5° BEND W/ TB

22.5° BEND W/ TB

MAINTAIN MIN 8' OF HORIZONTAL SEPARATION

10" PVC

45° BEND W/ TB

45° BEND W/ TB

22.5° BEND W/ TB

MAINTAIN MIN 18" OF VERTICAL SEPARATION

10" PVC

22.5° BEND W/ TB

10" PVC

10" PVC

EXIST 4' SAN MH
RIM 5205.83
INV IN(SE) 5202.30 (8" PVC)
N1249874.59
E3078198.62

9 LF 8" PVC @ 1.00%

4' SAN MH
RIM 5206.11
INV IN(S) 5202.59 (8" PVC)
INV OUT(NW) 5202.39 (8" PVC)
N1249866.44
E3078202.71

ALL WORK TO BE COMPLETED WITHIN EXISTING UTILITY EASEMENT AND ROW

244 LF 8" PVC @ 0.99%

4' SAN MH
RIM 5208.73
INV IN(S) 5205.20 (8" PVC)
INV OUT(N) 5205.00 (8" PVC)
N1249622.21
E3078204.07

18 LF 8" PVC @ 1.00%

EXIST 4' SAN MH
RIM 5208.91
INV OUT(N) 5205.38 (8" PVC)
N1249604.88
E3078200.61

25.00 UTILITY ESMT

SANITARY MANHOLE
RIM ELEV: 5206.87'

SANITARY MANHOLE
RIM ELEV: 5211.21'
INV IN:5202.57' (SW) 6" PVC
INV IN:5202.30' (S) 8" PVC
INV OUT:5202.19' (N) 8" PVC

SANITARY MANHOLE
RIM ELEV: 5217.65'
INV IN:5209.19' (E) 6" PVC
INV OUT:5205.38' (N) 8" CLAY

SANITARY MANHOLE
TELECOMMUNICATIONS EASEMENT
INV IN:5210.05' (E) 8" PVC
INV OUT:5209.90' (S) 8" PVC
(SEE NOTE 2)

FOUND #5 REBAR WITH 2" ALUM CAP "DB&CO LS 27275"

FOUND #4 REBAR

FOUND #5 REBAR WITH 2" ALUM CAP "DB&CO LS 27275"

FOUND #5 REBAR WITH 1 1/4" RPC "PAGE CO38723"

FOUND #5 REBAR WITH 1 1/4" RPC "PAGE CO38723"

FOUND #5 REBAR WITH 2" ALUM CAP (ILLEGIBLE)

FOUND #5 REBAR WITH 1 1/4" RPC "PAGE CO38723"

LOT 1 (P2)

LOT 2 (P2)
< MCGARVEYS SHOAL LLC >

LOTS 3 & 4 (P2)
< BOULDER BUILDING INVESTORS LLC >

OUTLOT A (P2)

OUTLOT B (P2)

10.0' 20' UTILITY EASEMENT (P2)

10.0' 20' UTILITY EASEMENT (P2)

DRAINAGE EASEMENT (P2)

10' TELECOMMUNICATIONS EASEMENT (REC. NO. 1735966)

10' TELECOMMUNICATIONS EASEMENT (REC. NO. 2518092)

75' R

63'

N00°19'26"W 161.01' (AM) N0°06'20"W 161.18' (P2)

N00°19'15"W 43.61' (AM) 43.45' (P)

N89°56'00"E 729.21' (P) N89°44'51"E 729.86' (AM)

N00°25'07"W 4.44' (AM) N0°12'50"W 4.24' (P)

228.23' (AM) 228.20' (P)

450.73' (AM&P)

6.00 6.00

STORM GRATE
RIM ELEV: 5212.89'
INV OUT: 5212.58' (S) 6" PVC

INV: 5211.95' 6" PVC

INV: 5219.42' 24" STEEL

CONC RETAINING WALL

SHED ON CONCRETE

ELECTRIC / COMMUNICATION CABINETS AND VAULTS

EDGE OF BUILDING

EDGE OF BUILDING

F.F.E. 5213.97'

ZONE AE

ZONE AE

100YR

MATCHLINE – SEE SHEET C200

30 0 30 60
SCALE IN FEET

UTILITY NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. CONTRACTOR TO POTHOLE EXISTING UTILITIES AT PROPOSED UTILITY CROSSINGS IN ROW PRIOR TO CONSTRUCTION.
3. ALL DRY UTILITY AND ELECTRIC DESIGNS ARE PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. SEE MEP PLANS AND SPECIFICATIONS AND COORDINATE WITH ALL UTILITY OWNERS AS NEEDED.
4. CONTRACTOR TO MARK ALL UTILITY STUBS WITH MARKERS.

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PROJECT

1855 S. FLATIRON COURT

1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA 92121

ISSUE CHART

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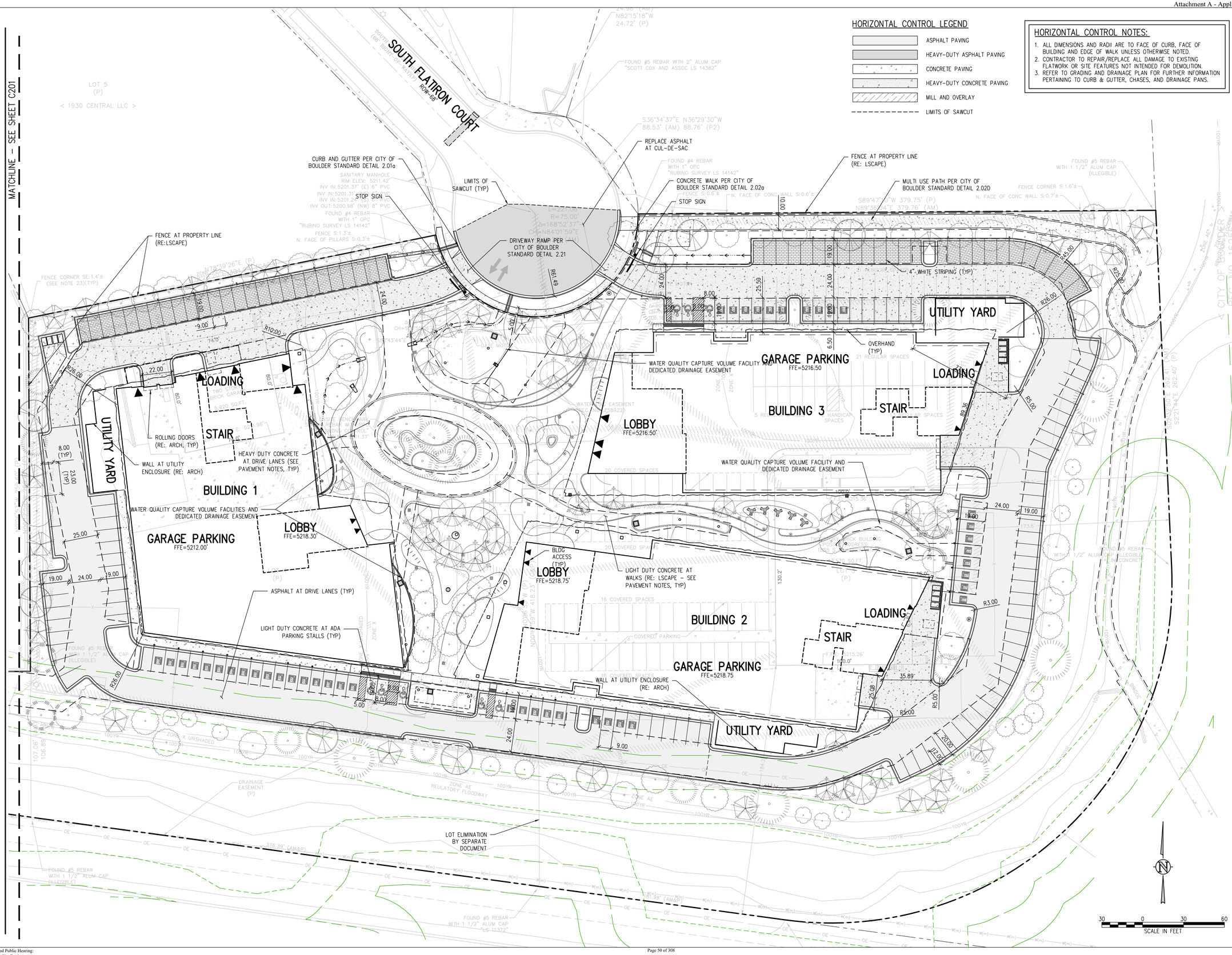
Job Number 222308

TITLE

UTILITY PLAN (WEST)

SHEET NUMBER

C201



HORIZONTAL CONTROL LEGEND

- ASPHALT PAVING
- HEAVY-DUTY ASPHALT PAVING
- CONCRETE PAVING
- HEAVY-DUTY CONCRETE PAVING
- MILL AND OVERLAY
- LIMITS OF SAWCUT

HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS AND RADII ARE TO FACE OF CURB, FACE OF BUILDING AND EDGE OF WALK UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO REPAIR/REPLACE ALL DAMAGE TO EXISTING FLATWORK OR SITE FEATURES NOT INTENDED FOR DEMOLITION.
3. REFER TO GRADING AND DRAINAGE PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.

30 0 30 60
SCALE IN FEET

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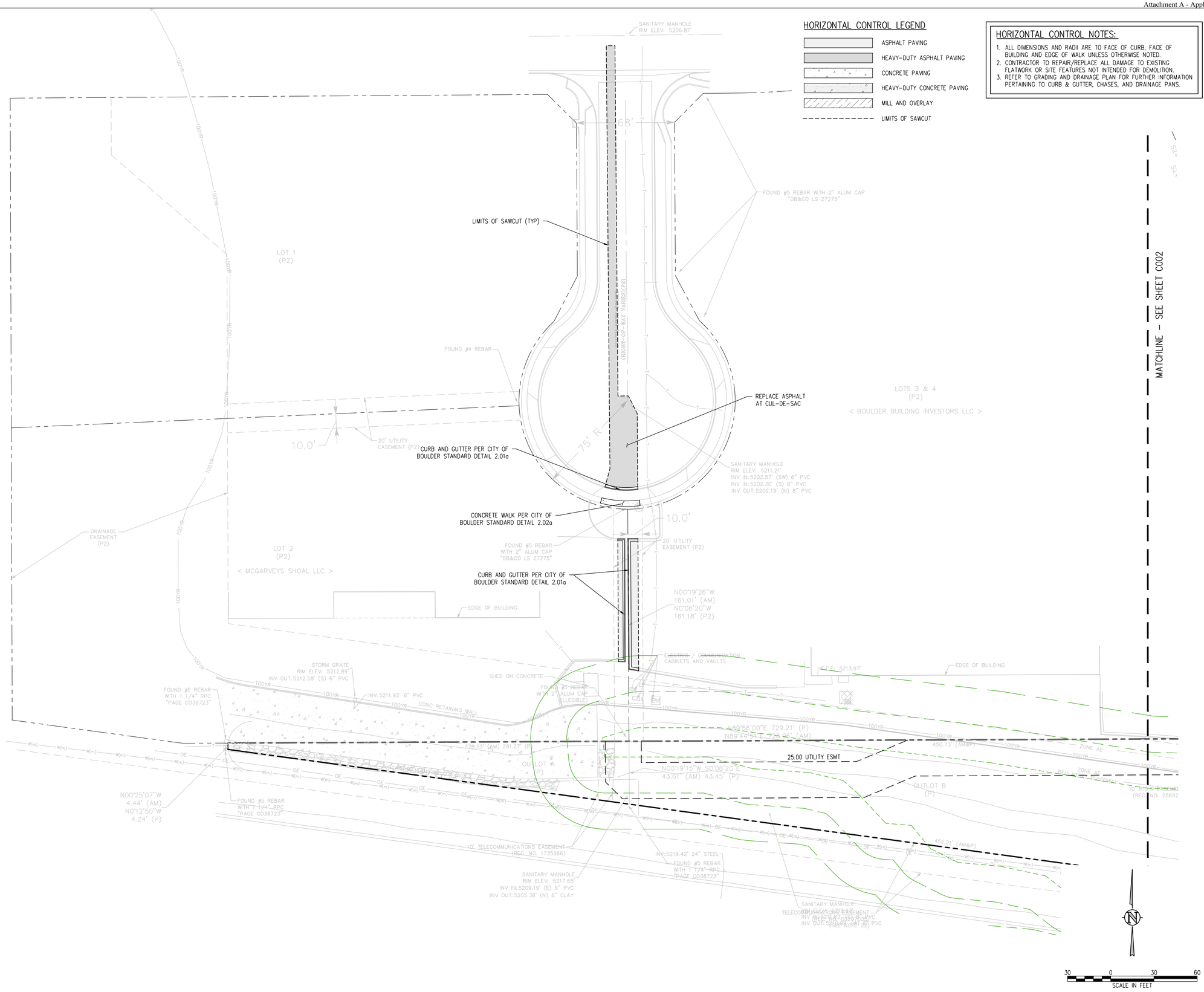
Job Number 222308

TITLE

HORIZONTAL CONTROL PLAN (EAST)

SHEET NUMBER

C300



HORIZONTAL CONTROL LEGEND

- ASPHALT PAVING
- HEAVY-DUTY ASPHALT PAVING
- CONCRETE PAVING
- HEAVY-DUTY CONCRETE PAVING
- MILL AND OVERLAY
- LIMITS OF SAWCUT

HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS AND RADII ARE TO FACE OF CURB, FACE OF BUILDING AND EDGE OF WALK UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO REPAIR/REPLACE ALL DAMAGE TO EXISTING FLATWORK OR SITE FEATURES NOT INTENDED FOR DEMOLITION.
3. REFER TO GRADING AND DRAINAGE PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.

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Job Number 222308

TITLE

HORIZONTAL CONTROL PLAN (WEST)

SHEET NUMBER

C301

PHASE 1

GRADING AND DRAINAGE NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. CONTRACTOR TO POTHOLE EXISTING UTILITIES AT PROPOSED UTILITY CROSSINGS IN ROW PRIOR TO CONSTRUCTION.
3. REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
4. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
5. ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
6. IF WALL IS SHOWN, TG DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)

SOUTH FLATIRON COURT

PHASE 1 AND INTERIM
INSTALL EROSION CONTROL
MEASURES AT OUTFALL LOCATIONS

PHASE 1
INSTALL TEMPORARY SEDIMENT AND EROSION
CONTROL BASIN IN PHASE 1 (TO BE REPLACED WITH
PAVERS (FINAL CONDITION) DURING PHASE 3)

PHASE 1
INSTALL TEMPORARY CULVERT CROSSING

PHASE 1
INSTALL 24' FINAL CONCRETE ACCESS
DRIVE W/O CURB AND GUTTER (C&G
TO BE CONSTRUCTED WITH PHASE 3)

PHASE 1
INSTALL SEDIMENT
CONTROL MEASURES
AT SITE PERIMETER

PHASE 1
DEMO ALL SITE
STRUCTURES AND
PARKING AREAS.

PHASE 1
INSTALL 21' TEMPORARY
ASPHALT CIRCULATORY ACCESS
DRIVE OVER LOOPED WATER MAIN

PHASE 1
INSTALL CENTRAL STORM
INFRASTRUCTURE

PHASE 1
GRADE SWALE AND INSTALL
EROSION CONTROL MEASURES

PHASE 1
INSTALL SEDIMENT CONTROL LOGS

PHASE 1
INSTALL LOOPED WATER MAIN, CONNECTIONS, AND
HYDRANTS (INSTALL STUBS FOR FUTURE METERS)

PHASE 1
INSTALL NE PERMEABLE PAVERS (TYP)

PHASE 1
COMPLETE PLAZA W/ ACCESS
POINTS AND BIORETENTION AREA

PHASE 1
INSTALL LANDSCAPING
AND TREES AS REQUIRED
FOR SCREENING

PHASE 1
INSTALL TEMPORARY SEEDING ZONE 30' OFFSET
FROM BUILDING 3 WITH TEMP FENCE AND GRAVEL
PATH CONNECTING PARKING TO BUILDING LOBBY

PHASE 1
COMPLETE BUILDING 3 AND
ASSOCIATED SITE ELEMENTS

PHASE 1
INSTALL TEMPORARY
GRAVEL PATH (TO BE
DETAILED IN PHASE 1
TEC DOC PACKAGE)

PHASE 1
INSTALL EROSION CONTROL MEASURES (TO
BE REPLACED WITH BIORETENTION FACTILITY
AND PAVERS (FINAL CONDITION) IN PHASE
2)

UTILITY YARD
GARAGE PARKING
FFE=5216.50
BUILDING 3
LOBBY
FFE=5216.50'
LOADING
STAIR

SCALE IN FEET: 30 0 30 60

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Job Number 222308

TITLE

SITE PHASING PLAN - PHASE 1 (EAST)

SHEET NUMBER

C500

PHASE 1

UTILITY NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
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3. ALL DRY UTILITY AND ELECTRIC DESIGNS ARE PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. SEE MEP PLANS AND SPECIFICATIONS AND COORDINATE WITH ALL UTILITY OWNERS AS NEEDED.
4. CONTRACTOR TO MARK ALL UTILITY STUBS WITH MARKERS.

SANITARY MANHOLE
RIM ELEV: 5206.87'

FOUND #5 REBAR

FOUND #5 REBAR WITH 2" ALUM CAP
"DB&CO LS 27275"

PHASE 1
INSTALL WATER MAIN CONNECTION
WITHIN S 57TH COURT

FOUND #4 REBAR

LOT 1
(P2)

LOTS 3 & 4
(P2)
< BOULDER BUILDING INVESTORS LLC >

LOT 5
(P)
< 1930 CENTRAL LLC >

MATCHLINE – SEE SHEET C201

S34°14'00"E 270.67' (P) (C80)
S24°02'54"E (P)

N78°39'26"E (P)
N78°25'01"E 394.94'

FENCE CORNER SE:1.4'
(SEE NOTE 23)(TYP)

ZONE X UNSHADED

CONC CURB (PARTIALLY COVERED BY 100YR)

TWO STORY
BRICK GARAGE
5,920 SQ.FT.

F.F.E. 5207.0'

B.H.: 25.8'

74.0'

80.0'

20' UTILITY
EASEMENT (P2)

10.0'

75' R

SANITARY MANHOLE
RIM ELEV: 5211.21'
INV IN:5202.57' (SW) 6" PVC
INV IN:5202.50' (S) 8" PVC
INV OUT:5202.19' (N) 8" PVC

PHASE 1
DEMO AND REPLACE FLATWORK AS
NECESSARY FOR WATER MAIN INSTALLATION

PHASE 1
DEMO AND REPLACE SANITARY MAIN
FOR WATER MAIN INSTALLATION

N00°19'26"W
161.01' (AM)
N00°06'20"W
161.18' (P2)

LOT 2
(P2)
< MCGARVEYS SHOAL LLC >

EDGE OF BUILDING

ELECTRIC / COMMUNICATION
CABINETS AND VAULTS

F.F.E. 5213.97'

STORM GRATE
RIM ELEV: 5212.89'
INV OUT:5212.58' (S) 6" PVC

SHED ON CONCRETE

FOUND #5 REBAR
WITH 2" ALUM CAP
(ILLEGIBLE)

INV: 5211.95' 6" PVC

CONC RETAINING WALL

N89°56'00"E 729.21' (P)
N89°44'51"E 729.90' (AM)

450.7' (AM&P)

OUTLOT A
(P)

OUTLOT B
(P)

25.00 UTILITY ESMT

ZONE AE

ZONE X UNSHADED

CONC CURB (PARTIALLY COVERED BY 100YR)

N00°06'53"W 259.60' (P)
N00°13'56"W 259.42'

107.06' (AM)
106.89' (P)

FOUND #5 REBAR
WITH 1 1/2" ALUM CAP
(ILLEGIBLE)

FOUND #5 REBAR
WITH 1 1/4" RPC
"PAGE C038723"

10' TELECOMMUNICATIONS EASEMENT
(REC. NO. 1735966)

INV:5219.42' 24" STEEL

FOUND #5 REBAR
WITH 1 1/4" RPC
"PAGE C038723"

SANITARY MANHOLE
RIM ELEV: 5217.65'
INV IN: 5209.19' (E) 6" PVC
INV OUT:5205.38' (N) 8" CLAY

SANITARY MANHOLE
TELECOMMUNICATIONS EASEMENT
INV IN:5193.83' (SE) 8" PVC
INV OUT:5193.73' (SW) 8" PVC
(SEE NOTE 22)

455.21' (AM&P)

N82°14'25"W 1234.60' (AM)
N82°03'19"W 1294.85' (P)

INV:5217.60' 36" RCP

BURLINGTON NORTHERN

30 0 30 60
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PROJECT

1855 S. FLATIRON COURT

1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA
92121

ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #4 (CORRECTIONS)	01.13.2025
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

SITE PHASING PLAN - PHASE 1 (WEST)

SHEET NUMBER

C501

PHASE 1

PHASE 2

GRADING AND DRAINAGE NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. CONTRACTOR TO POTHOLE EXISTING UTILITIES AT PROPOSED UTILITY CROSSINGS IN ROW PRIOR TO CONSTRUCTION.
3. REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
4. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
5. ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
6. IF WALL IS SHOWN, TG DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)

SOUTH FLATIRON COURT
ROW=68'

PHASE 2
MAINTAIN EROSION CONTROL MEASURES INSTALLED IN PHASE 1

PHASE 2
MAINTAIN TEMPORARY SEDIMENT AND EROSION CONTROL BASIN INSTALLED IN PHASE 1 (TO BE REPLACED WITH PAVERS (FINAL CONDITION) DURING PHASE 3)

PHASE 2
MAINTAIN TEMPORARY CULVERT CROSSING INSTALLED IN PHASE 1

PHASE 2
ADJUST SWALE GRADING FROM PHASE 1 AND MAINTAIN EROSION CONTROL MEASURES

PHASE 2
INSTALL LANDSCAPING AND TREES AS REQUIRED FOR SCREENING

PHASE 2
INSTALL BIORETENTION AREAS FOR BUILDINGS 2 AND 3 AND ASSOCIATED STORM INFRASTRUCTURE

PHASE 2
INSTALL FINAL BIORETENTION AREA (REPLACES TEMPORARY BASIN INSTALLED IN PHASE 1)

PHASE 2
COMPLETE BUILDING 2 AND ASSOCIATED SITE ELEMENTS

PHASE 2
INSTALL BUILDING 2 FINAL PARKING AND ACCESS DRIVE W/ CURB AND GUTTER (MILL AND OVERLAY TEMPORARY ASPHALT DRIVE INSTALLED IN PHASE 1)

BUILDING 3
GARAGE PARKING
FFE=5216.50
LOBBY
FFE=5216.50'
UTILITY YARD
LOADING
STAIR

BUILDING 2
LOBBY
FFE=5218.75'
GARAGE PARKING
FFE=5218.75
LOADING
STAIR
UTILITY YARD

EXIST DRAINAGE EASEMENT

SCALE IN FEET: 30 0 30 60

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Job Number 222308

TITLE

SITE PHASING PLAN - PHASE 2

SHEET NUMBER

C502

PHASE 1

PHASE 2

PHASE 3

GRADING AND DRAINAGE NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. CONTRACTOR TO POTHOLE EXISTING UTILITIES AT PROPOSED UTILITY CROSSINGS IN ROW PRIOR TO CONSTRUCTION.
3. REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
4. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
5. ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
6. IF WALL IS SHOWN, TG DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)

SOUTH FLATIRON COURT

PHASE 3
INSTALL PERMEABLE PAVERS (REPLACE TEMPORARY BASIN FROM PHASES 1 AND 2)

PHASE 3
INSTALL REMAINING LANDSCAPING AND TREES

BUILDING 1

LOADING

STAIR

UTILITY YARD

GARAGE PARKING
FFE=5212.00'

LOBBY
FFE=5218.30'

PHASE 3
INSTALL BUILDING 3 BIORETENTION AREA AND ASSOCIATED STORM INFRASTRUCTURE

PHASE 3
COMPLETE BUILDING 1 AND ASSOCIATED SITE ELEMENTS

PHASE 3
INSTALL BUILDING 3 BIORETENTION AREA AND ASSOCIATED STORM INFRASTRUCTURE

BUILDING 3

GARAGE PARKING
FFE=5216.50

LOBBY
FFE=5216.50'

UTILITY YARD

LOADING

STAIR

BUILDING 2

LOBBY
FFE=5218.75'

GARAGE PARKING
FFE=5218.75

LOADING

STAIR

UTILITY YARD

PHASE 3
INSTALL BUILDING 2 FINAL PARKING AND ACCESS DRIVE W/ CURB AND GUTTER (MILL AND OVERLAY TEMPORARY ASPHALT DRIVE INSTALLED IN PHASE 1)

PHASE 3
INSTALL REMAINING LANDSCAPING AND TREES

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Job Number 222308

TITLE

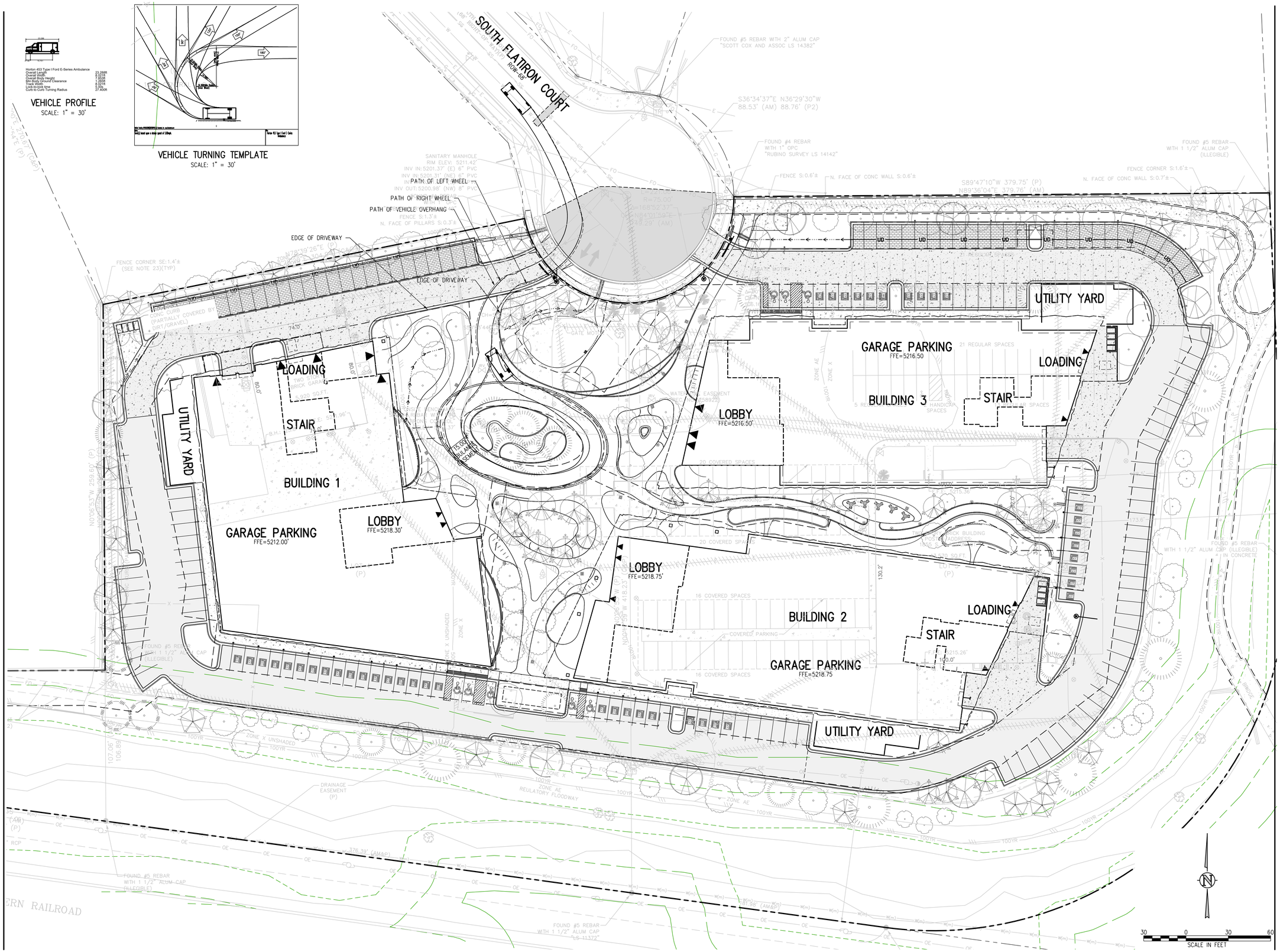
SITE PHASING PLAN - PHASE 3

SHEET NUMBER

C503

VEHICLE PROFILE
SCALE: 1" = 30'

VEHICLE TURNING TEMPLATE
SCALE: 1" = 30'



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	SITE REVIEW #1	07.05.2024

Job Number 222308

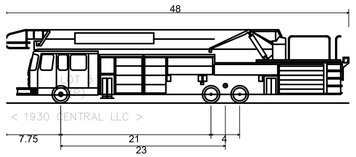
TITLE

AMBULANCE TURNING ANALYSIS

SHEET NUMBER

EXH-1

J:\3678\3\Drawings\Exhibits+Figures\FIG 1 -+Ambulance Turning Template.dwg, 1/13/2025 - 4:51 PM, JLT



Boulder Fire Truck - Large	
Overall Length	48.000ft
Overall Width	8.000ft
Overall Body Height	10.241ft
Min Body Ground Clearance	0.671ft
Track Width	6.910ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	40.00°

SOUTH FLATIRON COURT

UTILITY YARD

LOADING

STAIR

BUILDING 1

LOBBY
FFE=5218.30'

GARAGE PARKING
FFE=5212.00'

LIMITS OF 21' TEMPORARY PAVEMENT ACCESS DRIVE FOR PHASED PROJECT CONDITIONS (TYP)

GARAGE PARKING
FFE=5216.50

21 REGULAR SPACES

LOADING

BUILDING 3

STAIR

LOBBY
FFE=5216.50'

LOBBY
FFE=5218.75'

BUILDING 2

LOADING

STAIR

GARAGE PARKING
FFE=5218.75

UTILITY YARD

LIMITS OF 21' TEMPORARY PAVEMENT ACCESS DRIVE FOR PHASED PROJECT CONDITIONS (TYP). FIRE ACCESS TURNING MOVEMENT IS CONFIRMED FOR THIS CONDITION – PLEASE SEE SHEETS C500 – C503 FOR PHASING PLANS

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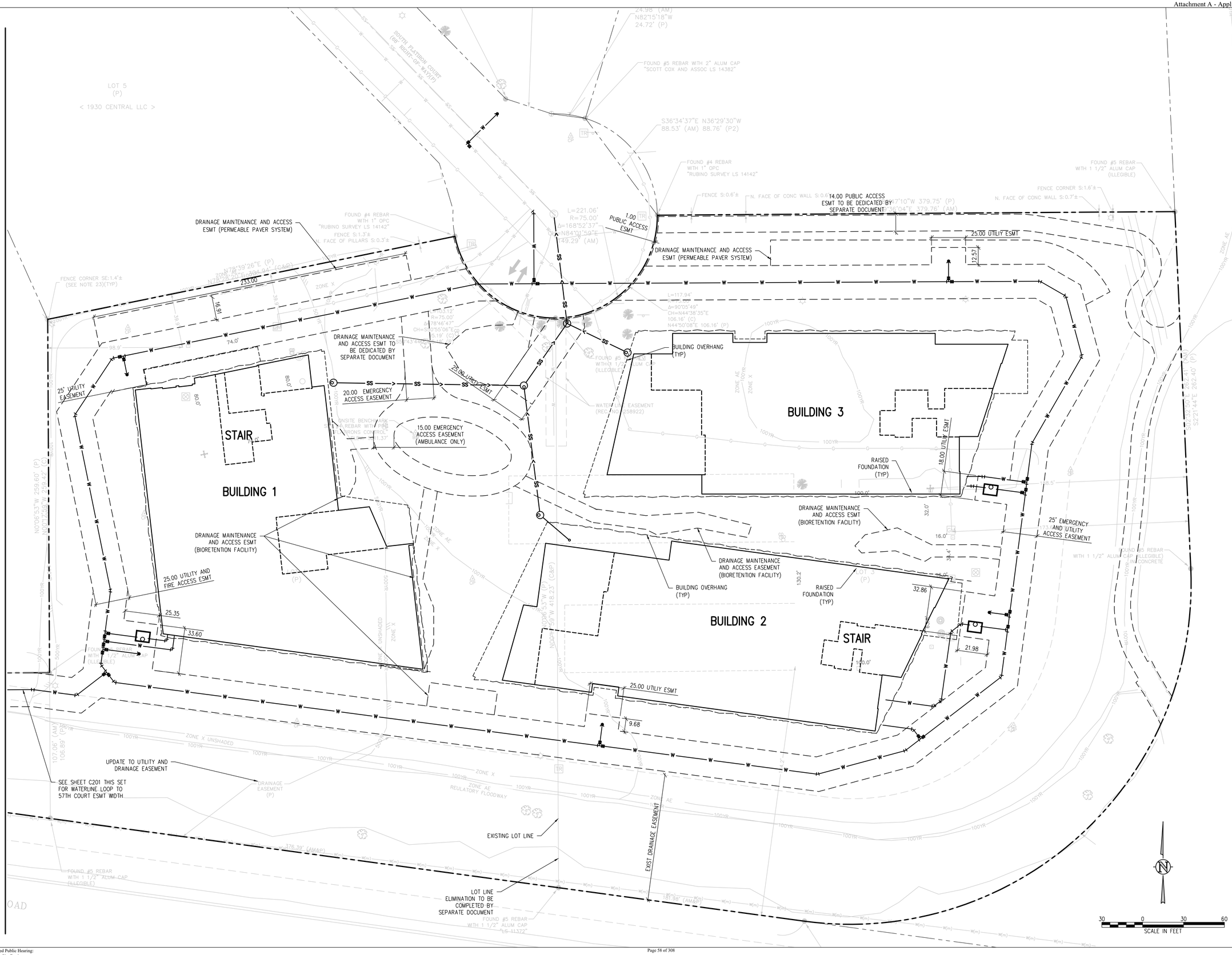
Job Number 222308

TITLE

FIRE TRUCK TURNING ANALYSIS

SHEET NUMBER

EXH-2



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Job Number 222308

TITLE

EASEMENT EXHIBIT

SHEET NUMBER

EXH-3

LANDSCAPE GENERAL NOTES

1. WHERE MATERIALS ARE APPLIED TO, OR ARE IN DIRECT CONTACT WITH WORK INSTALLED BY ANOTHER SUBCONTRACTOR, COMMENCEMENT OF WORK IMPLIES ACCEPTANCE OF THE SUBSTRATE AS SUITABLE FOR THE APPLICATION INTENDED.
2. RE: CIVIL DRAWINGS FOR ALL SITE CONSTRUCTION INFORMATION INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   - SITE UTILITIES
   - SITE GRADING AND DRAINAGE
   - ASPHALT EXTENTS DETAILS
   - VEHICULAR PAVEMENT ASSEMBLIES
   - PAVING MARKERS
   - CURB AND GUTTER DETAILS
   - PARKING BUMPERS
   - TRAFFIC SIGNAGE
   - PAVING STRIPING AND CURB MARKINGS
   - TYPICAL HANDICAP SIGNAGE/SPACES
   - STORMWATER DESIGN
3. RE: ELECTRICAL DRAWINGS FOR SITE INFORMATION INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
   - SITE LIGHT STANDARD SIZES
   - ELECTRICAL SLEEVING LOCATIONS AND SIZES
   - TELEPHONE AND CABLE T.V. PULL BOX LOCATIONS
   - ELECTRICAL MANHOLE LOCATIONS AND DETAILS
   - PULL BOX LOCATIONS AND SIZES FOR VARIOUS SITE LIGHTING ELEMENTS
   - EXTERIOR BUILDING ILLUMINATION AND UTILITY COORDINATION
4. INCLUDE 100% IRRIGATION COVERAGE AT ALL PLANTING AREAS.
5. OWNER TO ENGAGE A LICENSED IRRIGATION CONSULTANT DURING THE SITE REVIEW PROCESS PER AHJ REQUIREMENTS.
6. CONTRACTOR SHALL INFORM THE OWNER PRIOR TO ANY SITE DEMOLITION AND SHALL SCHEDULE SUCH DEMOLITION AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS AS OUTLINED IN AN AGREED PHASING PLAN AND SCHEDULE.

MATERIAL & LAYOUT NOTES

1. ALL CURVES TO BE TRUE RADII WITHOUT STRAIGHT SEGMENTS.
2. RE: CIVIL DRAWINGS FOR EASEMENT INFORMATION, GRADING PLAN, AND UTILITY DRAWINGS.
3. SEE CIVIL GRADING PLAN FOR ELEVATIONS OF PAVING AT TOP AND BOTTOM OF WALL; TW SHOWN IN LANDSCAPE DRAWINGS IS FOR TOP OF ARCHITECTURAL WALLS ONLY.
4. BASE TOPOGRAPHICAL AND EXISTING CONDITIONS AS SHOWN ON EXISTING CONDITIONS DRAWINGS.
5. CONTRACTOR TO CONSTRUCT HARDSCAPE MATERIAL MOCKUPS FOR LANDSCAPE ARCHITECT'S APPROVAL. RE: SPECIFICATIONS FOR MOCKUP DETAILS.
6. UTILITY WORK IS NOT INDICATED ON THIS DRAWING. RE: GRADING AND DRAINAGE AND UTILITY PLANS (CIVIL DRAWINGS).
7. DO NOT SCALE THESE DRAWINGS.
8. DIMENSIONS ARE FROM BACK OF CURB, TO FACE OF WALL, TO OUTSIDE EDGE OF PAVEMENTS; FROM COLUMN CENTERLINES TO HARDSCAPE CENTERLINES, TO CENTERLINE OF PAVEMENTS, TO OUTSIDE EDGE OF PAVEMENTS, TO CENTERLINES OF STAIRS; FROM EDGE OF PAVEMENT TO FACE OF WALL.
9. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.
10. ALL WALLS, COLUMNS, SIDEWALKS, PATHWAYS, FENCES, AND STAIRWAYS SHALL BE COMPLETELY LAID OUT AND STAKED WITH VISIBLE MARKERS. THE STAKES SHALL BE APPROVED IN THE FIELD BY OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE 48 HOURS PRIOR TO SITE VISIT.
11. ALL JOINTS TO BE SAWCUT. MAXIMUM SPACING: 6' FOR WALKS AND 10' FOR PLAZA, SCORING DESIGN FORTHCOMING IN FUTURE SETS.

PLANTING NOTES

1. RE: SPECIFICATIONS FOR ADDITIONAL PLANTING REQUIREMENTS.
2. ALL PLANTS MUST BE CONTAINER-GROWN (CONT.) OR BALLED AND BURLAPPED (B&B) AS INDICATED IN PLANT LIST.
3. ALL TREES MUST BE STRAIGHT TRUNKED, UNLESS NOTED OTHERWISE, FULL HEADED, AND MEET ALL REQUIREMENTS SPECIFIED.
4. ALL PLANTS ARE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE BEFORE, DURING, AND AFTER INSTALLATION.
5. ALL TREES MUST BE GUYED OR STAKED AS SHOWN IN THE DETAILS.
6. ALL PLANTS AND PLANTING AREAS MUST BE COMPLETELY MULCHED AS SHOWN IN THE DETAILS.
7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCUR AS A RESULT OF THE CONSTRUCTION.
8. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK.
9. THE OWNER'S REPRESENTATIVE WILL APPROVE THE STAKED LOCATION OF ALL PLANT MATERIAL PRIOR TO INSTALLATION.
10. NO EARTH SAUCERS TO BE PROVIDED AROUND TREE PLANTINGS LOCATED IN SWALES. TOP OF ROOT BALLS FOR THESE TREES TO BE FLUSH WITH BOTTOM OF SWALES TO ENSURE POSITIVE DRAINAGE.

MATERIAL SCHEDULE

GRAPHIC	ID	DESCRIPTION	DESCRIPTION	NOTES
	BN-1	SITE BENCH TYPE 1	STONE BENCH - CUSTOM	CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR LANDSCAPE ARCHITECT APPROVAL
	CS-1	STONE MULCH 1	ADA COMPLIANT MIX TO BE APPROVED BY LANDSCAPE ARCHITECT	BASIS OF DESIGN: DECOMPOSED GRANITE
	CS-2	STONE MULCH 2	2" - 4" RIVER ROCK	
	PA	ORGANIC MULCH	3" MIN. ORGANIC COVERAGE	DO NOT PLACE WITHIN 3" OF TRUNKS OR STEMS
	PV-1	CONCRETE PAVING TYPE 1	CIP CONCRETE - INTERGRAL COLOR	SAND FINISH
	PV-2	CONCRETE PAVING TYPE 2	CIP CONCRETE - INTEGRAL COLOR	SAND FINISH
	PV-3	CONCRETE PAVING TYPE 3	CONCRETE WALK AND MULTI-USE PATHS - CITY STANDARD	BROOM FINISH
	PV-4	DETECTABLE WARNING PAVING TYPE 4	CONCRETE DETECTABLE WARNING PAVER - INTERGRAL COLOR	SANDBLAST FINISH
	PV-5	UNIT PAVER	4" X 4" STONE COBBLE	THERMAL FINISH
	PV-6	STEP STONE PAVERS	24" X 12" X 8" STONE BLOCK	NATURAL FINISH
	PV-7	NATURAL STONE	2'-0" - 4'-0"	MIX 40% BOULDERS WITH 60% FLAT FIELD STONE SLAB
	WD-1	WOOD DECKING	WOOD DECKING	

TREE PLANTING SCHEDULE

QTY	CODE	SCIENTIFIC NAME	COMMON NAME	SIZE	ROOT	SPACING
TREE						
14	ACE GRA	ACER GRANDIDENTATUM 'ROCKY MOUNTAIN GLOW'	ROCKY MOUNTAIN GLOW MAPLE	3" CAL	B&B	AS SHOWN
13	ACE NEG	ACER NEGUNDO 'SENSATION'	SENSATION BOX ELDER	3" CAL	B&B	AS SHOWN
18	ALN INC	ALNUS INCANA SSP. TENUIFOLIA	THINLEAF ALDER	2" CAL	B&B	AS SHOWN
9	AME GRA	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	SERVICEBERRY 'AUTUMN BRILLIANCE'	8' - 10' HT.	B&B	AS SHOWN
8	BET NIG	BETULA NIGRA 'HERITAGE'	'HERITAGE' RIVERBIRCH	3" CAL	B&B	AS SHOWN
7	CASP	CATALPA SPECIOSA 'HIAWATHA 2'	HEARTLAND NORTHER CATALPA	3" CAL	B&B	AS SHOWN
4	CEOC	CELTIS OCCIDENTALIS 'JFS-KSU1'	PRAIRIE SENTINEL HACKBERRY	3" CAL	B&B	AS SHOWN
13	GLTR	GLEDITISIA TRIACANTHOSE	THORNLESS HONEY LOCUST	AS NOTED	B&B	AS SHOWN
13	GYDI	GYMNOCLADUS DIOICUS 'ESPRESSO-JFS'	ESPRESSO KENTUCKY COFFEE TREE	AS NOTED	B&B	AS SHOWN
11	JUN SCO	JUNIPERUS SCOPULORUM 'COLOGREEN'	COLOGREEN ROCKY MOUNTAIN JUNIPER	AS NOTED	B&B	AS SHOWN
10	PIC GLA	PICEA GLAUCA VAR. DENSATA	BLACK HILLS SPRUCE	8'-10' HT.	B&B	AS SHOWN
3	PIN EDU	PINUS EDULIS	PINYON PINE	3" CAL	B&B	AS SHOWN
14	QUE BIC	QUERCUS BICOLOR 'BONNIE AND MIKE'	SWAMP WHITE OAK	AS NOTED	B&B	AS SHOWN
7	QUE MAC	QUERCUS MACROCARPA	BUR OAK	3" CAL	B&B	AS SHOWN
25	QUE MUE	QUERCUS MUEHLENBERGII	CHINKAPIN OAK	AS NOTED	B&B	AS SHOWN

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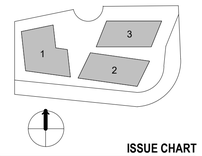
SUITE 400, SAN DIEGO, CA 92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

LANDSCAPE GENERAL NOTES AND LEGENDS

SHEET NUMBER

L0.0

VIEW 1

VIEW 2

VIEW 3

VIEW 4

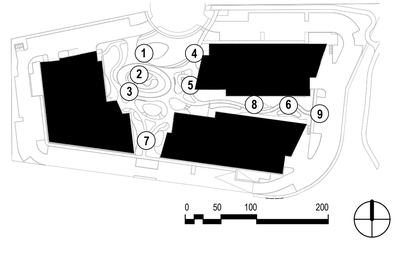
VIEW 5

VIEW 6

VIEW 7

VIEW 8

VIEW 9



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PROJECT

1855 S. FLATIRON COURT

1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

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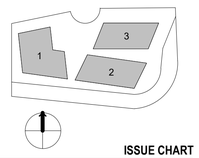

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LANDSCAPE RENDERINGS

SHEET NUMBER

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1855 Flatiron Ct. - 3 BLDG OPT | LAND USE / OPEN SPACE CALCULATIONS			
	SF		
Overall Site Area	417,640		Outlots included
Building Footprint (Bldg. 1+2+3)	93,649		
Parking Lot Area	75,282.60		
Parking Spaces Required	519		
Parking Spaces Provided	398		23% reduction from Boulder zoning code
Required Public Sidewalks or MU Paths on Property	Yes	Yes	Fully compliant
Remaining Area for Landscape Calculations	248,708.40		
PARKING LOT LANDSCAPE	**Required**	**Provided**	**Notes**
Interior			
Interior Parking Lot Landscape (5% of Total Area)	3764.13	7,674.94	Exceeds Standards
Interior Parking Lot Landscape (Percentage of Parking Area)	5%	10.2%	Meets Standards
Parking Lot Landscape - Trees Required 1/200 SF of Required Landscape	19	19	Exceeds Standards
Parking Lot Landscape - Shrubs Required to Fill All Interior Parking Lot Landscape Areas	Full Coverage	Full Coverage	Fully Compliant
Screening			
Parking Lot Screening - Min. 42" Height Shrubs		272.00	Meets Standards
Parking Lot Screening Trees - One Tree Per 25' (1409.5 Linear Feet)	56.00	85.00	Exceeds Standards
Screening Min. Width	6'-0"	6'-0"	Meets Standards
SITE LANDSCAPE	**Required**	**Provided**	**Notes**
Landscape Trees required (1/1500 SF of Landscape Area)	165.81	169.00	Exceeds Standards
Landscape Shrubs Required (5/1500 SF of Landscape Area)	829.03	3,614.00	Exceeds Standards
Turf Grass	Less than 25%	25% Max.	Exceeds Standards
Total Amount of High Water Use Zones	50% Max.	2.50%	Exceeds Standards
ROW LANDSCAPE	**Required**	**Provided**	**Notes**
Flatiron Ct	6	6	Due to existing utilities crossing ROW, 5 trees counted are inside of property
OPEN SPACE	**Required**	**Provided**	**Notes**
20% Open Space Required (IG Zoning, Between 45' and 55')	83,528.00	121,872.05	Exceeds Standards
Enhanced Paving and Site Amenity Areas		27,622.26	
Planting Area - Screening and Parking Lot		21,311.68	
Planting Areas (On Property, excluding Slopes over 15%)		36,504.70	
Wetland Buffer		36,433.41	
% of Open Space Whithin Outer Wetland Buffer	50% Max.	8.72%	Exceeds Standards
Open Space Percentage	20.00%	29.18%	Exceeds Standards

1 OPEN SPACE DIAGRAM
1" = 40'-0"

0 20 40 80

LEGEND

- ENHANCED PAVING (COLORED/ TEXTURED CONCRETE, CONCRETE PAVERS, CRUSHED FINES, ETC.)
- PLANTING AREA - ON PROPERTY
- PLANTING AREA - SCREENING AND PARKING LOT
- PLANTING AREA - WETLAND BUFFER
- PERMEABLE PAVERS (NOT INCLUDED AS OPEN SPACE)

LEGEND

- LOT LINE
- 100 YEAR FLOODPLAIN
- DRAINAGE EASEMENT
- WETLANDS BOUNDARY
- WETLANDS INNER BOUNDARY
- WETLANDS OUTER BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- BUILDING OVERHEAD
- UTILITY EASEMENT

NOTES

AREAS ADJACENT TO PROPOSED PARKING WILL MEET SECTION 9-9-11(E)(4) : ALL LANDSCAPED AREAS, PLAZAS AND PATIOS, USED AS OPEN SPACE, AND LOCATED ADJACENT TO A STREET, ALLEY, DRIVEWAY OR PARKING LOT, AND PROTECTED FROM VEHICULAR ENCROACHMENT BY A VEHICULAR BARRIER WHICH MAY INCLUDE, WITHOUT LIMITATION, A BOLLARD, WALL, FENCE OR CURB.

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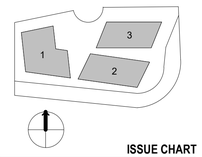

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OPEN SPACE DIAGRAM

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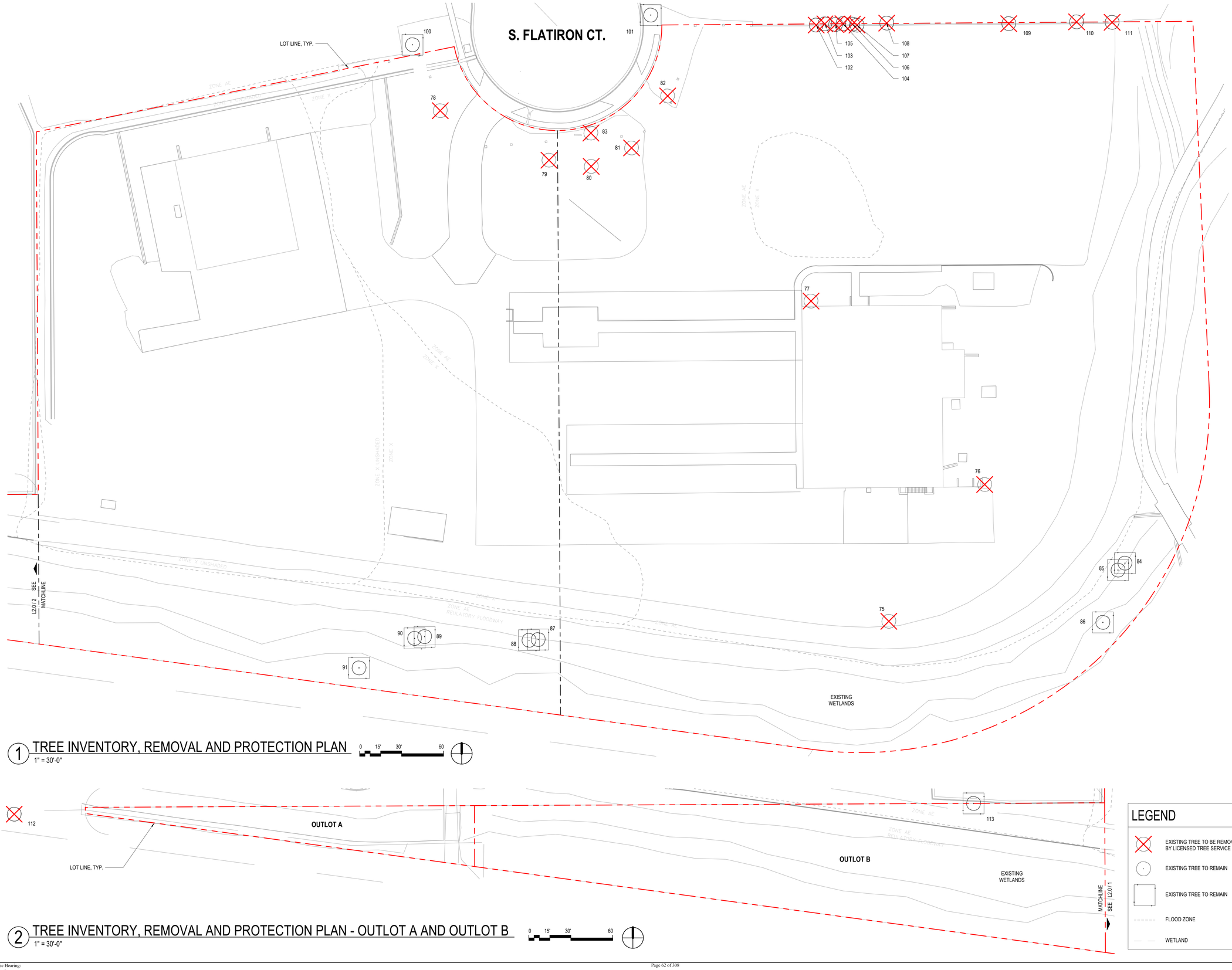
L1.0



1 TREE INVENTORY, REMOVAL AND PROTECTION PLAN
1" = 30'-0"
0 15' 30' 60

2 TREE INVENTORY, REMOVAL AND PROTECTION PLAN - OUTLOT A AND OUTLOT B
1" = 30'-0"
0 15' 30' 60

LEGEND

- EXISTING TREE TO BE REMOVED BY LICENSED TREE SERVICE
- EXISTING TREE TO REMAIN
- EXISTING TREE TO REMAIN
- FLOOD ZONE
- WETLAND

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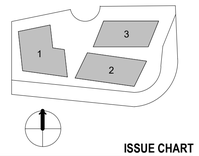

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Job Number		222308

TITLE

TREE INVENTORY, REMOVAL AND PROTECTION

SHEET NUMBER

L2.0

GENERAL TREE PROTECTION NOTES:

1. TREE PROTECTION SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
2. RE: SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS
3. ALL TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF CLEARING AND GRADING WORK.
4. THE CONTRACTOR SHALL INSTALL TREE PROTECTION FENCE WHERE INDICATED ON THE DRAWINGS.
5. TREE PROTECTION SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL CONSTRUCTION WORK HAS BEEN COMPLETED AND ALL DANGER OF DAMAGE HAS PASSED OR AS OTHERWISE DIRECTED BY THE OWNER.
6. DO NOT STORE CONSTRUCTION MATERIALS, DEBRIS OR EXCAVATED MATERIAL WITHIN TREE PROTECTION LIMITS.
7. GRADING AND CONSTRUCTION IN PROXIMITY OF OR WITHIN TREE PROTECTION AREAS SHALL BE DONE WITH EXTREME CARE SO AS NOT TO DAMAGE THE ROOT SYSTEM OF THE TREES AND TO COMPACT SOIL IN THE AREA.
8. NO GRADING AND CONSTRUCTION IS TO OCCUR WITHIN A 10 FOOT RADIUS FROM ANY TREE TRUNK.
9. FINISH GRADING IN TREE PROTECTION AREA INDICATED ON THE DRAWINGS SHALL BE DONE UNDER DIRECT SUPERVISION OF THE LANDSCAPE ARCHITECT IN THE FIELD. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT 48 HOURS PRIOR TO THIS SITE VISIT.
10. GRADING AND CONSTRUCTION IN PROXIMITY OF OR WITHIN TREE PROTECTION AREAS SHALL BE DONE AS PROVIDED FOR IN THE SPECIFICATIONS.
11. RE: DETAIL 1/L00-11 FOR TREE PROTECTION.

ASH TREE QUARANTINE

1. BOULDER COUNTY IS CURRENTLY UNDER AN ASH TREE QUARANTINE FOLLOWING THE DISCOVERY OF THE EMERALD ASH BORER, A DESTRUCTIVE PEST THAT THREATENS THE TREES.
2. THE QUARANTINE PROHIBITS MOVING UNTREATED ASH TREES OR THEIR PARTS OUT OF THE COUNTY AND SURROUNDING AREAS.
3. THE EMERALD ASH BORER IS AN INVASIVE SPECIES RESPONSIBLE FOR KILLING MORE THAN 50 MILLION ASH TREES ACROSS 21 U.S. STATES SINCE 2002, ACCORDING TO OFFICIALS.
4. THE QUARANTINED AREA INCLUDES ALL OF BOULDER COUNTY AND MORE.
5. ITEMS THAT FALL UNDER THE QUARANTINE INCLUE LOGS, GREEN LUMBER, NURSERY STOCK, WOOD CHIPS, MULCH, STUMPS, ROOTS, BRANCHES, AND FIREWOOD, ACCORDING TO THE NEWS RELEASE. EXCEPTIONS TO THE QUARANTINE INCLUE SEEDS, LEAVES, KILN-DRIED, PROCESSED FIREWOOD, AND FINISHED WOOD PRODUCTS WITHOUT BARK, ACCORDING TO THE STATE'S ORDER.
6. ASH TREES MUST BE REMOVED BY A LICENSED TREE ARBORIST.

THE FOLLOWING SITES WILL BE ACCEPTING ASH TREE MATERIALS WITHIN THE QUARANTINED AREA:

FOR MORE INFORMATION ABOUT THE EMERALD ASH BORER AND THE QUARANTINE, VISIT EABcolorado.com

- DENVER REGIONAL LANDFILL, 1441 WELD COUNTY ROAD 6, ERIE
- FRONT RANGE LANDFILL, 1830 WELD COUNTY ROAD 5, ERIE
- REPUBLIC LANDFILL, 8900 COLO. 93, GOLDE

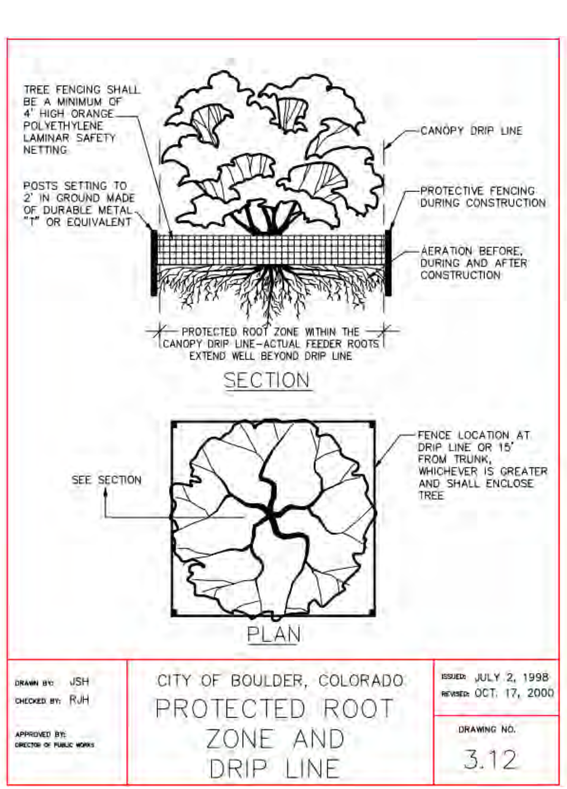
CONDITION DESCRIPTION

1 - (DEAD):
LITTLE TO NO INDICATION OF LIFE.

2 - (POOR):
THE TREE IS IN DECLINE AND LIKELY WILL NOT RECOVER. FOLIAGE QUALITY AND COLOR IS POOR. DEAD OR MISSING BRANCHES COMPRISE OVER 50 PERCENT OF THE TREE CANOPY. THERE MAY BE SERIOUS STRUCTURAL DEFICIENCIES IN THE TREE.

3 - (FAIR):
THE VIGOR IS NORMAL OR REDUCED. THERE IS AN ACCUMULATION OF DEAD BRANCHES. DEFECTS ARE PRESENT IN THE CANOPY THAT MAY OR MAY NOT BE CORRECTABLE. THERE MAY BE AN ACTIVE PEST INFESTATION. THE CANOPY HAS BEEN REDUCED OR IS ASYMMETRICAL.

4 - (GOOD):
THE VIGOR IS NORMAL FOR THE TREE SPECIES WITH MINOR TWIG DIEBACK. DEFECTS ARE MINOR AND EASILY CORRECTED. THE CANOPY MAY HAVE MINOR ASYMMETRY WHICH COULD BE DUE TO PRUNING FOR CLEARANCE



1 TREE PROTECTION FENCE
N.T.S.

EXISTING TREE SCHEDULE

TREE #	SCIENTIFIC NAME	COMMON NAME	COMMENTS	TRUNK DIAMETER	MULTIPLE STEMS	CONDITION	KEEP/ REMOVE	FIELD NOTES
75	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	6		FAIR	REMOVE	OUTSIDE OF FENCE
76	POPULUS DELTOIDES	PLAINS COTTONWOOD	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	14		FAIR	REMOVE	DEAD BRANCHES
77	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	14		FAIR	REMOVE	2 TREE TO GROUND GUY WIRES. ONE BROKEN. SHADED CANOPY WITH BUILDING
78	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	13		GOOD	REMOVE	
79	POPULUS DELTOIDES	PLAINS COTTONWOOD	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	30.6		FAIR	KEEP	DEAD BRANCHES. CODOMINANT STEMS SURFACE DECAYED ROOTS
80	POPULUS DELTOIDES	PLAINS COTTONWOOD	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	29.3		FAIR	REMOVE	DEAD BRANCHES, SLIGHT LEAN, SURFACE DECAYED BRANCHES
82	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	12		FAIR	REMOVE	SLIGHT LEAN, STUBBED BRANCHES
83	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	12.3		GOOD	REMOVE	
84	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	14.1	6, 4, 5, 7, 6	FAIR	KEEP	
85	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	6		FAIR	KEEP	
86	PEACH LEAF WILLOW	SALIX AMYGDALOIDES	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	20	3" X 8	FAIR	KEEP	GROVE
87	SALIX AMYGDALOIDES	PEACH LEAF WILLOW	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	30	4" X 20	FAIR	KEEP	GROVE
88	SALIX AMYGDALOIDES	PEACH LEAF WILLOW	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	30	4" X 20	FAIR	KEEP	GROVE
89	POPULUS DELTOIDES	PLAINS COTTONWOOD	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	16.2	7, 7, 8, 10	FAIR	KEEP	
90	POPULUS DELTOIDES	PLAINS COTTONWOOD	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	7.8	6, 5	POOR	KEEP	
91	PEACH LEAF WILLOW	SALIX AMYGDALOIDES	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	40.7	36, 19	POOR	KEEP	CAVITIES, DECAY
100	PICEA PUNGENS	BLUE SPRUCE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	16.5		FAIR	KEEP	OFF PROPERTY. ABOUT 5 FEET FROM PROPERTY LINE. SPARSE GROWTH, DEAD BRANCHES
101	PICEA PUNGENS	BLUE SPRUCE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	16.5		FAIR	KEEP	
102	ULMUS PUMILA	SIBERIAN ELM	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	17	13, 11	POOR	KEEP	CURB AND ASPHALT CONFLICTS
103	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	7.1	5, 5	DEAD	REMOVE	CONFLICT WITH CURB AND ASPHALT
104	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	4		DEAD	REMOVE	CONFLICT WITH ASPHALT
105	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	5	4, 3	POOR	KEEP	CONFLICT WITH ASPHALT
106	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	5		POOR	KEEP	CONFLICT WITH ASPHALT DEAD BRANCHES
107	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	5		POOR	KEEP	CONFLICT WITH SIDEWALK
108	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	13.6	8, 11	DEAD	REMOVE	
109	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	12		POOR	REMOVE	MOSTLY DEAD
110	ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	12.8	8, 10	FAIR	REMOVE	
111	FRAXINUS PENNSYLVANICA	GREEN ASH	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	10	6, 8	DEAD	REMOVE	
112	ULMUS PUMILA	SIBERIAN ELM	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	15.6	12, 10	POOR	KEEP	UTILITY LINE CLEARANCE PRUNING
113	ULMUS PUMILA	SIBERIAN ELM	STRONG CENTRAL LEADER; 8' CLEAR TRUNK; EVENLY BRANCHED; FULL	22		FAIR	KEEP	BASAL MECHANICAL WOULD, DEAD BRANCHES

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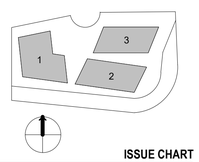

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TREE INVENTORY, REMOVAL AND PROTECTION SCHEDULE

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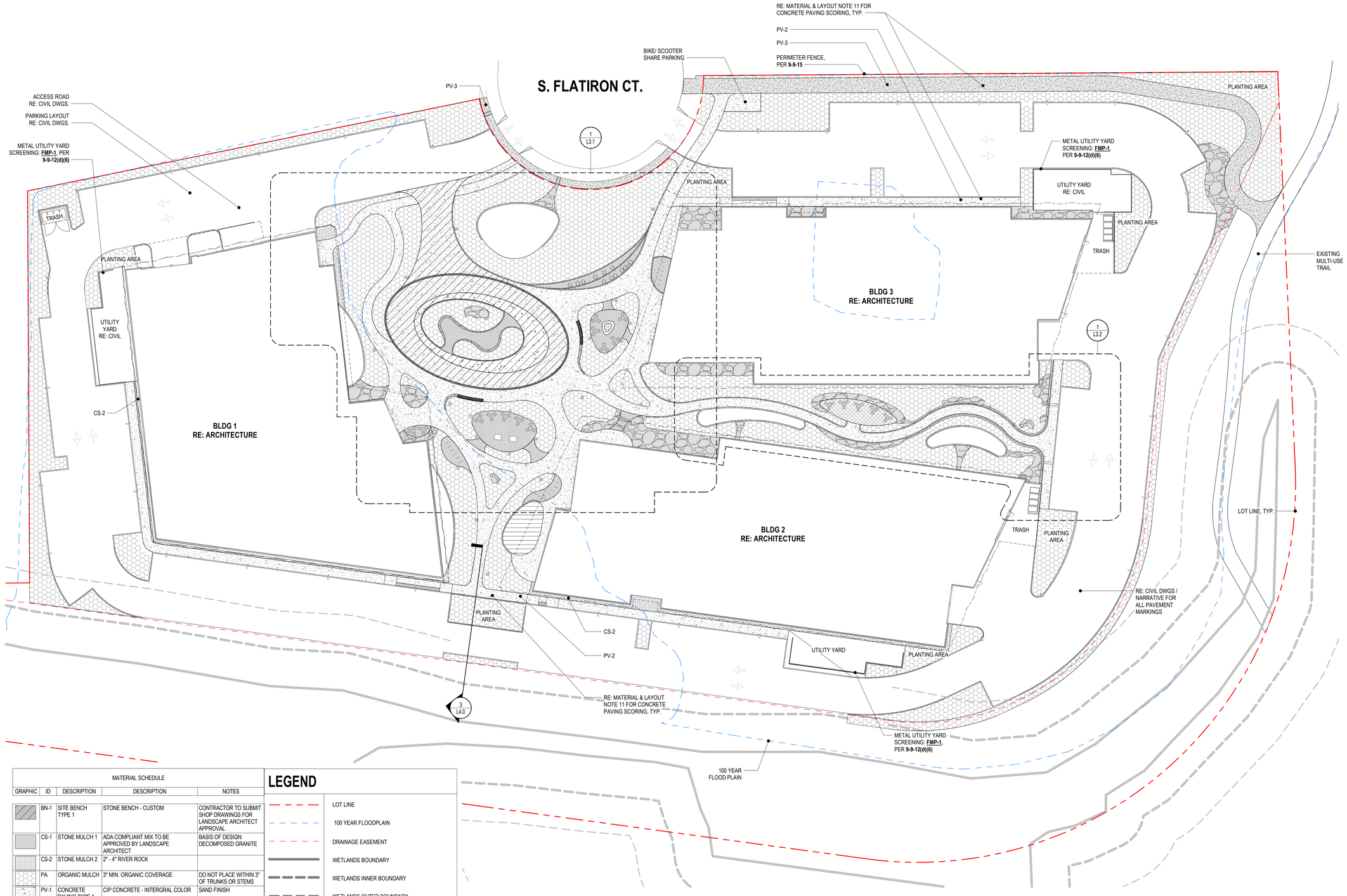

MATERIAL SCHEDULE				
GRAPHIC	ID	DESCRIPTION	DESCRIPTION	NOTES
	BN-1	SITE BENCH TYPE 1	STONE BENCH - CUSTOM	CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR LANDSCAPE ARCHITECT APPROVAL
	CS-1	STONE MULCH 1	ADA COMPLIANT MIX TO BE APPROVED BY LANDSCAPE ARCHITECT	BASIS OF DESIGN: DECOMPOSED GRANITE
	CS-2	STONE MULCH 2	2" - 4" RIVER ROCK	
	PA	ORGANIC MULCH	3" MIN. ORGANIC COVERAGE	DO NOT PLACE WITHIN 3" OF TRUNKS OR STEMS
	PV-1	CONCRETE PAVING TYPE 1	CIP CONCRETE - INTERGRAL COLOR	SAND FINISH
	PV-2	CONCRETE PAVING TYPE 2	CIP CONCRETE - INTEGRAL COLOR	SAND FINISH
	PV-3	CONCRETE PAVING TYPE 3	CONCRETE WALK AND MULTI-USE PATHS - CITY STANDARD	BROOM FINISH
	PV-4	DETECTABLE WARNING PAVING TYPE 4	CONCRETE DETECTABLE WARNING PAVER - INTERGRAL COLOR	SANDBLAST FINISH
	PV-5	UNIT PAVER	4" X 4" STONE COBBLE	THERMAL FINISH
	PV-6	STEP STONE PAVERS	24" X 12" X 8" STONE BLOCK	NATURAL FINISH
	PV-7	NATURAL STONE	2'-0" - 4'-0"	MIX 40% BOULDERS WITH 60% FLAT FIELD STONE SLAB
	WD-1	WOOD DECKING	WOOD DECKING	

LEGEND

- LOT LINE
- 100 YEAR FLOODPLAIN
- DRAINAGE EASEMENT
- WETLANDS BOUNDARY
- WETLANDS INNER BOUNDARY
- WETLANDS OUTER BOUNDARY
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0 15' 30' 60

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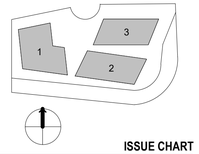
4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA
92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

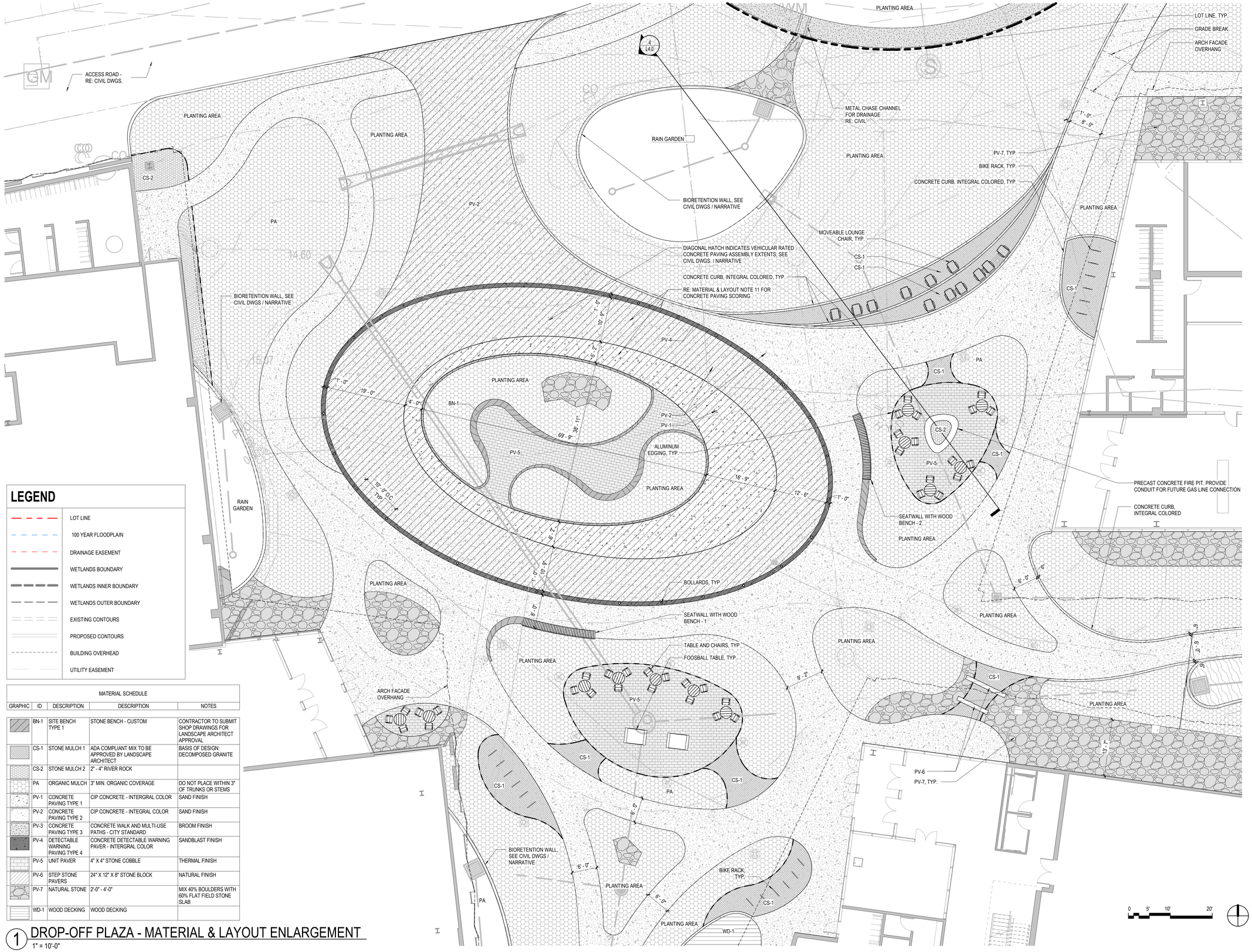
Job Number 222308

TITLE

MATERIALS AND LAYOUT PLAN

SHEET NUMBER

L3.0



LEGEND

	LOT LINE
	100 YEAR FLOODPLAIN
	DRAINAGE EASEMENT
	WETLANDS BOUNDARY
	WETLANDS INNER BOUNDARY
	WETLANDS OUTER BOUNDARY
	EXISTING CONTOURS
	PROPOSED CONTOURS
	BUILDING OVERHEAD
	UTILITY EASEMENT

MATERIAL SCHEDULE

GRAPHIC	ID	DESCRIPTION	DESCRIPTION	NOTES
	BN-1	SITE BENCH TYPE 1	STONE BENCH - CUSTOM	CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR LANDSCAPE ARCHITECT APPROVAL
	CS-1	STONE MULCH 1	ADA COMPLIANT MIX TO BE APPROVED BY LANDSCAPE ARCHITECT	BASIS OF DESIGN: DECOMPOSED GRANITE
	CS-2	STONE MULCH 2	2" - 4" RIVER ROCK	
	PA	ORGANIC MULCH	3" MIN. ORGANIC COVERAGE	DO NOT PLACE WITHIN 3" OF TRUNKS OR STEMS
	PV-1	CONCRETE PAVING TYPE 1	CIP CONCRETE - INTERGRAL COLOR	SAND FINISH
	PV-2	CONCRETE PAVING TYPE 2	CIP CONCRETE - INTEGRAL COLOR	SAND FINISH
	PV-3	CONCRETE PAVING TYPE 3	CONCRETE WALK AND MULTI-USE PATHS - CITY STANDARD	BROOM FINISH
	PV-4	DETECTABLE WARNING PAVING TYPE 4	CONCRETE DETECTABLE WARNING PAVER - INTERGRAL COLOR	SANDBLAST FINISH
	PV-5	UNIT PAVER	4" X 4" STONE COBBLE	THERMAL FINISH
	PV-6	STEP STONE PAVERS	24" X 12" X 8" STONE BLOCK	NATURAL FINISH
	PV-7	NATURAL STONE	2'-0" - 4'-0"	MIX 40% BOULDERS WITH 60% FLAT FIELD STONE SLAB
	WD-1	WOOD DECKING	WOOD DECKING	

1 DROP-OFF PLAZA - MATERIAL & LAYOUT ENLARGEMENT

1" = 10'-0"

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475 Lincoln Street, Suite100
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perkinswill.com

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STRUCTURAL
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12499 West Colfax Avenue, Lakewood, CO 80215

MEP
WB ENGINEERS + CONSULTANTS
1801 California Street, 24th Floor, Denver, CO 80202

LANDSCAPE
PERKINS&WILL
1315 Peachtree St. NE, Atlanta, GA 30309

PROJECT

1855 S. FLATIRON COURT

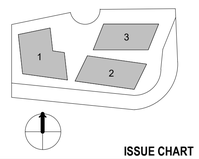
1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA 92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

PLAN ENLARGEMENTS

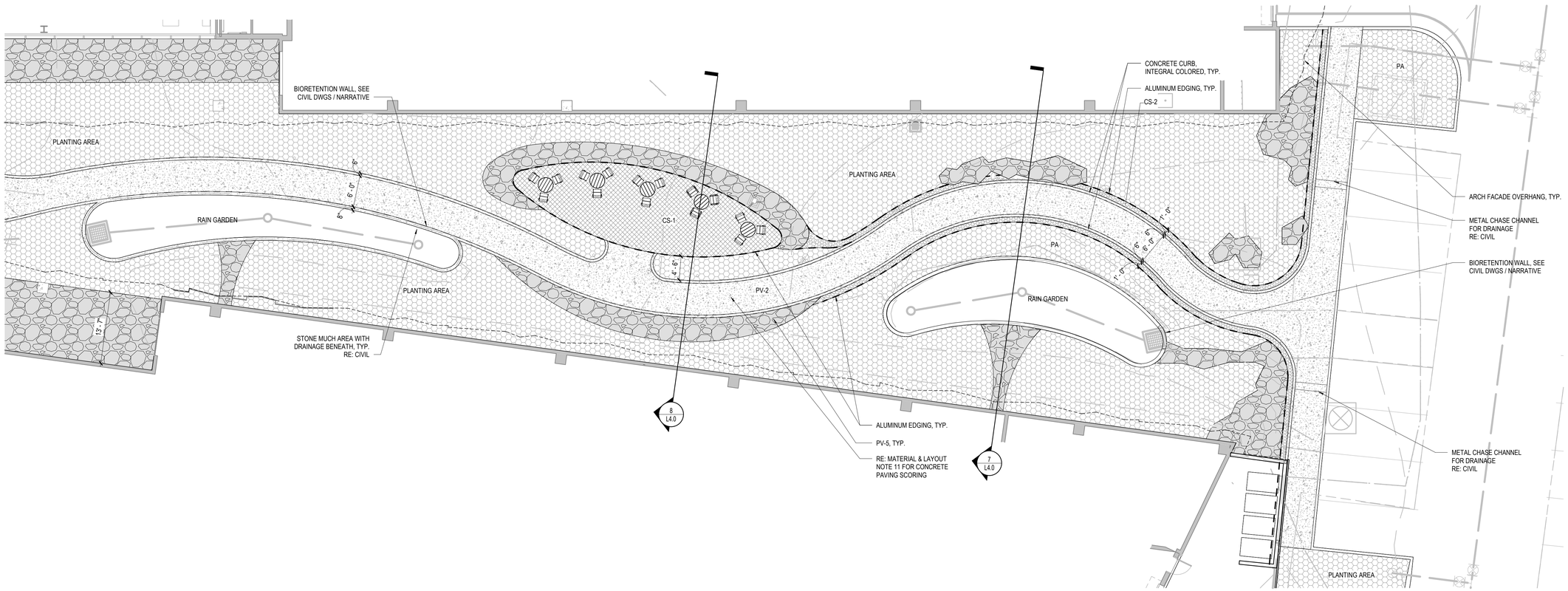
SHEET NUMBER

L3.1

MATERIAL SCHEDULE				
GRAPHIC	ID	DESCRIPTION	DESCRIPTION	NOTES
	BN-1	SITE BENCH TYPE 1	STONE BENCH - CUSTOM	CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR LANDSCAPE ARCHITECT APPROVAL
	CS-1	STONE MULCH 1	ADA COMPLIANT MIX TO BE APPROVED BY LANDSCAPE ARCHITECT	BASIS OF DESIGN: DECOMPOSED GRANITE
	CS-2	STONE MULCH 2	2" - 4" RIVER ROCK	
	PA	ORGANIC MULCH	3" MIN. ORGANIC COVERAGE	DO NOT PLACE WITHIN 3" OF TRUNKS OR STEMS
	PV-1	CONCRETE PAVING TYPE 1	CIP CONCRETE - INTERGRAL COLOR	SAND FINISH
	PV-2	CONCRETE PAVING TYPE 2	CIP CONCRETE - INTEGRAL COLOR	SAND FINISH
	PV-3	CONCRETE PAVING TYPE 3	CONCRETE WALK AND MULTI-USE PATHS - CITY STANDARD	BROOM FINISH
	PV-4	DETECTABLE WARNING PAVING TYPE 4	CONCRETE DETECTABLE WARNING PAVER - INTERGRAL COLOR	SANDBLAST FINISH
	PV-5	UNIT PAVER	4" X 4" STONE COBBLE	THERMAL FINISH
	PV-6	STEP STONE PAVERS	24" X 12" X 8" STONE BLOCK	NATURAL FINISH
	PV-7	NATURAL STONE	2'-0" - 4'-0"	MIX 40% BOULDERS WITH 60% FLAT FIELD STONE SLAB
	WD-1	WOOD DECKING	WOOD DECKING	

LEGEND

- LOT LINE
- 100 YEAR FLOODPLAIN
- DRAINAGE EASEMENT
- WETLANDS BOUNDARY
- WETLANDS INNER BOUNDARY
- WETLANDS OUTER BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- BUILDING OVERHEAD
- UTILITY EASEMENT



1 THE RAMBLE - MATERIAL & LAYOUT PLAN
1" = 10'-0"

0 5' 10' 20'

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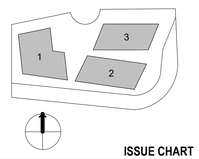
KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

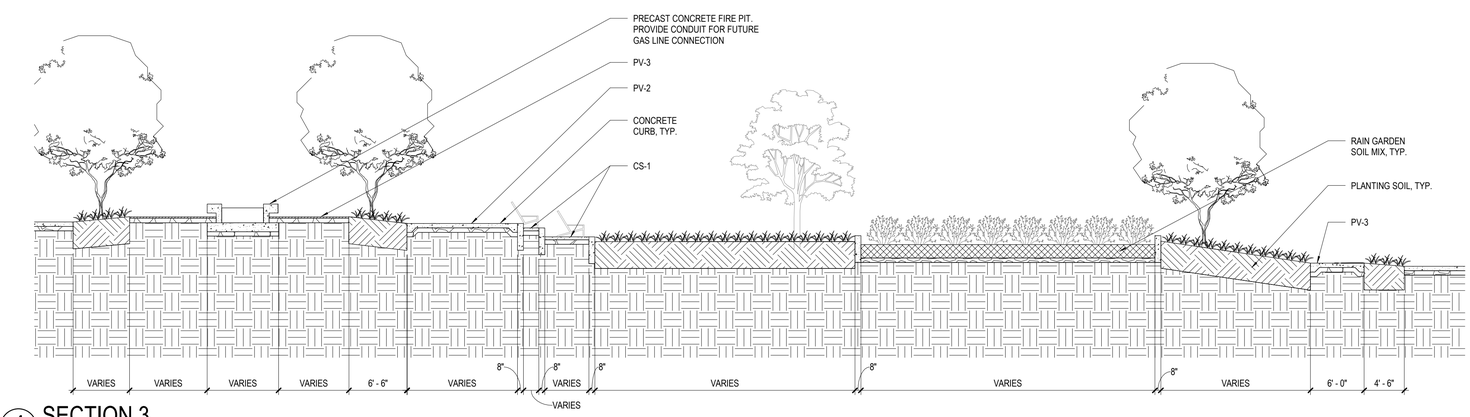
Job Number 222308

TITLE

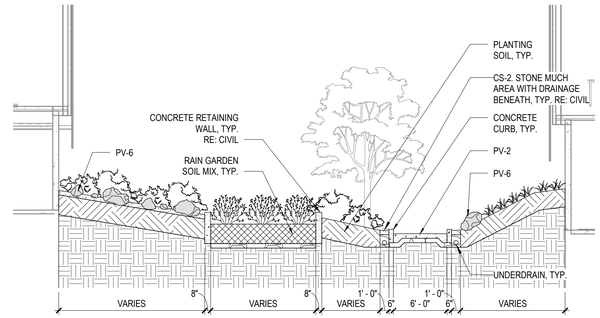
PLAN ENLARGEMENTS

SHEET NUMBER

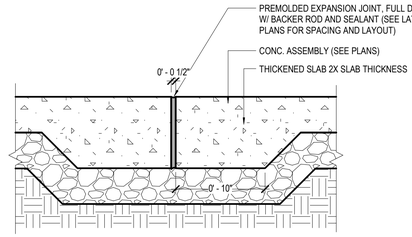
L3.2



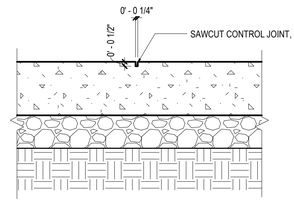
4 SECTION 3
1/8" = 1'-0"



7 SECTION 2
1/8" = 1'-0"



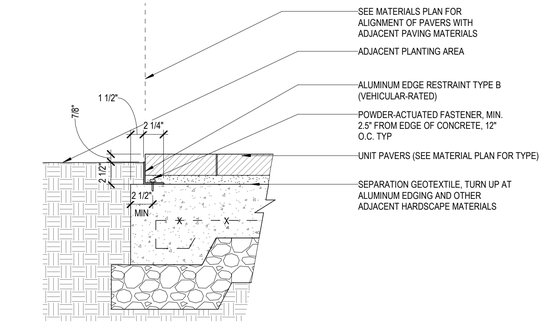
TYPICAL EXPANSION JOINT



TYPICAL SAWCUT CONTROL JOINT

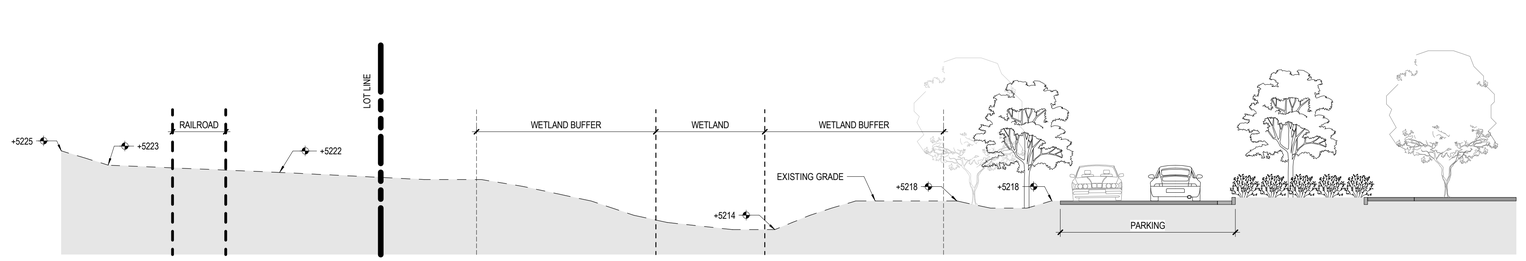
NOTES:
1. SEE CIVIL DWGS. FOR SUBGRADE COMPACTION.
2. IF ANY OF THE EXISTING BASE CANNOT BE UTILIZED, IT SHOULD BE REMOVED AND REPLACED WITH MDOT CLASS II MATERIAL.
3. RE: L01-02 FOR CONCRETE PAVING JOINT PLAN.
4. JOINTS SHALL BE SAWCUT AS SOON AS PAVEMENT CAN SUPPORT MACHINE.
5. AN EXPANSION JOINT SHALL BE PLACED BETWEEN NEW WALKS AND EXISTING PAVEMENT AND/OR BUILDINGS.

10 DETAIL - TYP. CONCRETE PAVING JOINTS
1 1/2" = 1'-0"

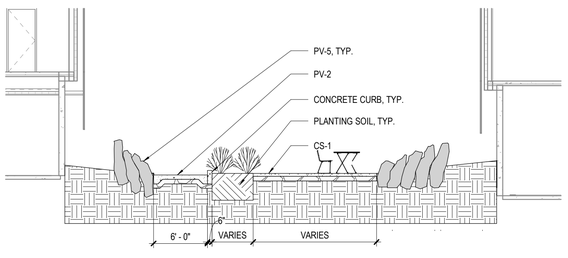


NOTE: ALUMINUM EDGING NOT USED ON SIDES OF PAVERS WHERE PAVERS ARE BOUNDED BY CONCRETE EDGE RESTRAINT, WALL, CURB, OR FOOTING; SEE PLANS.

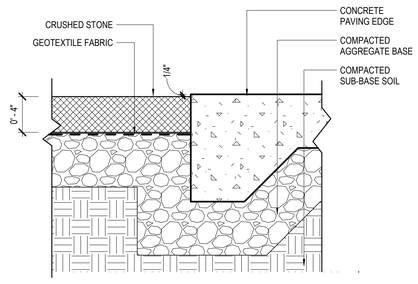
6 UNIT PAVERS EDGING @ PLANTING AREA
1 1/2" = 1'-0"



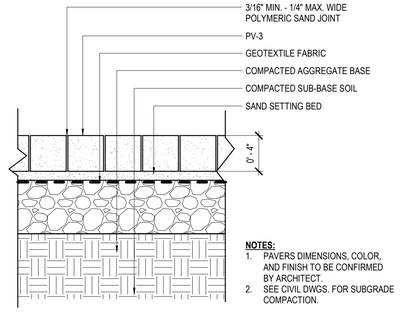
3 SITE SECTIONS - BERM
1" = 10'-0"



8 SECTION 1
1/8" = 1'-0"

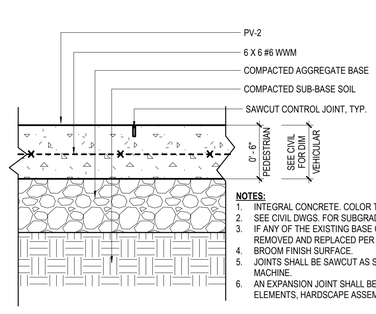


9 CS-1 ASSEMBLY
1 1/2" = 1'-0"



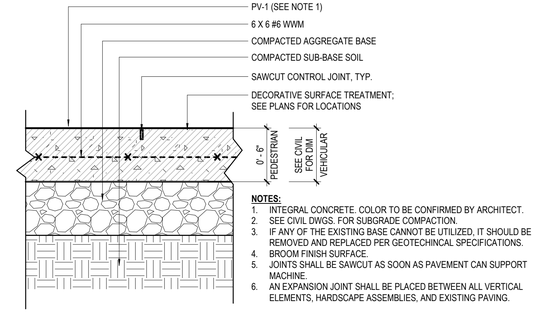
NOTES:
1. PAVERS DIMENSIONS, COLOR, AND FINISH TO BE CONFIRMED BY ARCHITECT.
2. SEE CIVIL DWGS. FOR SUBGRADE COMPACTION.

5 PV-5 ASSEMBLY
1 1/2" = 1'-0"



NOTES:
1. INTEGRAL CONCRETE. COLOR TO BE CONFIRMED BY ARCHITECT.
2. SEE CIVIL DWGS. FOR SUBGRADE COMPACTION.
3. IF ANY OF THE EXISTING BASE CANNOT BE UTILIZED, IT SHOULD BE REMOVED AND REPLACED PER GEOTECHINCAL SPECIFICATIONS.
4. BROOM FINISH SURFACE.
5. JOINTS SHALL BE SAWCUT AS SOON AS PAVEMENT CAN SUPPORT MACHINE.
6. AN EXPANSION JOINT SHALL BE PLACED BETWEEN ALL VERTICAL ELEMENTS, HARDSCAPE ASSEMBLIES, AND EXISTING PAVING.

2 PV-2 ASSEMBLY (CONC. TYPE 2)
1 1/2" = 1'-0"



NOTES:
1. INTEGRAL CONCRETE. COLOR TO BE CONFIRMED BY ARCHITECT.
2. SEE CIVIL DWGS. FOR SUBGRADE COMPACTION.
3. IF ANY OF THE EXISTING BASE CANNOT BE UTILIZED, IT SHOULD BE REMOVED AND REPLACED PER GEOTECHINCAL SPECIFICATIONS.
4. BROOM FINISH SURFACE.
5. JOINTS SHALL BE SAWCUT AS SOON AS PAVEMENT CAN SUPPORT MACHINE.
6. AN EXPANSION JOINT SHALL BE PLACED BETWEEN ALL VERTICAL ELEMENTS, HARDSCAPE ASSEMBLIES, AND EXISTING PAVING.

1 PV-1 ASSEMBLY (CONC. TYPE 1)
1 1/2" = 1'-0"

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1855 S. FLATIRON COURT

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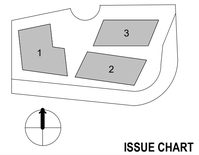
KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

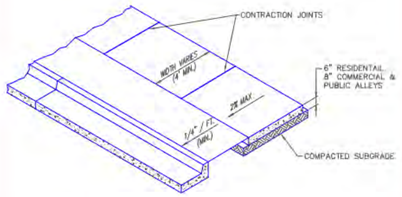
SITE SECTIONS AND DETAILS

SHEET NUMBER

L4.0

NOTES:

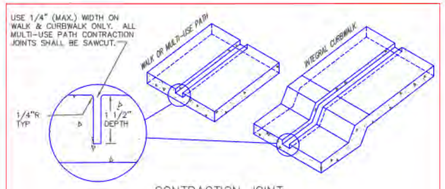
1. ALL EXPOSED CONCRETE SHALL HAVE A BROOM FINISH.
2. EXPANSION JOINTS SHALL BE INSTALLED AT 500 FOOT MAXIMUM INTERVALS AND AT FIXED STRUCTURES (INLETS, BUILDINGS). SEE CONCRETE WALK AND MULTI-USE PATH JOINT DETAILS.
3. CONTRACTION JOINTS SHALL BE INSTALLED AT 5 FOOT INTERVALS OR INTERVALS EQUAL TO SIDEWALK WIDTH. SEE CONCRETE WALK AND MULT-USE PATH JOINT DETAILS.
4. IF SIDEWALK IS PLACED ADJACENT TO CURB AND GUTTER, CONTRACTION JOINTS SHALL LINE UP WITH CURB AND GUTTER JOINTS.
5. LONGITUDINAL JOINTS ARE NOT ALLOWED IN CONCRETE WALK OR MULTI-USE PATH.



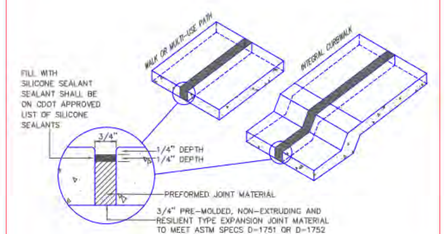
DRAWN BY: JSH CHECKED BY: WCH APPROVED BY: DIRECTOR OF PUBLIC WORKS	CITY OF BOULDER, COLORADO CONCRETE WALK AND MULTI-USE PATHS	ISSUED: JULY 2, 1998 REVISED: OCT 8, 2009	DRAWING NO. 2.02.A

1 PV-3 - CONCRETE WALK AND MULTI-USE PATHS
N.T.S.

USE 1/4" (MAX.) WIDTH ON WALK & CURBWALK ONLY. ALL MULTI-USE PATH CONTRACTION JOINTS SHALL BE SAWCUT.



CONTRACTION JOINT



EXPANSION JOINT

DRAWN BY: JSH CHECKED BY: WCH APPROVED BY: DIRECTOR OF PUBLIC WORKS	CITY OF BOULDER, COLORADO CONCRETE WALK AND MULTI-USE PATH JOINTS	ISSUED: JULY 2, 1998 REVISED: OCT 8, 2009	DRAWING NO. 2.02.C

2 PV-3 - CONCRETE WALK AND MULTI-USE PATH JOINTS
N.T.S.

Bola® Bike Rack
Installation Guide

Date: March 2, 2022
www.landscapeforms.com Ph: 800.521.2546

Embedded

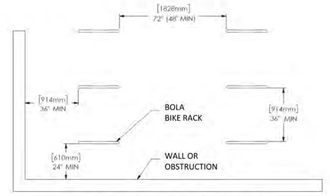
HANDLE WITH CARE! Bola's finish can be scuffed by contact with tools, concrete, or other abrasive surfaces. Protect the finish from damage during installation. Use touch-up paint to repair any powder coat finish abrasions.

INSTALLATION:

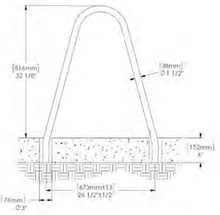
1. Core drill 3" diameter (minimum) holes 6" deep.
2. Prepare the holes for outdoor anchoring cement, such as Kwikset ™ or Super Por-rok ®. Follow the manufacturer's instructions for blowing out dust, filling with water, scrubbing, and removing excess water.
3. Place the bike rack back into position and fill the holes with anchoring cement.
4. Wipe away any excess before it cures.

Tools Required

• Unit ships assembled



Recommended spacing, according to Association of Pedestrian and Bicycle Professionals (APBP)



Side Elevation, showing core drill sizes

landscapeforms

Page 1 of 1

3 BIKE RACK
N.T.S.

Product sheet

APRIL GO chair

7013

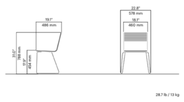
Designed by
Tore Borgersen, Michael Olofsson, Espen Voll

April go chair is available with or without armrests, and can be stacked and moved as required. Its sturdy construction makes it difficult to knock over and reduces the risk of it being removed by unauthorised persons. The APRIL GO chair can be supplied with a practical storage trolley with space for eight chairs. The APRIL GO lounge chair has a wide, deep seat that provides a reclined, relaxed sitting position, making it perfect for use as a free-standing chair – or together with other products from the series to create cohesive and inviting spaces for both relaxation and conversation in urban environments.

DOGA AWARD

Anchoring/assembly

Free-standing/mounted to the ground



Primary material

Hot-dip galvanised steel

All steel components are hot-dip galvanised, which produces a matt grey surface after a while. We offer a lifetime anti-rust warranty. Corrosion class C4

8 mm

Sustainability

Indicators	Global warming	Total energy used	Recycled materials
Unit	kg CO2	MJ	%
Cradle to Gate A1-A3	36.53	552.59	29.87

Certifications

Warranty

- Lifetime warranty against rust
- 15 year warranty on powder coating
- 15 year warranty on wood
- Spare parts always available

Visit www.vestre.com for more information.
Specifications are subject to change without notice.
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usa@vestre.com
www.vestre.com

vestre

NOTE:
PRODUCT IS BASIS OF DESIGN.

4 CHAIR
N.T.S.

Product sheet

APRIL GO table

7037

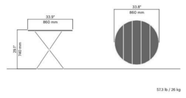
Designed by
Tore Borgersen, Michael Olofsson, Espen Voll

April go table is available in different versions and sizes. The long table has space for six chairs, while the round table has space for five. The trapezoidal table has space for four chairs and, thanks to its shape, can be combined in countless configurations.

DOGA AWARD

Anchoring/assembly

Free-standing/mounted to the ground



Primary material

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8 mm

Sustainability

Indicators	Global warming	Total energy used	Recycled materials
Unit	kg CO2	MJ	%
Cradle to Gate A1-A3	47.03	757.41	2.07

Certifications

Warranty

- Lifetime warranty against rust
- 15 year warranty on powder coating
- 15 year warranty on wood
- Spare parts always available

Visit www.vestre.com for more information.
Specifications are subject to change without notice.
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NOTE:
PRODUCT IS BASIS OF DESIGN.

5 TABLE
N.T.S.

cornilleau

OUTDOOR LIFESTYLE
FOOSBALL TABLE

Stella

TECHNICAL DETAILS

Height	970 mm
Length	1560 mm
Width	1110 mm
Playing surface dimensions	1212 mm x 730 mm
Weight	77 kg
Playing surface	Gerflex on resin laminate surface
Cabinet material	Resin laminate
Leg material	Treated Moabi wood
Raw material	Inox
Player material	Painted aluminium
Bar material	Inox
Bar type	Telescopic
Bar diameter	15 mm
Handle material	Plastic
Scorer material	Plastic
Bolts	Inox
Adjustable foot	3D printed (73mm x 73mm) and adjustable in height (5 cm)
Guarantee	5 years *

COLORS

Structure	Black
Playing surface	Astral black
Players & handles	White
	Black
Legs	Moabi wood

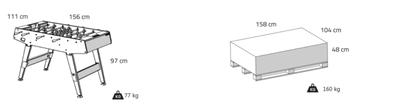
5 YEARS GUARANTEE · 20 YEARS GUARANTEE · 10 YEARS GUARANTEE

INCLUDED ACCESSORIES

X 5 X 5

BALLS
- Natural cork balls x 5
- White plastic balls x 5

DIMENSIONS AND PACKAGING



*: The 5-year guarantee takes effect on the day of purchase of your Outdoor Lifestyle Foosball table. It covers every component of the foosball table with the exception of the playing carpet, which has a guarantee of 3 years against any deformation.

NOTE:
PRODUCT IS BASIS OF DESIGN.

6 FOOSBALL TABLE
N.T.S.

Fermob

LUXEMBOURG

LOW ARMCHAIR
DESIGN BY PIERRE PAULIN

ITEM 4104

TESTING STANDARDS - Upon request
NF EN 581-1 (all products), NF EN 581-2 (seats)

WARRANTY

	IN ALUMINIUM
STRUCTURAL	3 YEARS
FINISH	2 YEARS

TECHNICAL FEATURE - STRUCTURE

RESIDENTIAL CONTRACT INTENSIVE 9 IPMO 24 H

Tubular aluminium frame
Curved aluminium slats seat
Curved aluminium slats backrest
Aluminium slats armrests
Silence pads
Stacking capacity : x 6 (Height - stacked : 40 in.)

FURTHER INFORMATION

Bespoke project : Laser cutting, Ground attachment, Cable attachment, Ballasting, Special RAL, Silkscreen printing
Spare parts : Pads

NOTE:
PRODUCT IS BASIS OF DESIGN.

7 MOVEABLE LOUNGE CHAIR
N.T.S.

Perkins&Will
475 Lincoln Street, Suite100
Denver, CO 80203
t 303.308.0200
f 303.308.0222
perkinswill.com

CONSULTANTS

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STRUCTURAL
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MEP
WB ENGINEERS + CONSULTANTS
1801 California Street, 24th Floor, Denver, CO 80202

LANDSCAPE
PERKINS&WILL
1315 Peachtree St. NE, Atlanta, GA 30309

PROJECT

1855 S. FLATIRON COURT

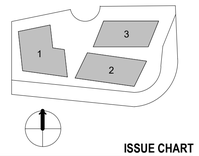
1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA
92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

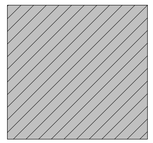
TITLE

SITE SECTIONS AND DETAILS

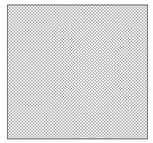
SHEET NUMBER

L4.1

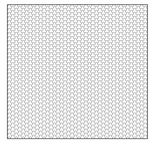
SITE HARDSCAPE MATERIALS



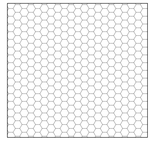

BN-1 — SITE BENCH TYPE 1 (CUSTOM STONE BENCH)



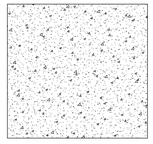

CS-1 — STONE MULCH 1 (ADA COMPLIANT MIX TO BE APPROVED BY LANDSCAPE ARCHITECT)



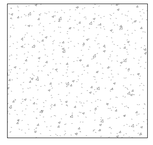

CS-2 — STONE MULCH 2 (2" - 4" RIVER ROCK)



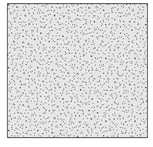

PA — ORGANIC MULCH 3" MIN. ORGANIC COVERAGE)



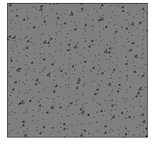
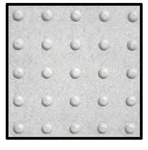

PV-1 — CONCRETE PAVING TYPE 1 (C.I.P. CONCRETE WITH INTEGRAL COLOR WITH SAND FINISH)



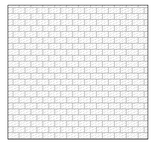

PV-2 — CONCRETE PAVING TYPE 2 (C.I.P. CONCRETE WITH INTEGRAL COLOR WITH SAND FINISH)



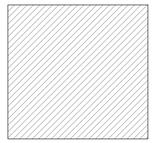

PV-3 — CONCRETE WALK AND MULTI-USE PATHS - CITY STANDARD BROOM FINISH

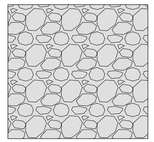
PV-4 — DETECTABLE WARNING PAVING TYPE 4 WITH INTEGRAL COLOR (12" X 12" X 2")




PV-5 — UNIT PAVERS (4" X 4" STONE COBBLE WITH THERMAL FINISH)

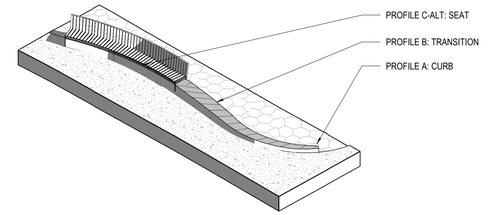



PV-6 — STEP STONE PAVERS (24" X 12" X 8" STONE BLOCK WITH NATURAL FINISH)

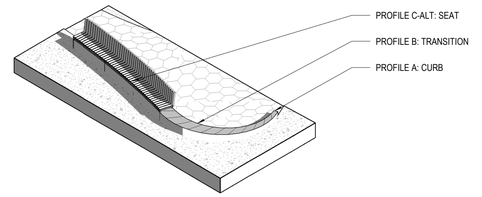



PV-7 — NATURAL STONE (2'-0" - 4'-0")

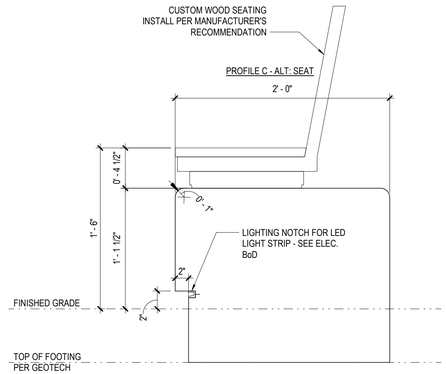

WD-1 — WOOD DECKING



4 AXON - SEATWALL WOOD BENCH - 2

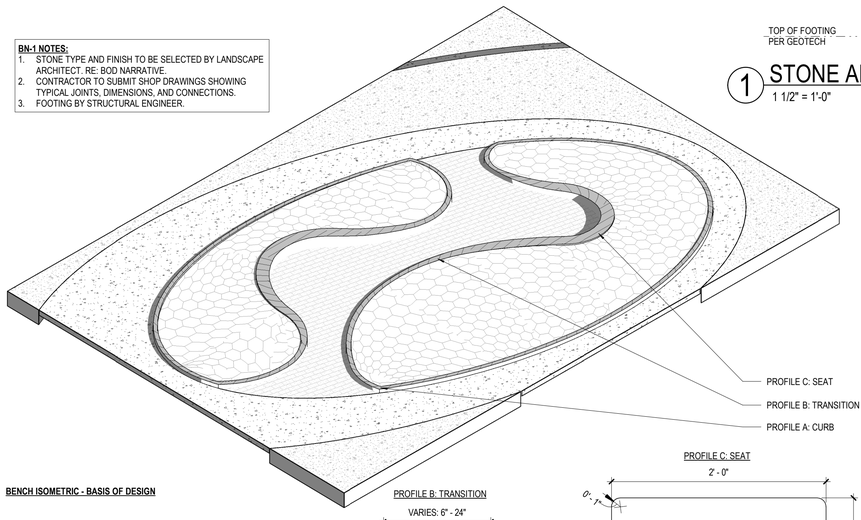


3 AXON - SEATWALL WOOD BENCH - 1

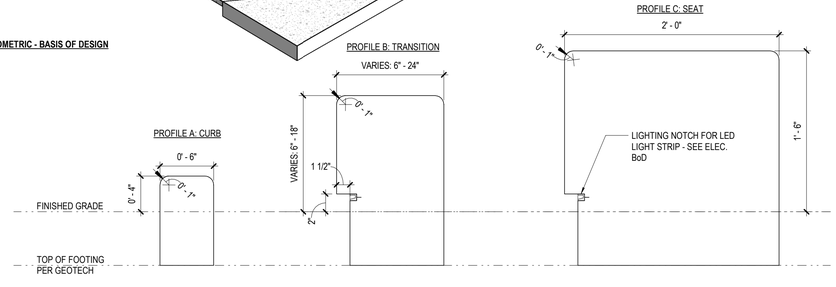


1 STONE AND WOOD BENCH PROFILE C-ALT
1 1/2" = 1'-0"

BN-1 NOTES:
1. STONE TYPE AND FINISH TO BE SELECTED BY LANDSCAPE ARCHITECT. RE: BOD NARRATIVE.
2. CONTRACTOR TO SUBMIT SHOP DRAWINGS SHOWING TYPICAL JOINTS, DIMENSIONS, AND CONNECTIONS.
3. FOOTING BY STRUCTURAL ENGINEER.



BENCH ISOMETRIC - BASIS OF DESIGN



2 STONE BENCH PROFILES
1 1/2" = 1'-0"

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LANDSCAPE
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PROJECT

1855 S. FLATIRON COURT

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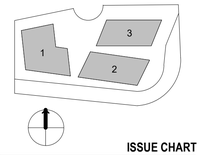
KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024

Job Number 222308

TITLE

SITE SECTIONS AND DETAILS

SHEET NUMBER

L4.2

LEGEND

- LOT LINE
- 100 YEAR FLOODPLAIN
- DRAINAGE EASEMENT
- WETLANDS BOUNDARY
- WETLANDS INNER BOUNDARY
- WETLANDS OUTER BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- BUILDING OVERHEAD
- UTILITY EASEMENT

PLANTING SCHEDULE

GRAPHIC	AREA	NAME	DESCRIPTION
	6547.43 SF	AMENITY MIX	MIX 60% SHRUBS, 40% GRASSES AND FORBS
	13045.66 SF	BUFFER MIX	MIX 80% SHRUBS, 20% GRASSES AND FORBS
	17707.26 SF	GROVE MIX	MIX 40% SHRUBS, 60% GRASSES AND FORBS
	17747.53 SF	PRAIRIE MIX	MIX 10% SHRUBS, 90% GRASSES AND FORBS
	3661.02 SF	RAIN GARDEN MIX	MIX 30% SHRUBS, 70% GRASSES AND FORBS

1 OVERALL PLANTING PLAN
1" = 30'-0"

0 15' 30' 60

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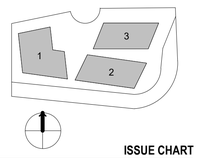


ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

OVERALL PLANTING PLAN

SHEET NUMBER

L5.0

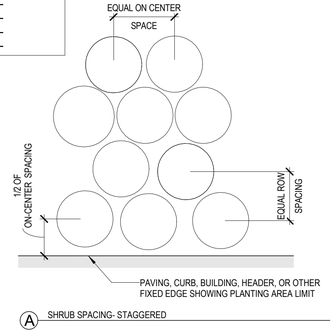
SHRUBS, GRASSES, AND FORBES PLANTING SCHEDULE

SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	TYPE
AMENITY MIX				
SHRUBS				
ARTEMISIA FILIFOLIA	SAND SAGEBRUSH	5 GAL.	48" O.C.	SEMI - EVERGREEN
CORNUS SERICEA 'KELSEYI'	KELSEY REDOSIER DOGWOOD	5 GAL.	36" O.C.	DECIDUOUS
MAHONIA REPENS	CREEPING GRAPE HOLLY	5 GAL.	36" O.C.	EVERGREEN
RHUS AROMATICA 'GROW-LOW'	GRO-LOW FRAGRANT SUMAC	5 GAL.	36" O.C.	DECIDUOUS
GRASSES AND FORBS				
ACHILLEA MILLEFOLIUM	COMMON YARROW	1 GAL.	18" O.C.	PERENNIAL
AGASTACHE FOENICULUM	ANISE HYSSOP	1 GAL.	24" O.C.	PERENNIAL
BOUTELOUA GRACILLIS 'BLONDE AMBITION'	BLONDE AMBITION BLUE GRAMA	1 GAL.	18" O.C.	PERENNIAL
PANICUM VIRGATUM 'NORTHWIND'	NORTHWIND SWITCHGRASS	1 GAL.	24" O.C.	PERENNIAL
SALVIA AZUREA VAR. GRANDIFLORA	PITCHER SAGE	3 GAL.	36" O.C.	PERENNIAL
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GAL.	18" O.C.	PERENNIAL
BUFFER MIX				
SHRUBS				
ARTEMESIA FILLIFOLIA	SAND SAGE	5 GAL.	48" O.C.	SEMI - EVERGREEN
CERCOCARPUS INTRICATUS	LITTLELEAF MOUNTAIN MAHOGANY	5 GAL.	48" O.C.	EVERGREEN
CHAMAEBATIARIA MILLEFOLIUM	FERNBUSH	5 GAL.	60" O.C.	EVERGREEN
HESPERALOE PARVIFLORA	RED YUCCA	5 GAL.	36" O.C.	EVERGREEN
JAMESIA AMERICANA	WAXFLOWER	5 GAL.	42" O.C.	EVERGREEN
JUNIPERUS SCOPULORUM 'TABLE TOP'	TABLE TOP JUNIPER	5 GAL.	48" O.C.	EVERGREEN
RIBES AUREUM	GOLDEN CURRANT	5 GAL.	60" O.C.	DECIDUOUS
TAXUS X MEDIA 'DENSIFORMIS'	DENSIFORMIS YEW	5 GAL.	48" O.C.	EVERGREEN
GROVE MIX				
SHRUBS				
CHRYSOTHAMNUS NAUSEOSUS VAR. NAUSEOSUS	DWARF RABBITBUSH	5 GAL.	48" O.C.	DECIDUOUS
CORNUS SERICEA 'KELSEYI'	KELSEY REDOSIER DOGWOOD	5 GAL.	36" O.C.	DECIDUOUS
RHUS TRILOBATA	THREE LEAF SUMAC	5 GAL.	48" O.C.	EVERGREEN
PHYSOCARPUS MONOGYNUS	MOUNTAIN NINEBARK	5 GAL.	48" O.C.	DECIDUOUS
ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	1 GAL.	24" O.C.	EVERGREEN
MAHONIA REPENS	OREGON GRAPE	5 GAL.	36" O.C.	EVERGREEN
RHUS AROMATICA	GRO-LOW SUMAC	5 GAL.	36" O.C.	DECIDUOUS
TAXUS X MEDIA 'DESNIFORMIS'	DENSIFORMIS YEW	5 GAL.	48" O.C.	EVERGREEN
GRASSES AND FORBS				
BOUTELOUA GRACILIS 'BLONDE AMBITION'	BLONDE AMBITION BLUE GRAMA	1 GAL.	18" O.C.	PERENNIAL
PANICUM VIRGATUM 'NORTHWIND'	NORTHWIND SWITCHGRASS	1 GAL.	24" O.C.	PERENNIAL
RUDBECKIA HIRTA	BLACK EYED SUSAN	1 GAL.	18" O.C.	PERENNIAL
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GAL.	18" O.C.	PERENNIAL
PERENNIALS				
AQUILEGIA CAERULEA	COLORADO BLUE COLUMBINE	1 GAL.	18" O.C.	PERENNIAL
CALLIRHOE INVOLUCRATA	PRAIRIE WINECUPS	1 GAL.	18" O.C.	PERENNIAL
PRAIRIE MIX				
SHRUBS				
ARTEMISIA FILIFOLIA	SAND SAGEBRUSH	5 GAL.	48" O.C.	SEMI - EVERGREEN
ARTEMISIA FRIGIDA	FRINGED WORMWOOD	5 GAL.	48" O.C.	SEMI - EVERGREEN
RHUS AROMATICA	FRAGRANT SUMAC	5 GAL.	48" O.C.	DECIDUOUS
YUCCA GLAUCA	SOAP WEED	5 GAL.	48" O.C.	EVERGREEN
GRASSES AND FORBS				
BOUTELOUA DACTYLOIDES	BUFFALO GRASS	1 GAL.	18" O.C.	PERENNIAL
BOUTELOUA GRACILLIS	BLUE GRAMA	1 GAL.	18" O.C.	PERENNIAL
ELYMUS ELYMOIDES	BOTTLEBRUSH SQUIRRELTAIL	1 GAL.	18" O.C.	PERENNIAL
NASSELLA VIRIDULA	GREEN NEEDLEGRASS	1 GAL.	18" O.C.	PERENNIAL
PASCOPYRUM SMITHII	WESTERN WHEATGRASS	1 GAL.	18" O.C.	PERENNIAL
SPOROBOLUS CRYPTANDRUS	SAND DROPSEED	1 GAL.	18" O.C.	PERENNIAL
ELYMUS ELYMOIDES	BOTTLEBRUSH SQUIRELL TAIL	1 GAL.	18" O.C.	PERENNIAL
FESTUCA SAXIMONTANA	ROCKY MOUNTAIN FESCUE	1 GAL.	18" O.C.	PERENNIAL
RAIN GARDEN MIX				
SHRUBS				
CORNUS SERICEA	RED TWIG DOGWOOD	3 GAL.	36" O.C.	DECIDUOUS
RHUS TRILOBATA	THREE LEAF SUMAC	5 GAL.	36" O.C.	DECIDUOUS
WET MEADOW MIX				
BOLBOSCHOENUS MARITIMUS	ALKALI BULRUSH	1 GAL.	18" O.C.	PERENNIAL
CAREX PRAEGRACILIS	FIELD SEDGE	1 GAL.	12" O.C.	PERENNIAL
DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	1 GAL.	18" O.C.	PERENNIAL
JUNCUS BALTICUS	BALTIC RUSH	1 GAL.	24" O.C.	PERENNIAL
FORBS				
ASCLEPSIAS INCARNATA	SWAMP MILKWEED	1 GAL.	18" O.C.	PERENNIAL
IRIS MISSOURIENSIS	BLUE FLAG IRIS	1 GAL.	18" O.C.	PERENNIAL
LIATRIS LIGULISTYLIS	ROCKY MOUNTAIN BLAZING STAR	1 GAL.	18" O.C.	PERENNIAL
VERBENA HASTATA	BLUE VERVAIN	1 GAL.	18" O.C.	PERENNIAL

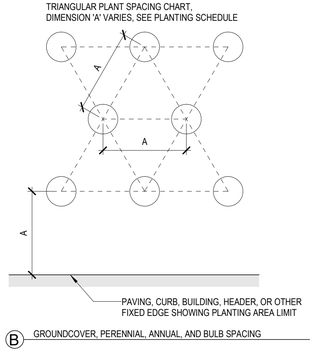
TREE PLANTING SCHEDULE

QTY	CODE	SCIENTIFIC NAME	COMMON NAME	SIZE	ROOT	SPACING
TREE						
14	ACE GRA	ACER GRANDIDENTATUM 'ROCKY MOUNTAIN GLOW'	ROCKY MOUNTAIN GLOW MAPLE	3" CAL	B&B	AS SHOWN
13	ACE NEG	ACER NEGUNDO 'SENSATION'	SENSATION BOX ELDER	3" CAL	B&B	AS SHOWN
18	ALN INC	ALNUS INCANA SSP. TENUIFOLIA	THINLEAF ALDER	2" CAL	B&B	AS SHOWN
9	AME GRA	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	SERVICEBERRY 'AUTUMN BRILLIANCE'	8' - 10' HT.	B&B	AS SHOWN
8	BET NIG	BETULA NIGRA 'HERITAGE'	'HERITAGE' RIVERBIRCH	3" CAL	B&B	AS SHOWN
7	CASP	CATALPA SPECIOSA 'HIAWATHA 2'	HEARTLAND NORTHER CATALPA	3" CAL	B&B	AS SHOWN
4	CEOC	CELTIS OCCIDENTALIS 'JFS-KSU1'	PRAIRIE SENTINEL HACKBERRY	3" CAL	B&B	AS SHOWN
13	GLTR	GLEDITISIA TRIACANTHOSE	THORNLESS HONEY LOCUST	3" CAL	B&B	AS SHOWN
13	GYDI	GYMNOCLADUS DIOICUS 'ESPRESSO-JFS'	ESPRESSO KENTUCKY COFFEE TREE	AS NOTED	B&B	AS SHOWN
11	JUN SCO	JUNIPERUS SCOPULORUM 'COLOGREEN'	COLOGREEN ROCKY MOUNTAIN JUNIPER	AS NOTED	B&B	AS SHOWN
10	PIC GLA	PICEA GLAUCA VAR. DENSATA	BLACK HILLS SPRUCE	8'-10' HT.	B&B	AS SHOWN
3	PIN EDU	PINUS EDULIS	PINYON PINE	3" CAL	B&B	AS SHOWN
14	QUE BIC	QUERCUS BICOLOR 'BONNIE AND MIKE'	SWAMP WHITE OAK	AS NOTED	B&B	AS SHOWN
7	QUE MAC	QUERCUS MACROCARPA	BUR OAK	3" CAL	B&B	AS SHOWN
25	QUE MUE	QUERCUS MUEHLENBERGII	CHINKAPIN OAK	AS NOTED	B&B	AS SHOWN

3 TYPICAL GROUNDCOVER PLANTING
1/2" = 1'-0"

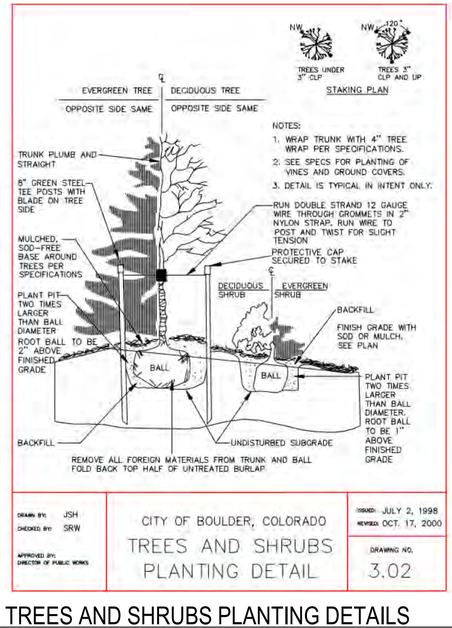


A SHRUB SPACING- STAGGERED



B GROUNDCOVER, PERENNIAL, ANNUAL, AND BULB SPACING

2 PLANT SPACING
1/2" = 1'-0"



1 TREES AND SHRUBS PLANTING DETAILS
N.T.S.

Perkins&Will
475 Lincoln Street, Suite100
Denver, CO 80203
t 303.308.0200
f 303.308.0222
perkinswill.com

CONSULTANTS

CIVIL
JVA
1319 Spruce Street, Boulder, CO 80302

STRUCTURAL
MARTIN & MARTIN
12499 West Colfax Avenue, Lakewood, CO 80215

MEP
WB ENGINEERS + CONSULTANTS
1801 California Street, 24th Floor, Denver, CO 80202

LANDSCAPE
PERKINS&WILL
1315 Peachtree St. NE, Atlanta, GA 30309

PROJECT

1855 S. FLATIRON COURT

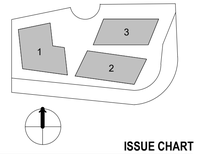
1855 S. Flatiron Ct.
Boulder, CO 80301

BioMed Realty

BRE_BMR 1855 FLATIRON LLC

4570 EXECUTIVE DRIVE
SUITE 400, SAN DIEGO, CA 92121

KEYPLAN



ISSUE CHART

MARK	ISSUE	DATE
	SITE REVIEW #3	11.27.2024
	SITE REVIEW #2	09.25.2024
	SITE REVIEW #1	07.05.2024

Job Number 222308

TITLE

PLANTING DETAILS

SHEET NUMBER

L6.0

Perkins&Will

BioMed Realty

Site Review 4 (CORRECTIONS) - Written Statement
1855 S. Flatiron Ct.
December 30, 2024

Contents:

Project Description:

The proposed 1855 S. Flatiron Ct. project will create an innovation hub with three new state-of-the-art buildings nestled within the research and development (R&D) community at Flatiron Business Park in East Boulder. The project design takes full advantage of the site's natural beauty and stunning views of the Flatirons, and the corner location primes this project to be an exceptional space for Boulder's growing R&D community.

The project proposes demolition of two existing buildings, initially developed in 1978, and the surrounding broad stretches of impervious paved surface parking.

The site is designed with a centralized layout focusing on human experiences. All vehicular circulation for parking and loading is pushed to the perimeter of the development with careful consideration to reduce crossings, avoid potential conflicts with pedestrians, and provide traffic slowing measures. This approach allows the spaces between the buildings to be programmed with various activities for focusing, socializing, and enhancing the user and visitor experience.

Bordered by the South Boulder Creek, the project includes a new multi-use path on the North providing a direct connection to the existing creek path and the Flatiron Business Park campus, improving site access by pedestrians or bicyclists and creating an active connection to the surrounding community and amenities.

Primary uses of the surrounding area include:

- Industrial - small to moderate-sized industrial businesses
- South Boulder Creek
- Multi-use path
- BNSF railroad

As noted in the provided survey, there are four parcels that make up the site and allowable Floor Area Ratio (FAR): "Outlot A", "Outlot B", "Lot 4", and "Lot 3". We are proposing to construct improvements on "Lot 3" and "Lot 4", as

detailed further herein. All four parcels are owned by subsidiaries of BioMed Realty. "Lot 3" and "Lot 4" are currently owned by BRE-BMR 1855 Flatiron LLC. "Outlot A" and "Outlot B" are currently owned by BRE-BMR Flatiron VIII LLC.

The parent company, BioMed Realty, develops Class A technology and life science properties in several cities across the US and UK and is committed to playing a key role in Boulder's growth as a R&D hub. BioMed Realty currently owns and manages more than one million square feet in Flatiron Business Park, supporting a unique community on a campus that includes reserved open space, mature landscaping, and access to pedestrian trails and bicycle paths and a future central amenity space.

Concept Plan and Site Review Submittal #1 Reviews:

BioMed Realty filed a Concept Plan Review application on September 22nd, 2023, for a redevelopment of the 1855 S Flatiron Ct. site, and presented it to the Planning Board on December 19th, 2023. With this Site Review application, BioMed Realty has incorporated city staff and Planning Board feedback from the Concept Plan Review.

December 19th, 2023, Planning Board meeting | Summary of comments on the key issues identified by Planning Board:

1. **Destination Workplace** – To align with the East Boulder Subcommunity Plan, the Planning Board identified two aspects of the project as a focus to drive the "Destination Workplace" vision.
    a. Connections: Planning Board requested a well-planned, protected bike path that spans to S. Flatiron Ct. Our proposal now further defines a pedestrian/bicyclist circulation path separate from vehicular traffic, which connects to the South Boulder Creek multi-use path.
    b. Ground Floor Activation: Planning Board requested additional street level activation and character. Our proposal has been updated to prioritize additional open space for work and play, as well as an activated lobby, which includes a cafe within BLDG 3's lobby to activate and promote pedestrian activity on-site. Note that BLDG 3 (to be constructed in Phase 1), so the Café will be in-place in the first phase of construction. Our intent is to open the café when our first tenant occupies our first phase and have the café amenity open to both tenants and the public. Specific programming will be based on the operator selected. Because it will likely take many years for our first tenant to occupy the first building, it is not feasible to advance conversations with potential operators at this time. For example, our latest development in Boulder, 5505 Central Ave, received Site Review approval in 2018 and is not expecting its first tenant until 2027.
2. **Site Design** – The Planning Board found the general layout and building design to be appropriate for the site but stressed the importance of screening parking from public view and conveying building scale, height, and mechanical screen requirements. Our current proposal presents a modified site plan from two 100k sf Research and Development buildings with one above-ground parking garage to three 70k sf Research and Development buildings. The separate parking garage has been removed. This modification allows for reduced building scale and less visible parking. The proposal also further explains the height requirement and modification request.

BioMed Realty has submitted Site Plan Review applications on July 5, 2024, September 25, 2024 and presented it to the Transportation Advisory Board on August 12, 2024. With this 3rd submittal of the Site Review application, BioMed Realty has incorporated all received city staff and TAB comments. See the comment response narrative for a summary of the comments and responses.

Project Data:

Area Summary:

Site Area	417,640 sq. ft.
Max FAR:	0.5, 9-8-2, Table 8-2
Allowed Max Floor Area	208,820 sq. ft. (0.5)
Proposed Floor Area	207,011 sq. ft. (0.495)

Parking Summary:

Vehicles:	
Per code 9-9-6 (1:400)	518
Proposed:	
Building 3	148
Building 2	107
Building 1	143
Total	398 (23% reduction from code)

Bicycles:	
Per code 9-9-6 (1:1,500)	141 Total: Long Term: 106 / Short Term: 35
Proposed:	144 Total: Long Term: 108 / Short Term: 36

Building Height:

9-7-5(b): Measured from lowest point of natural grade within 25' horizontal to the uppermost point of the roof or structure. Measured to the uppermost point of the top of sloped roofing membrane.

9-7-7(a)(2): Roof appurtenances exceeding the maximum building height: Mechanical equipment lor laboratory exhaust systems high plume.

(A) There is a functional need for the appurtenance.

- The high plume exhaust is meant to dispel potentially hazardous exhaust from science experiments well above the roof level.

(B) The functional need cannot be met with an appurtenance at a lesser height; and

- The exhaust plume cannot be within the height of an enclosure as that could cause re-entrainment of the hazardous exhaust within the screened area. It cannot be of a lesser height as the manufacturer specifies the height of the exhaust plume based on the required CFM of the unit(s).

(C) Visible materials and colors are compatible with the building to which the appurtenance is attached.

- The equipment material will be complimentary color and material with the building roof top screening.

Building 1:

Allowable	45'-0", *per 9-7-6(b)*
Proposed	44' - 11"

Buildings 2 and 3:

Allowable	50'-0", *per 9-7-6(a), 9-2-14(b)(E)(iv)*
Proposed	49- 10 ½"

Site Design:

Zoning District:	IG (Industrial General)
BVCP Land use designation:	Mixed use Industrial
EBSP:	East Boulder Subcommunity Plan
Site Reviews:	No previous on site
Mineral rights:	None
Floodplain:	Building 1 partially located inside 500yr floodplain.
	Buildings 2 and 3 are located inside 100yr floodplain.
Wetlands:	All Buildings are outside of the wetlands and the inner and outer buffers.

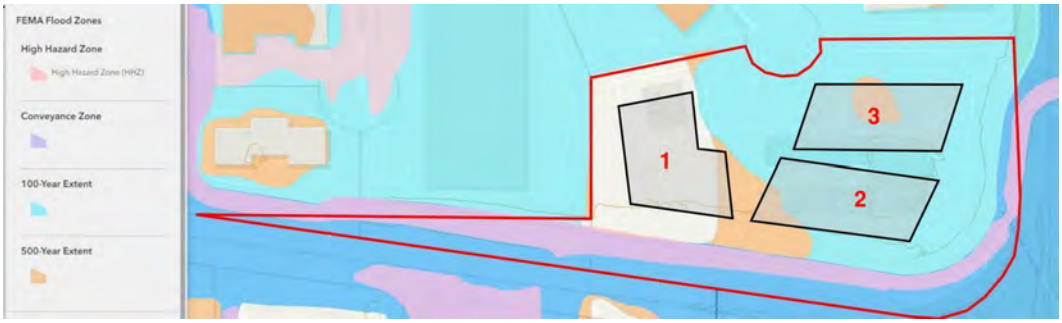


Figure 1: Floodplain Map

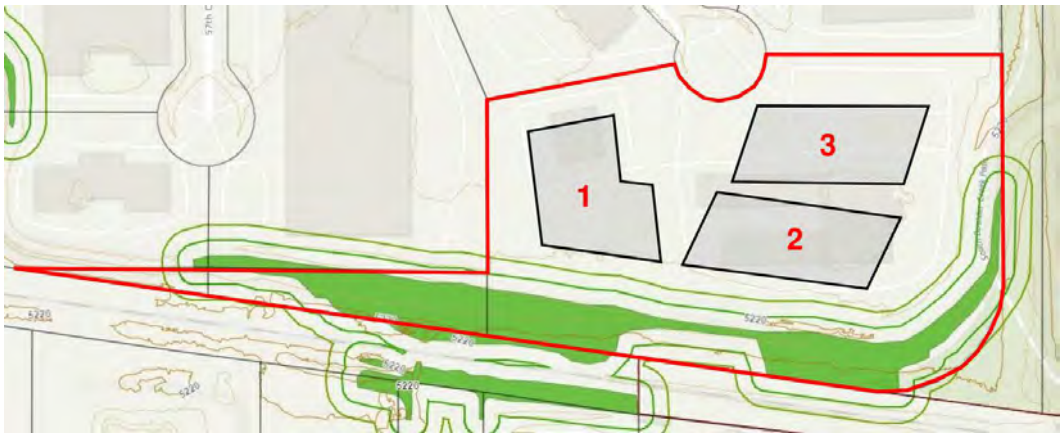


Figure 2: Wetlands Map

Access, Transportation, Mobility:

The site has been strategically designed to minimize pedestrian and vehicular conflicts by limiting the number of crossings and focusing them only at the primary entry node along S. Flatiron Ct. Comments received from the TAB meeting on 8/12/24, include: Provide traffic slowing measures along southern road and design landscaping south of the multi-use path to minimize shading and ice/snow on the path in the winter. In response to this: the project includes 'traffic slowing measures' at strategic points of the southern drive aisle by reducing the drive aisle width to 20' without parking and providing ALL deciduous trees along the southern side of the multi-use path to minimize shadows ice/snow in the winter. Additionally, a new multi-use path is included along the north side of the site with connections to the greater Boulder community and beyond to encourage alternative transportation. The site is also located within a 5-minute walking distance of multiple routes of local public transportation. The Project maintains 2 existing access points for vehicular and emergency access circulation to avoid having a T-shaped Fire apparatus turn around long term on the site, which would create more hardscape/circulation area. This was reviewed with Fire for their input as well, as the fire loop for hydrants is needed to provide coverage.

Easements and Lot Line Elimination:
Easements (including fire access, emergency access, drainage, utility, and a public access easement for the proposed multi use path) will be provided for the proposed project, along with a lot line elimination to be dedicated by a preliminary and final plat. It is our understanding that a Preliminary Plat and Final Plat would be filed concurrently with Technical Document Review.

Transportation Demand Management (TDM):
The TDM report includes a project description, trip generation characteristics for the proposal, and anticipated trip distribution. The report also includes a recommendation for a traffic impact study based on the number of trips anticipated. The bike parking provided by the applicant has been taken into consideration. The site is organized to provide efficient and unobstructed travel to, through and off the site. The perimeter two-way drive aisle serves all vehicular, emergency, and service traffic. This allows for a pedestrian-oriented network of walkways, plazas, trails, and open space throughout the center of the site. Alternate methods of transportation are encouraged by the provision of EV parking spaces, 3 car share parking spaces (one within each building), a bike/scooters share parking station as part of Phase 1, long-term and short-term bike parking, and a multi-use path connection to the eastern multi-use trail.

Floodplain Design Strategies:
Buildings 2 and 3 are located within the 100-year floodplain and Building 1 is located within the 500-year floodplain. The following flood mitigations strategies will be implemented into the final building design:

- Finished floor elevations in the 100-year floodplain are established 2'-0" above the base floodplain elevations.
- No occupied spaces are located below the floodplain elevations.
- Building structures will be designed to meet or exceed building code and ASCE requirements including floodproofing of foundations to withstand both hydrostatic and hydrodynamic forces as needed.
- Although Building 1 is located outside the 100-year floodplain, a flood analysis is being performed and certain floodproofing provisions of the structure and openings are anticipated based on surface level modeling. This may include flood barriers at the garage and swinging doors as well as secondary measures such as elevated curbs and sump pits and pumps to protect mechanical and electrical equipment from any seepage. Building 1 will not be classified as a critical facility as defined in Title 9 – Land Use Code – Chapter 16 Definitions for clarification and future reference.

Landscape and Open Space:

The landscape vision for 1855 S. Flatiron Ct. draws inspiration from Boulder Creek as it meanders through the Flatiron Mountains down into the high plains, sculpting the land and creating rich, life-giving environments as it flows. Boulder Creek's biophilic forms are weaved as pathways throughout this project's open space, forming a variety of outdoor amenities with great views and activities for future tenants and visitors.

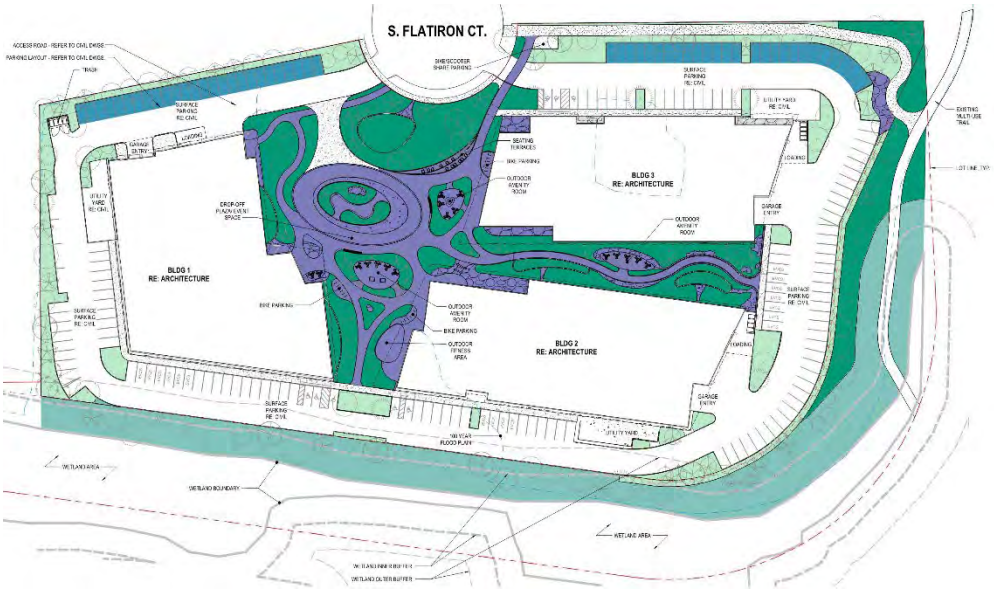


Figure 3: Open Space Diagram

A rich wetland ecosystem will be preserved within the site's drainage easement, and a dense mix of buffer plantings along with architectural metal screen walls will block undesirable views into and out of the site. By utilizing a native plant palette and managing stormwater on-site through green infrastructure, this project will enhance the local ecology and exemplify sustainable development in Boulder. The transformation of this site from an industrial wasteland to a thriving, nature-integrated workplace will greatly benefit the public.

Building Siting and Design:

9-2-14(h)(3)(A,B,C)

The architectural design of the buildings is inspired by the environmental context of rich tectonic expressions and textures. With its sculptural shaped exterior panel system, views are optimized, balancing the opaque wall areas with vision glazing zones, to both conserve energy and encourage passive solar gain and views. The planning and architectural massing have been designed to facilitate indoor-outdoor connections and to energize outdoor programs. Massing has been modulated and articulated via inset terraces, architectural overhangs, and cantilevers that frame the arrival court and entryways. The height of Building 1 is set just under 45 feet while Buildings 2 and 3 are proposed to be just under 50 feet per the requested height modification, since those footprints sit within the 100-year floodplain.

While the primary use of the buildings is intended as research space, consistent with 'destination workplace' zoning, the project site is designed to support an array of activities, from quiet, shaded seating areas to more active plazas. Building 3 will contain a café to supplement outdoor amenities and activate the site.

Ground level parking will be fully enclosed with textured cast-in-place concrete walls, thereby minimizing the impact of vehicles on the site experience. Translucent glazing is used to enclose Level 01 parking at the north façade of Building 3, where the building faces the Multi-Use-Path. The level 2 and 3 primary elevations above the main building entries will be composed of two-story fully glazed curtain walls; the balance of the elevations will be composed of a modular wall system that includes a variation of formed metal panels and window wall. Each respective system shall be design-engineered to meet all referenced local and industry-related codes and standards, including but not limited to the Boulder Building and Energy Conservation codes, span limiting heights, sustained wind loads, seismic movements, acoustical criteria, and applied loads from external facade access restraint systems.

See detailed information in the building elevations and section drawings.

Modifications Requested:

Height Modification for Buildings 2 and 3: 9-2-14(b)(1)(E)(iv)**:**

The proposed design provides adequate height to support R&D uses and to take advantage of the western views, with upper portions of Buildings 2 and 3 positions to capture views over Building 1. Given the buildings' siting against the drainage easement and South Boulder Creek to the east, views from adjacent neighbors are not blocked. In line with the BVCP policies and the East Boulder Subcommunity Plan, the site plan provides a pedestrian-friendly atmosphere with a significant community benefit in the form of connection to the eastern multi-use path. The project is not requesting modification for setbacks, FAR or floodplain regulations.

The following drawings and diagrams are provided separately for additional reference:

- *Shadows analysis as described in the solar analysis instruction is provided per separate Solar Analysis.*
- *List of the height of each principal building located or known to be proposed or approved within 100 feet of the proposed project are identified on drawing A5.6.*
- *Detailed open space plan/schedule provided on L1.0. Open space serving the public interest, RE: LANDSCAPE AND OPEN SPACE, above.*

Site Access Control: 9-9-5(c)(9):

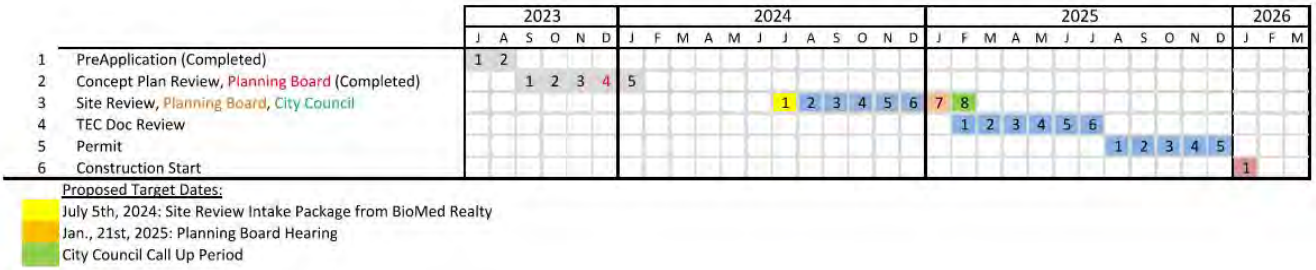
- (A) The topography, configuration of a lot, or other physical constraints makes taking access from the lowest category street, alley or public access frontage impractical, or the character of the existing area is such that a proposed or existing access to the street, alley or public access frontage is compatible with the access of properties in such area;
    - The proposed access to this property is compatible with the surrounding site's character. Several nearby properties have more than one access point, and the existing site currently has two access points near where the proposed access points will be located, maintaining consistency with the area's character.
- (B) The site access and curb cuts would not impair public use of the public right-of-way; create safety or operational problems or be detrimental to traffic flow on adjacent public streets; and
    - The public right-of-way encompasses the sidewalk around the cul-de-sac and links to the proposed multi-use path. According to the Traffic Impact Study, the new layout will not introduce any safety or operational problems. The existing roadways have sufficient capacity to handle the additional traffic from the project, ensuring that public safety and accessibility are not compromised.
- (C) The site access and curb cuts will minimize impacts to the existing on-street parking patterns.
- The existing site currently has two access points near where the two proposed access points will be located, which minimizes the impact and keeps the existing on-street parking patterns.

Motor Vehicle parking reduction: 9-9-6(f):

- *23% parking reduction.*
- *Reduction criteria responses listed below within parking modification criteria.*

Development Schedule and Phasing:

Schedule:



Vested Property Rights:

Pursuant to Subsection 9-2-12(a) (as modified by Ordinance 8622), "Three Year Rule," B.R.C. 1981, the following development/phasing plan is approved:

a. Phase 1 includes the construction of Building #3 as shown on the final approved site plan for Site Review Case No. LUR2024-00036 (the "Site Plan Approval") including the improvements and infrastructure as shown on the approved Phasing Plan for Phase 1.

   Pursuant to 9-2-12(a), B.R.C. 1981, for Phase 1 the three-year period in which applicant shall obtain applicable building permit approvals and start construction shall commence on the date of final approval of the Site Review, unless modified by the Development Agreement.

b. Phase 2 includes the construction of Building #2 as shown on the Site Plan Approval including the improvements and infrastructure as shown on the approved Phasing Plan for Phase 2.

   Pursuant to 9-2-12(a), B.R.C. 1981, for Phase 2, the three-year period in which applicant shall obtain applicable building permit approvals and start construction shall commence on the date that is three (3) years after the date of final approval of the Site Review, unless modified by the Development Agreement.

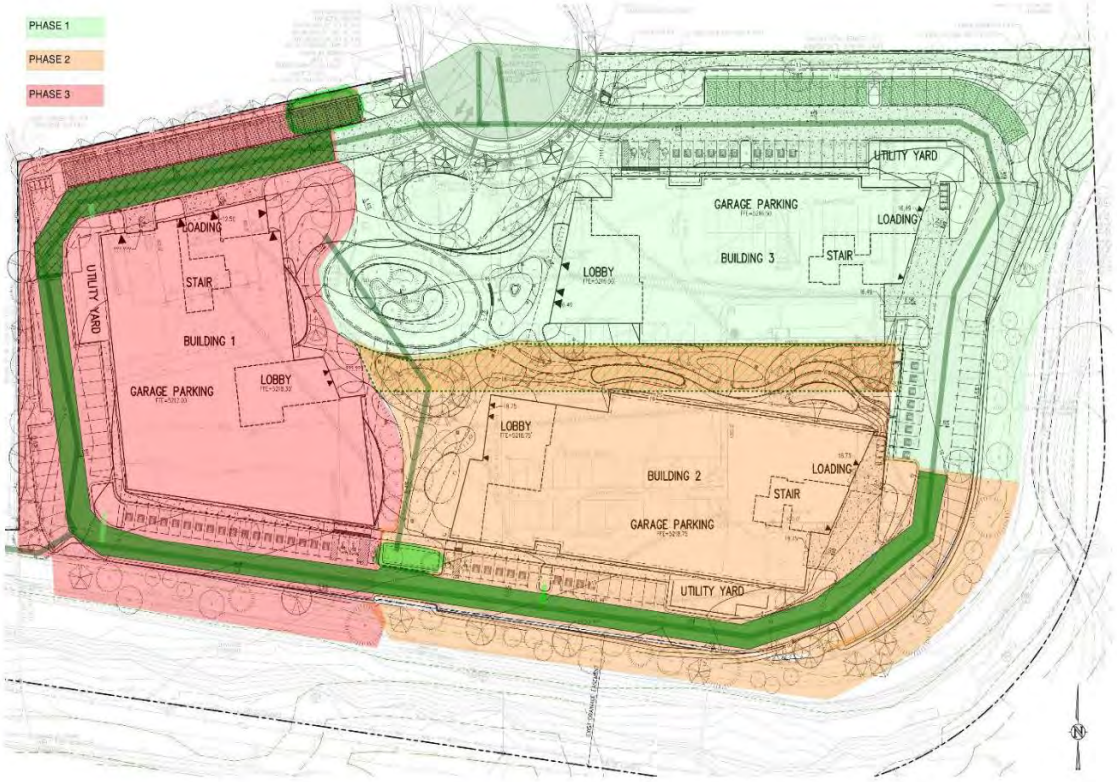
c. Phase 3 includes the construction of Building #1 as shown on the Site Plan Approval including the including the improvements and infrastructure as shown on the approved Phasing Plan for Phase 3.

   Pursuant to 9-2-12(a), B.R.C. 1981, for Phase 3 the three-year period in which applicant shall obtain applicable building permit approvals and start construction shall commence on the date that is six (6) years after the date of final approval of the Site Review, unless modified by the Development Agreement.

For clarity and avoidance of doubt, for Phase 2 and Phase 3, Developer may, at its option, obtain building permits and commence construction prior to the deadlines for the start date of the three-year periods provided above and may elect to combine and build any of the phases concurrently.

Phasing:

The proposed 1855 S. Flatiron Court Site Review will be built in three phases. Briefly, Phase 1 will consist of the construction of Building 3 and its associated improvements as well as the installation of the site's looped 8" water main, fire hydrants, the multi-use path as well as the full circulatory access drive. Building 2 and associated improvements will be constructed during Phase 2. Finally, Phase 3 will develop Building 1 and the remainder of the site improvements which will bring the project to full buildout condition. A general overview of the phased construction concept and detailed summary of phased elements is included below. Detailed phasing plans are included in the Civil Plans on sheets C500-C503.



Phase 1 - Building 3 and new Multi-use Path, and areas indicated on above diagram in green. The applicant shall obtain applicable building permit approvals and start construction within 3 years of the date of the Development Agreement.

- Building 3 Elements:
  - Core and shell construction of a three-story building (65,593 sq ft. 50'-0 tall)
  - Construction of the main building lobby
  - Café Amenity
  - Electrical and mechanical spaces
- Parking:
  - All parking stalls within building 3, exterior surface stalls
- Site Elements:
  - Multi-use path connection along North property line
  - The full circulatory access drive for fire truck access and delivery trucks
    - Asphalt pavement over the water main will be installed for a suitable width to provide fire and maintenance access.
  - Site landscaping and lighting related to building 3
  - Long-term bike storage, and short-term bike parking as shown on plan

- Utilities:
  - The full site looped 8" water main, including the 8" water main within S 57th Court, all fire hydrants on site
  - Water and sanitary connections related to building 3
  - Dry utility connections related to building 3
- Drainage and Water Quality:
  - Stormwater control measures (SCM) and site drainage features related to site elements constructed in this phase
  - Temporary site swales and erosion control measures will be included to ensure undeveloped portions of the site are stabilized.

Phase 2 – Building 2 and areas indicated on diagram above in orange. The applicant shall obtain applicable building permit approvals and start construction within 6 years of the date of the Development Agreement

- Building 2 Elements:
  - Core and shell construction of a three-story building (72,154 sq ft. 50-0" tall)
  - Construction of the main building lobby
  - Electrical and mechanical space
- Parking:
  - All parking stalls within building 2, exterior surface stalls
- Site Elements:
  - Site landscaping and lighting related to building 2
  - Long-term bike storage, and short-term bike parking as shown on plan
- Utilities:
  - Water, sanitary and sewer connections related to building 2
  - Dry utility connections related to building 2
- Drainage and Water Quality:
  - Stormwater control measures (SCM) and site drainage features related to site elements constructed in this phase
  - Temporary site swales and erosion control measures from Phase 1 will be adjusted to ensure undeveloped portions of the site are stabilized

Phase 3 – Building 1 and areas indicated on diagram above in red. Applicant shall obtain applicable building permit approvals and start construction within 9 years of the date of the Development Agreement

- Building 1 Elements:
  - Core and shell construction of a three-story building (69,264 sq ft., 45'-0" tall)
  - Construction of the main building lobby
  - Electrical and mechanical space
- Parking:
  - All parking stalls within building 1, exterior surface stalls
- Site Elements:
  - Site landscaping and lighting related to building 1
  - Long-term bike storage, and short-term bike parking as shown on plan
- Utilities:
  - Water, sanitary and sewer connections related to building 1
  - Dry utility connections related to building 1
- Drainage and Water Quality:
  - Stormwater control measures (SCM) and site drainage features related to site elements constructed in this phase.
  - All temporary erosion control measures from Phase 2 will be removed, and final landscaping, drainage and stormwater quality elements installed.

Site Review Criteria and Compliance:

▶ 9-2-14(h)(1) Boulder Valley Comprehensive Plan (BVCP) criteria:

(A) BVCP Land Use Map and Policies: *The proposed project is consistent with the BVCP land use map and, on balance, with the goals and policies of the BVCP particularly those that address the built environment. In applying this, the approving authority shall consistently interpret and apply this criterion and consider whether a particular goal or policy is intended to be applied to individual development projects or is to guide city policy decisions, such as regulatory actions. The BVCP does not prioritize goals and policies, and no project must satisfy one particular goal or policy or all of them.*

Response: The BVCP Land Use designation for the site is Mixed Use Industrial, which is described in the BVCP as areas that consist predominantly of light industrial use on ground floors, with supporting uses that include light industrial, attached residential, retail, service, office and commercial. Flatiron Business Park is one of Boulder's established industrial parks, with major companies, start-ups, food manufacturing, research and development, and multiple successful life science businesses. Plans are being developed to add an amenity center with restaurant, recreation, and tenant support uses. The site is located in the East Boulder Subcommunity Plan (EBSP), adopted in 2022. A city process to adopt zoning changes to implement the plan is underway.

This Site Review proposal supports numerous BVCP policies. Please see the extensive list of policies below that are consistent with this application. The proposed redevelopment of the 1855 S. Flatiron Ct. site in Flatiron Business Park is a clear example of Revitalizing Commercial & Industrial Areas in a Regional Job Center and supporting a Compact Development Pattern. City approval of this application would show strong Support for Local Business & Business Retention. The Enhanced Design of the proposed new buildings and landscaping and this design supports the proposed Building Height. The project supports Trail Corridors/Linkages to South Boulder Creek and connections within Flatiron Business Park.

BOULDER VALLEY COMPREHENSIVE PLAN POLICIES CONSISTENT WITH APPLICATION (See policies in exhibit 2 for reference)

(B) Subcommunity and Area Plans or Design Guidelines: *If the project is subject to an adopted subcommunity or area plan or adopted design guidelines, the project is consistent with the applicable plan and guidelines.*

Response: Project is located within the East Boulder Subcommunity Plan (EBSP) on the Flatiron Business Park. The project site is designated as Mixed-Use Industrial and a destination workplace.

To support the destination workplace performance measures of the EBSP active site design is provided throughout with large areas of open space, designated site amenities to encourage recreation and outdoor work, and a proposed cafe amenity that will be open to the public.

Primary parking is directly connected to the workplace and consolidated under each building. Covered parking includes designated preferred car share and carpool parking stalls. The remaining parking is clustered around each building and located primarily on the rear and perimeter of the site. Total parking spaces are approximately 23% less than code requirement. The limited surface parking is designed to work in conjunction with the stormwater and drainage plan to improve discharge water quality and slow run-off. As such, the area adjacent to the parking is enhanced with multiple rain gardens, permeable pavers, concrete paving, and several landscape elements.

Pedestrian focus and ground-level activation are provided with human scale and transparent building design elements and by providing approximately 27% open space with a distinct separation of vehicular and pedestrian pathways. Several landscaped outdoor amenity spaces are incorporated in the site design for work, play and socializing.

The 'streetscape character' of the site provides green infrastructure for off-street pedestrians and cyclists to relax and reflect. The project is focused on reducing single occupant vehicles with alternate transportation options. A bike/scooter station is located on site, short-term and long-term bike storage are provided near each building entry, and a direct connection of the proposed multi-use

path connecting the campus to the existing Boulder Creek Path and the greater East Boulder Community. Additionally, the development aims to reduce its carbon footprint by designating a significant portion of the building rooftop for onsite renewable energy production with a large photovoltaic solar array.

(C) Reducing Greenhouse Gas Emissions: *Any new commercial building greater than 30,000 square feet in floor area and any 30,000 square feet or greater addition to a commercial building shall either have a net site energy usage index (EUI) of zero or is designed to achieve a net site EUI that is 10 percent lower than required under the City of Boulder Energy Conservation Code. It shall be a condition of approval that the applicant demonstrate compliance with this criterion at the time of building permit. For the purpose of this requirement, "commercial building" shall have the meaning defined in the City of Boulder Energy Conservation Code.*

Response: Confirmed. Compliance will be confirmed at the time of building permit review. Rooftops have been designed to accommodate PV systems that cover 40% of the roof area.

(D) Urban Edge Design: *If the project is located within the urbanizing areas along the boundaries between Area I and Area II or III of the BVCP, the building and site design provide for a well-defined urban edge, and, if, in addition, the project is located on a major street shown in Appendix A of this title, the buildings and site design establish a sense of entry and arrival to the city by creating a defined urban edge through site and building design elements visible upon entry to the city.*

Response: N/A.

(E) Historic or Cultural Resources: *If present, the project protects significant historic and cultural resources. The approving authority may require application and good faith pursuit of local landmark designation.*

Response: N/A.

(F) Housing Diversity and Bedroom Unit Types: *Except in the RR, RE and RL-1 zoning districts, projects that are more than 50 percent residential by measure of floor area, not counting enclosed parking areas, meet the following housing and bedroom unit type requirements in Subsections (i) through (vi). For the purposes of this subparagraph, qualifying housing type shall mean duplexes, attached dwelling units, townhouses, live-work units, or efficiency living units, and bedroom type shall mean studios, one-bedroom units, two-bedroom units, or three-bedroom units.*

Response: N/A.

(G) Environmental Preservation:

(i) *The project provides for the preservation of or mitigation of adverse impacts to natural features, including, without limitation, healthy long-lived trees, significant plant communities, ground and surface water, wetlands, riparian areas, drainage areas, and species on the federal Endangered Species List and "Species of Special Concern in Boulder County" designated by Boulder County and their habitat.*

Response: The proposed building and site development shall be set outside the boundary of the drainage easement that runs along the south and east sides of the site. This drainage easement consists of wetlands and their associated inner and outer buffers.

This project proposes to preserve and protect as many large trees as possible, removing only those that have been found in the hazardous condition of dead or dying, invasive species, and trees that will be compromised by site development requirements. Refer to the 'Tree Inventory, Removal and Protection' plan in the landscape set for further information.

The proposed development will result in a reduction of impervious surfaces from the existing development. All stormwater runoff will be treated on-site through a series of rain gardens before it is released into the cul-de-sac. Existing drainage patterns have been maintained with the proposed development.

No endangered species have been discovered on-site to-date nor documented in municipal publications such as the Critical Wildlife Habitats and Migration Corridors map (adopted 12/22/22).

(ii) *Where excavation occurs, the location and design of buildings conforms to the natural contours of the land with tiered floor plates, and the site design avoids over-engineered tabling of land. Slopes greater than 50 percent should be avoided and, to the extent practicable, any such areas shall be stabilized with vegetation.*

Response: Because of the requirements of the 100-year floodplain present on the site, excavation only occurs at Building 1 which is outside of the floodplain. The configuration of Building 1's pedestrian and vehicular entries works to accommodate the existing natural grade without putting any additional burdens on the site grading, to ensure efficient site drainage that works well with the building footprint. There are no slopes greater than 50%, and raised and exposed foundation design will be utilized to ensure the buildings align with the surrounding site topography.

▶ 9-2-14(h)(2) Site Design Criteria:

(A) Access, Transportation, and Mobility:

(i) *The project enables or provides vehicular and pedestrian connectivity between sites consistent with adopted connections plans relative to the transportation needs and impacts of the project, including but not limited to construction of new streets, bike lanes, on-street parking, sidewalks, multi-use paths, transit stops, streetscape planting strips, and dedication of public right-of-way or public access easements, as applicable considering the scope of the project. Where no adopted connections plan applies, the applicant shall, in good faith, and in coordination with the city manager, attempt to coordinate with adjacent property owners to establish, where practicable, reasonable and useful pedestrian connections or vehicular circulation connections, such as between parking lots on abutting properties, considering existing connections, infrastructure, and topography.*

Response: The project ensures seamless connectivity for both vehicular and pedestrian traffic in line with BVCP goals by providing designated zones for each without conflict. This includes the construction of a new multi-use path, sidewalks, and a transit drop off area. The applicant is committed to collaborating with the city and adjacent property owners in good faith to establish and improve the practical and beneficial connections, with consideration given to existing infrastructure. The new multi-use path will provide a great benefit for the site and support Flatiron Business Park's connectivity to the greater Boulder trail system. This approach aims to foster efficient circulation and accessibility while respecting the broader urban context and community needs.

(ii) *Alternatives to the automobile are promoted by incorporating site design techniques, land use patterns, and infrastructure that support and encourage walking, biking, and other alternatives to the single-occupant vehicle*.

Response: Along with the new multi-use path, the site is designed with pedestrians specifically in mind. By separating the daily vehicle user to the outer areas of the site, the entire interior has been designed for pedestrian walking paths and open space areas for work, play and relaxation. Bike travelers on-site don't have to maneuver around cars as they navigate to and through the site to the several long- and short-term bike parking areas provided at each building. The project also provides space for alternative travels methods, like a bike/scooter share parking and each building has a Car Share parking space.

(iii) *A transportation demand management (TDM) plan will be complied with including methods that result in a significant shift away from single-occupant vehicle use to alternate modes.*

Response: A TDM plan has been provided in coordination with the site design and transportation goals to support alternate modes of transportation.

(iv) *Streets, bikeways, pedestrian ways, trails, open space, buildings, and parking areas are designed and located to optimize safety of all modes and provide connectivity and functional permeability through the site.*

Response: All modes of transportation are configured in a way that optimizes safety by providing clear delineation and separation between vehicles and other modes.

(v) *The design of vehicular circulation and parking areas makes efficient use of the land and minimizes the amount of pavement necessary to meet the circulation and parking needs of the project.*

Response: The vehicular circulation and parking are designed to provide the least amount of paving necessary to meet all vehicular circulation and servicing needs.

(vi) *Where practicable and needed in the area and subject to coordination with the city manager, the project provides curbside parking or loading or both consistent with city policies on curbside management.*

Response: The project's design locates loading, drop off, and delivery zones for the site in an area separate from daily long-term parking.

(B) Open Space:

(i) *Useable open space is arranged to be accessible and designed to encourage use by incorporating quality landscaping, a mixture of sun and shade, hardscape areas and green spaces for gathering.*

Response: This project will consist of three buildings stitched together by an elegant sequence of meandering paths, gardens, and outdoor amenity zones. The largest portion of usable open space has been concentrated in the center of the site as a contiguous landscape framework between all three buildings to provide the greatest amount of accessibility and use among tenants and visitors. Additionally, the public facing portions of the wetland buffers on-site will be utilized as additional planting area and open space.

(ii) *The open space will meet the needs of the anticipated residents, occupants, tenants, and visitors of the property. In mixed-use projects, the open space provides for a balance of private and common areas for the residential uses and includes common open space that is available for use by residents of the residential uses and their visitors and by tenants, occupants, customers, and visitors of the non-residential uses*.

Response: The open space will be shared among tenants and visitors of all three buildings. The plaza is intended to be a flexible space that allows for occasional vehicular use (pickup / drop-off / emergency) and events that will be heavily dependent on the future tenants and the level of programming they want to apply to the space. We imagine the plaza being used in a variety of ways by employees and their guests, for corporate or community events, potentially at various times of day. For instance, food trucks could activate the space during lunch or for an evening event as much as once/ month or as little as once/year. During these times, the plaza would be closed off and signage would direct vehicles around the perimeter loop. The fitness area is another flexible, semi-covered space that would allow for yoga sessions or fitness equipment as deemed necessary by future tenants. Three different outdoor rooms provide space for moveable tables and chairs, an outdoor firepit (natural gas supplied) and games, such as foosball or ping-pong.

(iii) *On-site open space is linked to adjacent public spaces, multi-use paths, city parks, or public open space if consistent with Department of Open Space and Mountain Parks or Department of Parks and Recreation plans and planning for the area, as applicable*.

Response: A proposed multi-use trail along the northern property line provides a connection between the existing/adjacent multi-use trail to the east and Flatiron Business Park. This connection is consistent with the Transportation Master Plan.

(C) Landscaping and Screening:

(i) *The project exceeds the minimum landscaping requirements of Section 9-9-12, "Landscaping and Screening Standards," B.R.C. 1981, by at least fifteen percent in terms of planting quantities, includes a commensurate area to accommodate the additional plantings, and, where practical, preserves healthy long-lived trees.*

Response: The project meets or exceeds standards as shown in the plan drawings and compliance charts within the landscape set. Healthy, Long-lived trees will be preserved primarily within the drainage easement and associated wetlands. All other mature trees within the developable area of the property will be removed either due to poor heath or site development requirements. For instance, the stand of existing mature trees adjacent to the cul-de-sac will need to be removed for one of the following reasons:

- They are located within an existing utility easement
- They are located within a proposed utility easement.

- They are located within an area that will realize a grade elevation increase of two to three feet to ensure adequate surface drainage.
- They are located adjacent to new streetscape improvements which will require grading, demolition, and construction of new curb and gutter within the critical root zones of these trees.

(ii) *The landscaping design includes a variety of plants providing a variety of colors and contrasts in terms of texture and seasonality and high-quality hard surface materials, such as stone, flagstone, porous pavers, and decorative concrete.*

Response: The landscape design incorporates a diverse range of native and native adapted plants for varied colors, textures, and seasonal interest as indicated in the plant schedules on sheet L6.0. Stone Pavers, decorative concrete, flagstone, and sandstone boulders are integrated throughout the landscape to complement and enhance the overall aesthetic and connection to regional landscapes.

(iii) *The landscaping design conserves water through use of native and adaptive plants, reduction of exotic plant materials, and landscaping within stormwater detention facilities to create bioswales or rain gardens, or other similar design strategies.*

Response: Due to the lack of underground stormwater management, the plan incorporates a series of bioswales and rain gardens to meet water quality standards. Native, native-adaptive and xeriscape planting will be used wherever possible. For proposed planting details, please see the Landscape and Civil set, and refer to the Stormwater Report for drainage calculations.

(iv) *Operational elements, such as electrical transformers, trash storage and recycling areas, parking, and vehicular circulation, are screened from the public realm through design elements, such as landscaping, fencing, or placement of structures, to mitigate negative visual impacts.*

Response: All trash, loading, utilities and vehicular parking/circulation are screened from the public realm to the extent possible by their placement and the site's design use of cohesive screening materials that blend with the buildings and the site along with landscaping to reduce the negative visual impact. Unsightly views from the trail corridor specifically have been screened by a 6' wide landscape buffer of shrubs and trees along the eastern edge of the drive combined with a series of architectural screen walls.

▶ 9-2-14(h)(3) Building Siting and Design Criteria:

(A) Building Siting and Public Realm Interface:

(i) *New buildings and, to the extent practicable, additions to existing buildings are positioned towards the street, respecting the existing conditions or the context anticipated by adopted plans or guidelines. In urban contexts, buildings are positioned close to the property line and sidewalk along a street; whereas, in lower intensity contexts, a greater landscaped setback may be provided to match the surrounding context.*

Response: The project is configured with the building entry facades oriented around the central 'entry courtyard' at the welcoming point to the site. A landscape buffer is proposed off the cul-de-sac to soften the entry experience and support stormwater management goals.

(ii) *Wherever practical considering the scope of the project, parking areas are located behind buildings or set back further from the streetscape than the building façade.*

Response: The site's parking areas are primarily located behind the buildings or within building facades, to minimize the visual impact of vehicles.

(iii) *Along the public realm, building entries are emphasized by windows and architectural features that include one or more of the following: increased level of detail, protruding or recessed elements, columns, pilasters, protruding bays, reveals, fins, ribs, balconies, cornices, eaves, increased window glazing, or changes in building materials or color.*

Response: Building massing and articulation was developed with careful consideration of the arrival experience from S. Flatiron Ct. The cul-de-sac leads graciously into an entry court around which all front doors are oriented. Overhead sloped soffits give the impression of a 'lifted' volume that draws

people into the buildings. Entry glazing is recessed both to provide overhead weather protection and to emphasize a sense of arrival.

(iv) *Defined entries connect the building to the public realm. Unless inconsistent with the context and building's use, along the public realm, one defined entry is provided every 50 feet. Buildings designed for residential or industrial uses may have fewer defined entries.*

Response: Pedestrian building entries are concentrated in the site's center, adjacent to the cul-de-sac, consistent with the goal of focusing pedestrian activity at the heart of the campus.

(v) *If the project is adjacent to a zoning district of lower intensity in terms of allowable use, density, massing, or scale, the project is designed with an appropriate transition to the adjacent properties considering adopted subcommunity and area plans or design guidelines applicable to the site, and, if none apply, the existing development pattern. Appropriate transitions may be created through design elements such as building siting and design or open space siting and design.*

Response: The project is largely surrounded by other IG sites; project scale is consistent with surrounding zoning heights and allowable uses. Buildings are arranged in a way that allows for views through the site, and landscaped zones are provided as buffers at site edges.

(vi) *The building's siting and relationship to the public realm is consistent with the character established in any adopted plans or guidelines applicable to the site or, if none apply, is compatible with the character of the area or improves upon that character, consistent with the intent of Paragraph (3), Building Design Criteria.*

Response: The proposed building and site design improves upon the character of the surrounding developments, which are largely warehouse-style buildings sited among large swaths of surface parking. In this proposed plan, the presence of vehicles is minimized in the pedestrian realm and emphasis is instead given to planted areas, seating zones, and pathways.

(B) Building Design:

(i) *Larger floor plate buildings and projects with multiple buildings have a variety of forms and heights.*

Response: All three buildings are planned according to a common structural module for tenant flexibility and efficiency. The expression of building form and height responds according to its orientation and relationship to the site, position around an activated centralized courtyard, and whether its private or public facing. Building elements that are facing public areas are articulated and vary through the use of several architectural elements including material transitions, shifts in plane, roof line variation, visual transparency, and vertical glazing.

Each building's footprint and elevation are different depending on its orientation on the site. Building 2 south façade and Building 3 north façade (the project's two longest facades) are separated into two masses by a recessed vertical glazing element that reduces the apparent length by shifting the vertical plane and introducing a lower roof line. These facades are further articulated with metal panels that vary in depth in profile, bringing a finer scale of variation to the roof line.

Additionally, each building's primary corner contains a Level 03 terrace expressed as a 'lantern'. The courtyard-facing top-floor façade at these terraces is substantially set back from the building below to bring relief to the massing. Perforated metal panels at the alternate edge and an overhead trellis structure bring variation to the roof line as they give this corner element an inviting 'glow' in evening hours and a moving pattern of shadows during the daytime hours. Designated terrace planter areas provide a biophilic connection to ground-level planting.

This approach to the corners is superior to a simple top-floor setback for the following reasons:

- The continuation of the perforated metal panels in front of the terrace, with a connected overhead trellis, is consistent with Section 9-2-14(h)(3)(C)(i) and (iv), which calls for high-quality materials that turn convex corners. By extending the metal panel and 'wrapping' it overhead at the trellis, the material maintains its strength and integrity as it holds the volume of that corner.
- Partial 'enclosure' of the terrace is more programmatically functional / more conducive to all-weather uses than an uncovered terrace.

- The introduction of perforated panels and overhead trellis structures provide surfaces that support the dynamic play of light and shadow.

(ii) *To the extent practical considering their function, mechanical appurtenances are located within or concealed by the building. If they cannot be located within or concealed by the building, their visibility from the public realm and adjacent properties is minimized.*

Response: Mechanical equipment is largely located on the rooftop and is screened from view. Screen wall height is minimized according to equipment requirements.

(iii) *On each floor of the building, windows create visual interest, transparency, and a sense of connection to the public realm. In urban, pedestrian main street-built environments, it is a best practice to design at least 60 percent of each ground floor façade facing the street as window area. Otherwise, it is a best practice to design at least 20 percent of the wall on each floor of a building as window area. Blank walls along the most visible portions of the building are avoided.*

Response: Exposed portions of blank walls at ground level (where parking occurs within) are minimized through grading and landscaping. Building lobbies are fully glazed, providing views outside-in and inside-out.

(iv) *Simple detailing is incorporated into the façades to create visual interest, without making the façade overly complicated. This detailing may include cornices, belt courses, reveals, alternating brick or stone patterns, expression line offsets, window lintels and sills, and offsets in window glass from surrounding materials.*

Response: The exterior materials palette is carefully curated, with a focus on quality, durability, and refined, elegant details. Metal panels formed at varying angles introduce texture and interest through dynamic shadow patterns. Windows are offset at each floor level for a floor-by-floor expression that humanizes building scale.

(v) *Balconies on buildings with attached dwelling units are integrated into the form of the building in that exterior walls partially enclose the balcony. Balcony platform undersides are finished.*

Response: Upper-level terraces, integrated into larger building recesses, conceal their undersides.

(vi) *The building's design, including but not limited to use of materials, color, roof forms, and style, is consistent with the character established in any adopted plans or guidelines applicable to the site or, if none apply, is compatible with the character of the area or improves upon that character, consistent with the intent of paragraph (3), Building Design Criteria.*

Response: Building design improves upon the character of the surrounding developments, which are largely warehouse-style buildings with large blank facades and small amounts of glazing. This proposal introduces a vocabulary of transparency, articulated entries, and refined detailing.

(C) Building Materials:

(i) *Building facades are composed of high-quality, durable, human-scaled materials. High quality materials include brick, stone, polished concrete masonry units, wood, architectural high pressure laminate panels, cementitious or composite siding, architectural metal panels, or any combination of these materials. Split-faced concrete masonry units, stucco, vinyl siding, EIFS, and unfinished or untreated wood are not considered durable, high-quality materials, but may be used on a limited basis and not on facades facing the public realm. High quality materials are focused on the ground floor facades on all sides of a building and on all floors of facades facing the public realm, and, overall, comprise the vast majority of all building facades.*

Response: Primary façade materials include high-quality, energy-efficient glazing and architectural metal panels. Metal panels are textured and angled to create a dynamic movement of shadow across the facades as the angle of the sun changes throughout the day.

(ii) *Monolithic roofing membranes, like Thermoplastic Polyolefin, are not used on roof surfaces that are visible from the street level.*

Response: No roofing surface is visible from the street level.

(iii) *The number of building material types is limited, and the building materials are applied to complement the building form and function. The organization of the building materials logically expresses primary building features, such as the spatial layout, building entries, private and common spaces, anchor corners, stairwells, and elevators.*

Response: Typical facades are articulated according to a rigorous but flexible lab module, with vertical swaths of glazing in 11' bays. Larger glazing areas are used at building entries and courtyard-facing facades, to delineate lobbies and to compliment the active nature of the courtyard space.

(iv) *Building cladding materials turn convex corners and continue to the inset wall. This criterion does not apply to changes that occur at an interior corner nor to detailing elements, such as cornices, belt courses, reveals, offsets in expression lines, lintels, and windowsills. Building cladding materials do not change in-plane unless there is at least a 12-inch wall offset.*

Response: No building materials are proposed to change "in-plane".

(v) *Any newly constructed building that includes residential units and is located within 200 feet of a railroad, freeway, or expressway is designed to achieve an interior day-night average noise level of no more than forty-five decibels. Noise shall be measured in a manner that is consistent with the federal Housing and Urban Development's standards in Sections 24 CFR §§ 51.100 to 51.106 for the "measure of external noise environments," or similar standard adopted by the city manager in the event that such rule is repealed. The applicant shall provide written certification prior to the issuance of a certificate of occupancy that the sound abatement and attenuation measures were incorporated in the construction and site design as recommended by a professional engineer.*

Response: N/A

▶ 9-2-14(h)(4) ADDITIONAL CRITERIA FOR BUILDINGS REQUIRING HEIGHT MODIFICATION OR EXCEEDING THE MAXIMUM FLOOR AREA RATIO:

(A) **Building Form and Massing:** *The building's form and massing are consistent with the character established in any adopted plans or guidelines applicable to the site or, if none apply, are compatible with the character of the area or improves upon that character, consistent with the intent of paragraph (3), Building Design Criteria. The building's form, massing and length are designed to a human scale and to create visual permeability into and through sites. In determining whether this is met, the approving authority will consider the following factors:*

(i) *The building does not exceed 200 feet in length along any public right-of-way.*

Response: The proposed Multi-Use Path in this site review application along the northern portion of the site is considered a public right-of-way. As such, the North elevation of building 3 has been separated into a primary and secondary mass, both under 200 feet in length. Additional architectural elements are introduced along this elevation to provide a sense of human scale to both occupants and the public with an increased visual permeability into and through the site.

A large vertical transparent notch in the building form is recessed both in plan and elevation and extends from the ground plane, providing a human scale experience along the adjacent sidewalk with landscaping, to the roof, where it provides relief and variation of the roof line. Each building's primary corner contains a Level 03 terrace expressed as a 'lantern'. The courtyard-facing top-floor façade at these terraces is substantially set back from the building below to bring relief to the massing.

The ground plane is further articulated on each end of the building with large shifts in plane and activated with a translucent glazing along level 1 to provide visual permeability while maintaining the screening of vehicles and parking. The building's primary NW corner features a planted terrace to help activate the space from within and add transparency through a heavily eroded roof, perforated screens walls, glass railings, and an integrated shade trellis. The terrace provides both improved access to natural daylight for occupants and a transparent architectural element that creates a lantern and a textural shadow effect.

All these elements work together to provide an openness to the building and views of the site that increases the visual permeability and provides a human scale to the buildings form, massing, and

length along this newly created public right-of-way. The overall design will provide both occupants and the public experience a sense of temporality and impermanence by creating altering visual effects during the rhythmic cycles of day to night and season to season.

(ii) *All building facades exceeding 120 feet in length along a public street, excluding alleys, are designed to appear as at least two distinct buildings. To achieve this, façade segments vary in at least two of the following design elements:*

a. *Type of dominant material or color, scale, or orientation of that material;*

b. *Facade recessions and projections;*

c. *Location of entrance and window placements;*

d. *Roof forms; and*

e. *Building height.*

Response: None of the building facades along a public street exceed 120' in length.

(B) Building and Site Design Requirements for Height Modifications:

(i) *Buildings requiring a height modification shall meet the following requirements:*

a. *Height Modification Other than Height Bonus: For buildings no taller than three stories and subject to a height modification pursuant to Subparagraph 9-214(b)(1)(E)(i) through (vii), the building's height, mass, and scale is compatible with the character of the surrounding area.*

Response: The surrounding Flatiron Business Park is comprised primarily of research & development / Life Science buildings of similar massing and proportions, due to the nature of the buildings' required laboratory needs.

b. Response: N/A.

▶ 9-2-14(h)(5) ADDITIONAL CRITERIA FOR POLES OR EMERGENCY OPERATIONS ANTENNAS ABOVE THE PERMITTED HEIGHT:

(i) Response: N/A.

▶ 9-2-14(h)(6) LAND USE INTENSITY AND HEIGHT MODIFICATIONS:

(A) Land Use Intensity Modifications with Open Space Reduction:

(i) Response: N/A.

(B) Land Use Intensity Modifications with Height Bonus:

( ) Response: N/A.

(C) Additional Criteria for a Height Bonus and Land Use Intensity Modifications:

( ) Response: N/A.

(ii) Response: N/A.

(iii) Response: N/A.

(iv) Response: N/A.

▶ 9-2-14(h)(7) / 9-6-6(f) PARKING REDUCTIONS:

The applicant demonstrates, and the approving authority finds, that any reduced parking on the site, if applicable, meets the parking criteria outlined in Section 9-9-6, "Parking Standards," B.R.C. 1981.

***9-9-6(f)(1)** The city manager may grant a parking reduction not to exceed twenty-five percent of the required parking. Parking reductions greater than twenty-five percent may be granted as part of a site review approval under Section **9-2-14**, "Site Review," B.R.C. 1981.*

Response: The project is proposing a 23% parking reduction in coordination with our TDM and the project's goals of increasing alternative modes of transportation.

9-9-6(f)(2) Parking Reduction Criteria: The approving authority may reduce the parking requirements of this section (see Tables 9-1, 9-2, 9-3 and 9-4), if it finds that the parking needs of all uses in the project will be adequately accommodated. In making this determination, the approving authority shall consider without limitation:

(A) Whether the probable number of all motor vehicles to be owned by occupants of and visitors to dwelling units in the project will be adequately accommodated;

Response: Based on the proximity to transit and multi-modal facilities, as well as the implementation of a robust TDM plan, the proposed 23% reduction will accommodate the probable number of motor vehicles, regularly to and through the site.

(B) The availability of off-street and nearby on-street parking;

Response: In coordination with the TDM, the project has proposed off-street parking and there is on-street parking on S. Flatiron Ct. and Central Avenue, in proximity.

(C) Whether any proposed shared parking can adequately accommodate the parking needs of different uses of the project considering daytime and nighttime variability of the parking needs of uses;

Response: Each building will provide a car share parking spot that can accommodate the needs of each building, primarily operated/available during normal business hours.

(D) The effectiveness of any multimodal transportation program that is proposed at reducing the parking needs of the project. Applications including such programs shall describe any existing or proposed facilities and proximity to transit lines and shall demonstrate that use of multimodal transportation options will continue to reduce the need for on-site parking on an ongoing basis;

Response: The Project is within .05-miles from the bus stop at 55th Street that are served by high frequency bus routes and the site is adjacent to the Boulder Creek Path, with the multi-use path being proposed to come through the site along the north. The site is also proposing a bike/scooter share parking location by the multi-use path within Phase 1. The proximity to quality multi-modal facilities will encourage employees to reduce their reliance on SOV travel and reduce the need for parking.

(E) If the number of off-street parking spaces is reduced because of the nature of the occupancy, whether the applicant provides assurances that the nature of the occupancy will not change; and

Response: Research and development offices typically have less employees per square footage than a typical building due to the nature of needing space for laboratories and research.

(F) If considering a parking reduction for a use nonconforming as to parking, the approving authority shall evaluate the existing parking arrangement to determine whether it can accommodate additional parking or be rearranged to accommodate additional parking in compliance with the design requirements of subsection (d) of this section. If additional parking can reasonably be provided, the provision of such parking shall be a condition of approval of the requested reduction.

Response: N/A.

EXHIBIT 1: Project Metrics:

1855 S. Flatiron Ct. Boulder, CO 80301			
FAR			
	Site Area, SQFT	417,640	
	MAX FAR, 9-8-2 (Table 8-2)	0.50	**208,820**
	Proposed Chargeable FAR		**207,011**

Building Totals				
				FAR
Phase 1 / BLDG 3	Level 1			5,038
	Level 2			29,917
	Level 3			30,638
	Total			**65,593**
Phase 2 / BLDG 2	Level 1			5,300
	Level 2			33,506
	Level 3			33,348
	Total			**72,154**
Phase 3 / BLDG 1	Level 1			4,997
	Level 2			31,408
	Level 3			32,859
	Total			**69,264**
Total	**Total FAR**			**207,011**

Vehicle Parking Provided		Per phase		
	Location	Garage	Site/Surface	Total
Phase 1 / BLDG 3	Level 1	67	81	148
Phase 2 / BLDG 2	Level 1	75	32	107
Phase 3 / BLDG 1	Level 1	74	69	143
Total				**398**

Vehicle Parking, 9-6-6 (Table 9-3)		**518**
9-9-6(f) Percentage reduction from Boulder Zoning Code		23

EV Parking, COBECC (C405.11.2)		**EVSE (5%)**	**EVRS (10%)**	**EVCS (10% of remaining)**
Phase 1 / BLDG 3		8	15	13
Phase 2 / BLDG 2		6	12	12
Phase 3 / BLDG 1		8	16	14
Total		**22**	**43**	**39**

Car share Parking				
	Location	Garage		Total
BLDG 1	Level 1	1		1
BLDG 2	Level 1	1		1
BLDG 3	Level 1	1		1
Total				**3**

Bike Parking, 9-9-6 (Table 9-8)				
	Factor	**Long term (75%)**	**Short term (25%)**	**Total**
BLDG 1	1:1500 sqft	36	12	48
BLDG 2		36	12	48
BLDG 3		36	12	48
Total		108	36	**144**

Open Space, 9-9-11(c)(3)				**Percentage**
Required			**83528**	20.00
Provided			**121,872.05**	29.18

EXHIBIT 2: Boulder Valley Comprehensive Plan (BVCP) Policies

Policy 2.03 Compact Development Pattern: Ensure that development will take place in an orderly fashion, take advantage of existing urban services, and avoid . . . patterns of leapfrog, noncontiguous, scattered development within the Boulder Valley. The city prefers redevelopment and infill as compared to development in an expanded Service Area in order to prevent urban sprawl and create a compact community.

Policy 2.21 Light Industrial Areas
The city supports its light industrial areas, which contain a variety of uses, including technical offices, research and light manufacturing. The city will preserve existing industrial areas as places for industry and innovation and will pursue regulatory changes to better allow for housing and retail infill. The city will encourage redevelopment and infill to contribute to placemaking and better achieve sustainable urban form as defined in this chapter. Housing should occur in a logical pattern and in proximity to existing and planned amenities, including retail services and transit. Analysis will guide appropriate places for housing infill within areas zoned Industrial General (IG) (not those zoned for manufacturing or service uses) that minimize the potential mutual impacts of residential and industrial uses in proximity to one another.

Policy 2.26 Trail Corridors/Linkages
In the process of considering development proposals, the city and county will encourage the development of paths and trails where appropriate for recreation and transportation, such as walking, hiking, bicycling or horseback riding. Implementation will be achieved through the coordinated efforts of the private and public sectors.

Policy 2.35 Building Height
The city will review and update site review regulations to provide clear guidance on height and intensity of land uses and to address relationship of building height to aesthetics and view protection. The city will consider additional height (up to the City Charter 55 -foot height limit) as an incentive in exchange for community benefits that further other community objectives such as the provision of permanently affordable housing (as described in Policy 1.11).

Policy 2.41 Enhanced Design for All Projects
Through its policies and programs, the city will encourage or require quality architecture and urban design in all development that encourages alternative modes of transportation, provides a livable environment and addresses the following elements:
a. Area planning. Where there is a desire to improve the character of the surroundings, a new character and positive identity as established through area planning or a community involvement process should be created for the area as the city work plan and resources allow.
b. The context. Projects should become a coherent part of the neighborhood in which they are placed. Special attention will be given to protecting and enhancing the quality of established residential areas that are adjacent to business areas.
c. Relationship to the public realm. Projects should relate positively to public streets, plazas, sidewalks, paths and natural features. Buildings and landscaped areas—not parking lots—should present a well-designed face to the public realm, should not block access to sunlight and should be sensitive to important public view corridors. Future strip commercial development will be discouraged.
d. Ditches. Project sponsors should collaborate with irrigation ditch companies on design and construction. Where possible, project elements should educate and inform about the connection between irrigation ditches and agricultural lands.
e. Transportation connections. Projects should provide a complete network of vehicular, bicycle and pedestrian connections both internal to the project and connecting to adjacent properties, streets and paths, including dedication of public rights-of-way and easements where required.
f. Parking. The primary focus of any site should be quality site design. Parking should play a subordinate role to site and building design and not jeopardize open space or other opportunities on the property. Parking should be integrated between or within buildings and be compact and dense. The placement of parking should be behind and to the sides of buildings or in structures rather than in large street-facing lots. Surface parking will be discouraged, and versatile parking structures that are designed with the flexibility to allow for different uses in the future will be encouraged.
g. Human scale and art in public spaces. Projects should provide pedestrian interest along streets, paths and thoughtfully designed public spaces that support a mix of events, destinations and art. Projects should model investment in public art in the city, and the city should encourage individuals, businesses, organizations and

developers to invest in improvements to public spaces through the addition of meaningful, innovative and quality works of art.
h. Permeability. Create permeability in centers with a mix of semi-public and public spaces that are connected visually for intuitive navigation. Include civic and cultural uses as well as outdoor seating, shade trees and green spaces in the public spaces to create a unique identity and sense of place. Projects should provide multiple opportunities to walk from the street into projects, thus presenting a street face that is permeable. Where appropriate, they should provide opportunities for visual permeability into a site to create pedestrian interest.
i. On-site open spaces. Projects should incorporate well-designed functional open spaces with quality landscaping, access to sunlight and places to sit comfortably. Where public parks or open spaces are not within close proximity, shared open spaces for a variety of activities should also be provided within developments.
j. Buildings. Buildings should be designed with a cohesive design that enhances the streetscape and is comfortable to the pedestrian. Buildings should demonstrate approachability and a relationship to the street, with inviting entries that are visible from public rights of way, multiple entrances and four-sided design. Foster appeal of buildings through attractive, well-designed architecture made of high-quality, long-lasting materials and innovative approaches to design.

Policy 5.01 Revitalizing Commercial & Industrial Areas
The city supports strategies unique to specific places for the redevelopment of commercial and industrial areas. Revitalization should support and enhance these areas, conserve their strengths, minimize displacement of users and reflect their unique characteristics and amenities and those of nearby neighborhoods. Examples of commercial and industrial areas for revitalization identified in previous planning efforts are Diagonal Plaza, University Hill commercial district, Gunbarrel and the East Boulder industrial area. The city will use a variety of tools and strategies in area planning and in the creation of public/ private partnerships that lead to successful redevelopment and minimize displacement and loss of service and retail uses. These tools may include but are not limited to area planning with community input, infrastructure improvements, shared parking strategies, transit options and hubs and changes to zoning or development standards and incentives (e.g., financial incentives, development potential or urban renewal authority).

Policy 5.02 Regional Job Center
The city supports strategies that recognize Boulder's continued role as a regional job center, consistent with economic sustainability goals and projected employment growth. The city and county recognize the importance of regional planning and partnerships for housing and transportation and will continue to address impacts on housing affordability and transportation related to their role as a regional job center.

Policy 5.05 Support for Local Business & Business Retention
The city and county value the diverse mix of existing businesses, including primary and secondary employers of different sizes, in the local economy. Nurturing, supporting and maintaining a positive climate for the retention of existing businesses and jobs is a priority. The city recognizes the vital role of small, local and independent businesses and non-profits that serve the community and will balance needs of redevelopment in certain areas with strategies that minimize displacement of existing businesses and create opportunities for startups and growing businesses. The city will continue to proactively analyze trends in market forces to shape its activities, plans and policies regarding local business and business retention. The city and county will consider the projected needs of businesses and their respective employees, such as commercial and office space, when planning for transportation infrastructure, programs and housing.

CRITERIA CHECKLIST AND COMMENT FORM

SITE REVIEW
SECTION 9-2-14(h)
LUR2024-00036
ADDRESS: 1855 S Flatiron
DATE: 12/22/2024

CRITERIA APPLICABLE TO ALL SITE REVIEW APPLICATIONS

(1) Boulder Valley Comprehensive Plan (BVCP) criteria*: Meets criteria*

(A) BVCP Land Use Map and Policies: *Yes*

The proposed project is consistent with the BVCP land use map and, on balance, with the goals and policies of the BVCP particularly those that address the built environment. In applying this, the approving authority shall consistently interpret and apply this criterion and consider whether a particular goal or policy is intended to be applied to individual development projects or is to guide city policy decisions, such as regulatory actions. The BVCP does not prioritize goals and policies, and no project must satisfy one particular goal or policy or all of them.

Staff Response:

The BVCP land use map designates the property "Mixed-Use Industrial" which is described as:

Mixed-Use Industrial (MUI)	**Characteristics and Locations:** MUI areas should integrate diverse housing, commercial and retail options into industrial areas to create vibrant, walkable, working neighborhoods that offer employers, employees and residents a variety of local services and amenities. MUI areas will often provide a transition between existing or planned residential or mixed-use neighborhoods and Light, Community or General Industrial land use area.s **Uses:** Consists predominantly of light industrial use on ground floors. Supporting uses include light-industrial, attached residential, retail, service, office and commercial.

Staff finds that the proposal is consistent with the following BVCP policies:

2.04 Open Space Preservation

2.14 Mix of Complementary Land Uses

2.21 Light Industrial Areas

2.26 Trail Corridors/Linkages

2.35 Building Height

2.41 Enhanced Design for All Projects

3.06 Wetland & Riparian Protection

4.07 Energy Efficient Land Use

4.08 Energy Efficient Building Design

5.01 Revitalizing Commercial & Industrial Areas

5.02 Regional Job Center

5.07 Industry Clusters

(B) Subcommunity and Area Plans or Design Guidelines: *Yes*

If the project is subject to an adopted subcommunity or area plan or adopted design guidelines, the project is consistent with the applicable plan and guidelines.

Staff Response:

The site is located within the East Boulder Subcommunity Plan, which identified goals related to access and mobility, design quality, placemaking, and local businesses. Within the area plan, the site is designated as Destination Workplace with the purpose of creating flexible, active and engaging work places to serve Boulder business and industry. The vision for the area also includes creating opportunities for more commercial uses and an active lifestyle for area workers, as well as allowing for new residential development.

The site design of the proposed project encourages pedestrian circulation with interior walkways buffered from the exterior vehicle circulation patterns. A new on-site multi-use path connection is proposed for the northern edge of the site to link S. Flatiron Ct. with the S. Boulder Creek bike path and greater transportation network. The bike path is protected and buffered from vehicle traffic by landscaping. The ground floor of Building 3 has an amenity space for future commercial to serve on-site employees and those in the surrounding area. Parking is consolidated as much as possible, with close access to each building and located within the structure where possible. There are no large parking lots. The ground floor is further activated with landscaping, green walkways, and outdoor amenities. The proposed design meets the performance standards of the Destination Workplace place type described in the subcommunity plan.

(C) Reducing Greenhouse Gas Emissions: *Yes*

Any new commercial building greater than 30,000 square feet in floor area and any 30,000 square feet or greater addition to a commercial building shall either have a net site energy usage index (EUI) of zero or is designed to achieve a net site EUI that is 10 percent lower than required under the City of Boulder Energy Conservation Code. It shall be a condition of approval that the applicant demonstrate compliance with this criterion at time of building permit. For the purpose of this requirement, "commercial building" shall have the meaning defined in the City of Boulder Energy Conservation Code.

Staff Response:

The proposal is greater than 30,000 square feet; thus this criterion applies and compliance will be required to be demonstrated at the time of building permit. This is a condition of approval.

(D) Urban Edge Design: *Yes*

If the project is located within the urbanizing areas along the boundaries between Area I and Area II or III of the BVCP, the building and site design provide for a well-defined urban edge, and, if, in addition, the project is located on a major street shown in Appendix A of this title, the buildings and site design establish a sense of entry and arrival to the city by creating a defined urban edge through site and building design elements visible upon entry to the city.

Staff Response:

N/A; the proposal is not located within the urbanizing areas along Area I and II or III of the BVCP.

(E) Historic or Cultural Resources: *Yes*

If present, the project protects significant historic and cultural resources. The approving authority may require application and good faith pursuit of local landmark designation.

Staff Response:

N/A; the proposal does not involve any historic or cultural resources.

(F) Housing Diversity and Bedroom Unit Types: *N/A*

Except in the RR, RE and RL-1 zoning districts, projects that are more than 50 percent residential by measure of floor area, not counting enclosed parking areas, meet the following housing and bedroom unit type requirements in (i) through (vi). For the purposes of this subparagraph, qualifying housing type shall mean duplexes, attached dwelling units, townhouses, live-work units, or efficiency living units, and bedroom type shall mean studios, one-bedroom units, two-bedroom units, or three-bedroom units.

Staff Response:

N/A; the proposal does not involve any dwelling units.

(i) Projects five acres or less shall include at least one qualifying housing type. In projects with efficiency living units, at least one additional qualifying housing type shall be provided consistent with the requirements of this paragraph; *N/A*

(ii) Projects greater than five acres shall include at least two qualifying housing types; *N/A*

(iii) Projects ten acres or more shall include at least three qualifying housing types; *N/A*

(iv) Projects greater than five acres shall include at least five dwelling units of each required qualifying housing type; *N/A*

(v) Projects with more than 20 attached dwelling units shall include at least two different bedroom types, and; *N/A*

(vi) If a project does not meet the requirements of subsections (i) through (v) above, the applicant shall demonstrate that the project fulfills another at least equivalent community need related to housing policies identified in the BVCP. *N/A*

(G) Environmental Preservation: *Yes*

Staff Response:

The proposal does not involve any impacts to natural features. Building and site development will be located outside the boundary of the drainage easement along the south and east sides of the site. The drainage easement consists of wetlands and their associated inner and outer buffers, which will be maintained. The proposal maintains existing healthy long-lived trees and will comply with all floodplain requirements. The proposed development will result in a reduction of impervious surfaces from the existing development. All stormwater runoff will be treated on-site through a series of rain gardens before it is released into the cul-de-sac. Existing drainage patterns have been maintained with the proposed development. No endangered species have been discovered on-site to-date nor documented in municipal publications such as the Critical Wildlife Habitats and Migration Corridors map.

Excavation only occurs at Building 1, which is outside of the floodplain. There are no slopes greater than 50% and building design will ensure the buildings align with the surrounding site topography. Pedestrian and vehicular entries accommodate the existing natural grade.

(i) The project provides for the preservation of or mitigation of adverse impacts to natural features, including, without limitation, healthy long-lived trees, significant plant communities, ground and surface water, wetlands, riparian areas, drainage areas, and species on the federal Endangered Species List and "Species of Special Concern in Boulder County" designated by Boulder County and their habitat. *Yes*

(ii) Where excavation occurs, the location and design of buildings conforms to the natural contours of the land with tiered floor plates, and the site design avoids over-engineered tabling of land. Slopes greater than 50 percent should be avoided and, to the extent practicable, any such areas shall be stabilized with vegetation. *Yes*

(2) Site Design Criteria: *Meets criteria*

The project creates safe, convenient, and efficient connections for all modes of travel, promotes safe pedestrian, bicycle, and other modes of alternative travel with the goal of lowering motor vehicle miles traveled. Usable open space is arranged to be accessible; designed to be functional, encourage use, and enhance the attractiveness of the project; and meets the needs of the anticipated residents, occupants, tenants, and visitors to the project. Landscaping aesthetically enhances the project, minimizes use of water, is sustainable, and improves the quality of the environment. Operational elements are screened to mitigate negative visual impacts. In determining whether this is met, the approving agency will consider the following factors:

(A) Access, Transportation, and Mobility:

(i) The project enables or provides vehicular and pedestrian connectivity between sites consistent with adopted connections plans relative to the transportation needs and impacts of the project, including but not limited to construction of new streets, bike lanes, on-street parking, sidewalks, multi-use paths, transit stops, streetscape planting strips, and dedication of public right-of-way or public access easements, as applicable considering the scope of the project. Where no adopted connections plan applies, the applicant shall, in good faith, and in coordination with the city manager, attempt to coordinate with adjacent property owners to establish, where practicable, reasonable and useful pedestrian connections or vehicular circulation connections, such as between parking lots on abutting properties, considering existing connections, infrastructure, and topography. *Yes*

Staff Response:

The project provides pedestrian and bicycle connectivity to the surrounding uses and greater Boulder trail system, consistent with the East Boulder Subcommunity Plan. The plan identifies a planned multi-use path connection across the northern portion of the site, which is being developed to link the South Boulder Creek Path to the site and to S. Flatiron Ct. While the planned connection will be located entirely on the subject site, all users of the Flatirons Business Park can access the path from S. Flatiron Ct. or the existing multi-use path to the east.

(ii) Alternatives to the automobile are promoted by incorporating site design techniques, land use patterns, and infrastructure that support and encourage walking, biking, and other alternatives to the single-occupant vehicle. *Yes*

Staff Response:

Alternatives to the automobile are promoted through site design, which prioritizes and encourages pedestrian movement through the site with internal walking paths that are separated from vehicle movements and connect between buildings. Vehicle users are confined to the outer areas of the site. The proposal incorporates new on-site bike parking including short- and long-term bike parking to meet current code requirements; the overall property will require 42 short-term and 43 long-term bike parking spaces, and 43 short-term and 50 long-term bike parking spaces are proposed. The proposal also includes the construction of a multi-use path connection to the South Boulder Creek Path to accommodate biking and other alternatives to the single-occupant vehicle. Dedicated carshare spaces are proposed for each building as well as a designated space near the northern edge of the site for a Lime Grove or B-Cycle Station.

(iii) A transportation demand management (TDM) plan will be complied with including methods that result in a significant shift away from single-occupant vehicle use to alternate modes. *Yes*

Staff Response:

A Transportation Demand Management (TDM) Plan was provided that supports a travel mode reduction. The TDM Plan includes the following measures:

- *Short- and long-term bicycle parking provided above minimum requirements and on-site bicycle commuter amenities.*

- *Telecommuting options for employees.*
- *EcoPass program for employees.*
- *Dedicated carshare/vanpool for employees.*
- *Space on-site for either a B-Cycle station or a Lime Grove.*

(iv) Streets, bikeways, pedestrian ways, trails, open space, buildings, and parking areas are designed and located to optimize safety of all modes and provide connectivity and functional permeability through the site. *Yes*

Staff Response:

Primary vehicle access to each building is along a perimeter road that surrounds the entire development. The circulation pattern moves vehicles to the outer edge of the development. Parking is located along the perimeter road, on the ground floor of each building, and along the site access/egress points to the north. All parking is easily accessible from the perimeter road and adjacent to buildings to create safe and easy access. Secondary vehicle access is from an internal drop-off/pick-up plaza or roundabout. Traffic calming techniques such as a narrowed driveway width (to the south) on the perimeter road and bollards and warning pavers along the edge of the plaza promote safety and minimize conflicts between pedestrians and vehicles. The perimeter road allows for vehicle permeability throughout the site while optimizing safety for other modes of travel.

Primary pedestrian connections are located internal to the site and allow for pedestrian movement between buildings and from parking areas away from internal vehicle movement. Bike access is from S. Flatiron Ct. and the proposed multi-use path to the north of the site. The multi-use path along the north is buffered from parking areas by a landscaping strip. Parking has been reduced along the path to promote safe access from the path to the site.

The site design encourages safety of all modes by providing internal connections that separate areas of high pedestrian activity from areas of higher vehicular activity.

(v) The design of vehicular circulation and parking areas make efficient use of the land and minimize the amount of pavement necessary to meet the circulation and parking needs of the project. *Yes*

Staff Response:

Parking areas are incorporated into the ground floor of each building to minimize land area used solely for parking. Additional parking is located along the main vehicle circulation path. Areas along the south have reduced the amount of parking to accommodate a narrowing of the drive aisle to 20 feet, which will still facilitate emergency access while promoting traffic calming techniques. The perimeter road is necessary for emergency access and is the minimum width required to accommodate emergency services and backing distances for the adjacent parking.

Where possible, permeable pavers are used for surface parking along the northern edge of the site to reduce the amount of impervious pavement.

(vi) Where practicable and needed in the area and subject to coordination with the city manager, the project provides curbside parking or loading or both consistent with city policies on curbside management. *N/A*

Staff Response:

N/A; curbside loading is not anticipated. Any loading or delivery zones are provided within the site and are separated from daily long-term parking.

(B) Open Space:

(i) Useable open space is arranged to be accessible and designed to encourage use by incorporating quality landscaping, a mixture of sun and shade, hardscape areas and green spaces for gathering. *Yes*

Staff Response:

Open space is provided throughout the site in a variety of forms. On the ground floor, there are at least five different areas that contain seating and gathering spaces. The central courtyard is accessible via the multi-use path, the entry along S. Flatiron Ct., and from each building. The central pick-up/drop-off area provides shielded seating with shade trees and can be used as an event or gathering space when closed off to vehicles. Other outdoor areas include a space to be used as a future fitness area and a fire pit. The internal walkways are composed of colored concrete, natural stone, and pavers. Landscaping and green areas are proposed throughout the internal courtyard and along the perimeter of the development.

(ii) The open space will meet the needs of the anticipated residents, occupants, tenants, and visitors of the property. In mixed-use projects, the open space provides for a balance of private and common areas for the residential uses and includes common open space that is available for use by residents of the residential uses and their visitors and by tenants, occupants, customers, and visitors of the non-residential uses. *Yes*

Staff Response:

Portions of the open space programming is dependent on future tenants but has been designed to allow for a flexibility of uses to meet the needs of the anticipated users. The central roundabout has been designed to allow for alternative uses. For example, the roundabout can be closed off and used as a plaza for employee events, including food trucks. There is also a designated fitness area that is semi-covered and allows for yoga sessions or fitness equipment. Three areas designated as "outdoor rooms" provide space for moveable table and chairs, outdoor firepit, and games. Each building has a terraced space on the top floor intended to have plantings and access to sun.

(iii) If the project includes more than 50 dwelling units, including the addition of units that causes a project to exceed this threshold, and is more than one mile walking distance to a public park with any of the amenities described herein, at least 30 percent of the required outdoor open space is designed for active recreational purposes. *N/A*

Staff Response:

N/A; nonresidential project.

(iv) On-site open space is linked to adjacent public spaces, multi-use paths, city parks, or public open space if consistent with Department of Open Space and Mountain Parks or Department of Parks and Recreation plans and planning for the area, as applicable. *Yes*

Staff Response:

The project includes the development of a connection from S Flatiron Ct. across the northern edge of the subject property to the South Boulder Creek Path. The proposed multi-use path provides a direct connection between the Flatirons Industrial Park and the larger South Boulder Creek Path network to the east. The development will respect existing flood berms.

(C) Landscaping and Screening:

(i) The project exceeds the minimum landscaping requirements of Section 9-9-12, "Landscaping and Screening Standards," B.R.C. 1981, by at least fifteen percent in terms of planting quantities, includes a commensurate area to accommodate the additional plantings, and, where practical, preserves healthy long-lived trees. *Yes*

Staff Response:

The site design incorporates plantings and landscaping in excess of code requirements for interior parking lot landscaping (7,674 square feet where 3,764 square feet is required) and screening (85 trees where 56 are required). The landscape design also exceeds requirements for site landscaping by providing 169 trees where 165 are required and 3,615 shrubs where 829 are required.

Healthy long-lived trees are preserved primarily within the existing drainage easement and wetlands. Other mature trees throughout the site will be removed due to poor health or due to the location within existing utility easements. Other trees will need to be removed to accommodate redevelopment.

(ii) The landscaping design includes a variety of plants providing a variety of colors and contrasts in terms of texture and seasonality and high-quality hard surface materials, such as stone, flagstone, porous pavers, and decorative concrete. *Yes*

Staff Response:

Stone pavers, decorative concrete, flagstone, and sandstone boulders are integrated throughout the site to complement the native landscape. A variety of plant types are provided including perennials with varied colors, deciduous and evergreen shrubs, grasses, and both shade and decorative trees. A total of 2 species of perennials, 17 species of grasses and forbs, 19 species of shrubs, 4 species of wet meadow mix, and 15 species of trees.

(iii) The landscaping design conserves water through use of native and adaptive plants, reduction of exotic plant materials, and landscaping within stormwater detention facilities to create bioswales or rain gardens, or other similar design strategies. *Yes*

Staff Response:

Natural species are proposed throughout the project to conserve water including native, native-adaptive, and xeriscaping where possible. Per the submitted plans, only 2.5% of the total site landscaping is considered "high water use." A series of bioswales and rain gardens are proposed throughout the site to meet water quality standards.

(iv) Operational elements, such as electrical transformers, trash storage and recycling areas, parking, and vehicular circulation, are screened from the public realm through design elements, such as landscaping, fencing, or placement of structures, to mitigate negative visual impacts. *Yes*

Staff Response:

Trash, loading, utilities, and parking/circulation are screened from the public realm with landscaping buffers and metal panels that match the material palette of the primary building forms. Where possible, loading areas and trash facilities are located behind the buildings and away from active pedestrian areas.

(3) Building Siting and Design Criteria: *Meets criteria*

Building siting and design are consistent with the character established in any adopted plans or guidelines applicable to the site or, if none apply, are compatible with the character of the area or improves upon that character, consistent with the intent specified in this paragraph. Buildings are positioned and oriented towards the public realm to promote a safe and vibrant pedestrian experience including welcoming, well-defined entries and facades. Building exteriors are designed with a long-lasting appearance and high-quality materials. Building design is simple and to a human scale, it creates visual interest and a vibrant pedestrian experience. Building roof design contributes to a city skyline that has a variety of roof forms and heights. In determining whether this is met, the approving agency will consider the following factors:

(A) Building Siting and Public Realm Interface:

(i) New buildings and, to the extent practicable, additions to existing buildings are positioned towards the street, respecting the existing conditions or the context anticipated by adopted plans or guidelines. In urban contexts, buildings are positioned close to the property line and sidewalk along a street; whereas, in lower intensity contexts, a greater landscaped setback may be provided to match the surrounding context. *Yes*

Staff Response:

Building entry facades are positioned around the central courtyard and are generally oriented towards S. Flatiron Ct. The site has minimal street frontage due to its location at the end of a cul-de-sac. However, the building siting paired with an entry courtyard create a welcoming point of entry for those accessing the site from S. Flatiron Ct. or the multi-use path. The building siting is appropriate given the operational characteristics of the use and in relation to the surrounding context, which is more industrial in nature.

(ii) Wherever practical considering the scope of the project, parking areas are located behind buildings or set back further from the streetscape than the building façade. *Yes*

Staff Response:

Parking is located within the footprint of each building on the ground floor and therefore screened from the public realm. Parking is also located at the "back-of-house" of each building and accessed from the perimeter road. Minimal parking is located on the northern edge of Buildings 1 and 2. The location of parking allows for convenient access to each building and reinforces safe pedestrian connections by reducing the walking distance between the building entry and parking.

(iii) Along the public realm, building entries are emphasized by windows and architectural features that include one or more of the following: increased level of detail, protruding or recessed elements, columns, pilasters, protruding bays, reveals, fins, ribs, balconies, cornices, eaves, increased window glazing, or changes in building materials or color. *Yes*

Staff Response:

All front doors are oriented around the entry courtyard and interior circulation route, which acts as a drop-off/pick-up area and mixing area for open space. The arrival area has a mix of functions and acts as the public realm in this context. Building entries are defined by overhead sloped roof forms with wood. A curtain wall and increased window glazing is proposed for the front entry. The design and building form create a focal point for pedestrians with easily identifiable entries.

(iv) Defined entries connect the building to the public realm. Unless inconsistent with the context and building's use, along the public realm, one defined entry is provided every 50 feet. Buildings designed for residential or industrial uses may have fewer defined entries. *Yes*

Staff Response:

Pedestrian building entries are concentrated in the site's center, adjacent to the arrival area, to focus pedestrian activity at the center of the development. Secondary entries are located for access from adjacent parking and internal walkways as well as through the bike parking areas that face the public realm. The entries complement site design.

(v) If the project is adjacent to a zoning district of lower intensity in terms of allowable use, density, massing, or scale, the project is designed with an appropriate transition to the adjacent properties considering adopted subcommunity and area plans or design guidelines applicable to the site, and, if none apply, the existing development pattern. Appropriate transitions may be created through design elements such as building siting and design or open space siting and design. *Yes*

Staff Response:

The north, west, and south sides are adjacent to the same zone. The eastern side is adjacent to a P zone, which is a less intense use. The building siting orients the buildings towards the center of the site. Surface parking and an existing drainage easement buffer the edge of Buildings 2 and 3 from the Public zoned property to the east. The easement starts at the northeast corner of the site and varies in width but is about 100 feet at its widest to transition between the developed and undeveloped parcels. The project scale is consistent with surrounding zoning heights and is an allowable use.

(vi) The building's siting and relationship to the public realm is consistent with the character established in any adopted plans or guidelines applicable to the site or, if none apply, is compatible with the

character of the area or improves upon that character, consistent with the intent of paragraph (3), Building Design Criteria. *Yes*

Staff Response:

The character of the surrounding developments is largely warehouse-style buildings among large areas of surface parking. The building siting and design will improve the character of the area by minimizing the appearance of parking with ground floor parking and emphasizes planting areas and active open space.

This site is identified in the East Boulder Subcommunity as an area of change with a destination workplace place type. The destination workplace place type calls for consolidated parking, which is met by the site's parking layout. The rest of the plan does not specifically address building siting. Large site that anticipates more than one building and has clustered parking.

(B) Building Design:

(i) Larger floor plate buildings and projects with multiple buildings have a variety of forms and heights. *Yes*

Staff Response:

Each building footprint and elevation are different depending on the orientation on the site. For instance, the southern façade of building 2 and the northern façade of building 3 are separated into two masses by a recessed vertical glazing element to reduce the apparent length. Building 1 is located on the western side of the central courtyard and the footprint wraps along the south of the central courtyard.

Building 1 is proposed to be 45 feet in height while Buildings 2 and 3 are proposed to be 50 feet. Overall, staff appreciates the design decision to create visual interest with the anchor corners using a lantern effect and third floor covered terrace. The terraced corners were designed to be enclosed to provide shelter throughout all seasons. Staff finds that the Applicant has taken some measures to add roofline variation and incorporate varied heights for multiple buildings, such parapet adjustments, eroded corners, and façade recessions. Additional design elements will be required and reviewed by staff at time of Technical Document application. Such changes may include greater adjustments to parapet heights and uncovering the terraced balconies.

(ii) To the extent practical considering their function, mechanical appurtenances are located within or concealed by the building. If they cannot be located within or concealed by the building, their visibility from the public realm and adjacent properties is minimized. *Yes*

Staff Response:

Due to the nature of the proposed use, the mechanical equipment cannot be located within or concealed by the building. There is a functional need for rooftop appurtenances including dispelling exhaust. The rooftop mechanical equipment is screened from view with metal panels that complement the proposed material palette.

(iii) On each floor of the building, windows create visual interest, transparency, and a sense of connection to the public realm. In urban, pedestrian main street-built environments, it is a best practice to design at least 60 percent of each ground floor façade facing the street as window area. Otherwise, it is a best practice to design at least 20 percent of the wall on each floor of a building as window area. Blank walls along the most visible portions of the building are avoided. *Yes*

Staff Response:

Because the ground floor of each building contains parking, minimal glazing is used for screening purposes. Instead, landscaping, grading, cast in-place concrete, and glass with decorative frit (on the ground floor) are used to minimize the appearance of blank walls. The most visible portion of each building are the entries that face the interior courtyard. A curtain wall and high levels of glazing are

used to distinguish these main entries and lobbies. The second and third floor of each building have over 20% glazing. The fenestration pattern of the second and third floors, as well as the fully glazed building entries, create visual interest and connect each building with the activate courtyard. There are no buildings that connect directly to the public realm due to the siting of the site.

(iv) Simple detailing is incorporated into the façades to create visual interest, without making the façade overly complicated. This detailing may include cornices, belt courses, reveals, alternating brick or stone patterns, expression line offsets, window lintels and sills, and offsets in window glass from surrounding materials. *Yes*

Staff Response:

The simple and high-quality material palette prevents overly complicated detailing. Simple detailing is incorporated by the way in which the materials are organized. Metal panels form varying angles create texture and visual interest. Fenestration patterns are offset at each floor level but in repeating patterns to further visual interest. Other detailing elements include ground floor glazing with decorative frit (Building 3), wood paneled soffits at each main entry, and covered terraces on each primary building corner.

(v) Balconies on buildings with attached dwelling units are integrated into the form of the building in that exterior walls partially enclose the balcony. Balcony platform undersides are finished. *N/A*

Staff Response:

N/A; nonresidential.

(vi) The building's design, including but not limited to use of materials, color, roof forms, and style, is consistent with the character established in any adopted plans or guidelines applicable to the site or, if none apply, is compatible with the character of the area or improves upon that character, consistent with the intent of paragraph (3), Building Design Criteria. *Yes*

Staff Response:

The character of the surrounding developments is largely warehouse-style buildings with large blank facades and limited glazing and detailing elements. The building design will improve the character of the area by introducing transparency, articulated entries, and increased detailing.

While this site is identified in the East Boulder Subcommunity as an area of change, the plan does not provide specific design guidelines regarding materials, color, style, etc. for future development. The plan does encourage buildings that offer modern amenities to employers and employees and design with "aesthetic choices that express innovation, creativity, and entrepreneurism." The dynamic building form and use of metal panels and glazing provide a more interesting look to an otherwise industrial use. The use of third floor "lanterns" are creative and instill visual interest. The plan anticipate this mass and scale.

(C) Building Materials:

(i) Building facades are composed of high-quality, durable, human-scaled materials. High-quality materials include brick, stone, polished concrete masonry units, wood, architectural high pressure laminate panels, cementitious or composite siding, architectural metal panels, or any combination of these materials. Split-faced concrete masonry units, stucco, vinyl siding, EIFS, and unfinished or untreated wood are not considered durable, high-quality materials, but may be used on a limited basis and not on facades facing the public realm. High quality materials are focused on the ground floor facades on all sides of a building and on all floors of facades facing the public realm, and, overall, comprise the vast majority of all building facades. *Yes*

Staff Response:

Building facades are composed of high-quality materials including metal panel, which are off set with window glazing to create a repeating pattern and texture. Board form concrete is proposed for the

ground floor. Wood is proposed under the soffit, which will be shielded from weathering. Perforated metal panels and glazing with decorative frit is used on a limited basis. High-quality materials are designed to wrap around all facades of the building.

(ii) Monolithic roofing membranes, like Thermoplastic Polyolefin, are not used on roof surfaces that are visible from the street level. *Yes*

Staff Response:

Flat roofs are not visible from street level.

(iii) The number of building material types is limited, and the building materials are applied to complement the building form and function. The organization of the building materials logically expresses primary building features, such as the spatial layout, building entries, private and common spaces, anchor corners, stairwells, and elevators. *Yes*

Staff Response:

The number of building material types is limited to concrete, metal panels, and glazing for windows and the curtain walls. The materials are applied to complement the form of the building and express primary building features. Primary building entries and building lobbies are delineated by glazing/a curtain wall and metal trim that all face the central courtyard. Accent features used only for the entries assist in wayfinding. For instance, the soffits of each primary entry consists of wood panels. A change in material to concrete along the ground floor differentiate services areas from the more public-facing areas accentuated with glass and create building legibility.

(iv) Building cladding materials turn convex corners and continue to the inset wall. This criterion does not apply to changes that occur at an interior corner nor to detailing elements, such as cornices, belt courses, reveals, offsets in expression lines, lintels, and windowsills. Building cladding materials do not change in-plane unless there is at least a 12-inch wall offset. *Yes*

Staff Response:

No building materials are proposed to change "in-plane". Materials on the ground floor of each building consistent of cast in-place concrete, which wraps around all sides of the structure. The materials on the second and third floor facades consistent primarily of metal panels and glazing. The transition between materials do not change-in plane and provide offsets and second floor overhangs. On primary pedestrian pathways between building, the cladding is organized with a planar relief with a pedestrian rhythm to add texture and offset with glazing.

(v) Any newly constructed building that includes residential units and is located within 200 feet of a railroad, freeway, or expressway is designed to achieve an interior day-night average noise level of no more than forty-five decibels. Noise shall be measured in a manner that is consistent with the federal Housing and Urban Development's standards in Sections 24 CFR §§ 51.100 to 51.106 for the "measure of external noise environments," or similar standard adopted by the city manager in the event that such rule is repealed. The applicant shall provide written certification prior to the issuance of a certificate of occupancy that the sound abatement and attenuation measures were incorporated in the construction and site design as recommended by a professional engineer. *N/A*

Staff Response:

N/A; there are no proposed residential units.

ADDITIONAL CRITERIA FOR BUILDINGS EXCEEDING HEIGHT OR FLOOR AREA LIMITS

Eligible for height modification? *Yes*

9-2-14(b)(1)(E) Height Modifications:

A development which exceeds the permitted height requirements of Section 9-7-5, "Building Height," or 9-7-6, "Building Height, Conditional," B.R.C. 1981, or of Paragraph 9-10-3(b)(2), "Maximum Height," B.R.C. 1981, to the extent permitted by that paragraph for existing buildings on nonstandard lots, is required to complete a site review and is not subject to the minimum threshold requirements. No standard other than height may be modified under the site review unless the project is also eligible for site review. A development that exceeds the permitted height requirements of Section 9-7-5 or 9-7-6, B.R.C. 1981, must meet any one of the following circumstances in addition to the site review criteria:

Staff Response:

The height modification is for Buildings 2 and 3 only. This is to allow a maximum height of 50 feet to meet necessary flood protection elevations. Building 1 is proposed to be 45 feet, which is allowed by-right pursuant to the conditional use standards in Section 9-7-6, B.R.C. 1981.

(i) The height modification is to allow a roof that has a pitch of 2:12 or greater in a building with three or fewer stories and the proposed height does not exceed the maximum height permitted in the zoning district by more than ten feet. *N/A*

(ii) The building is in the industrial general, industrial service, or industrial manufacturing zoning district and has two or fewer stories and the building's height is necessary for a manufacturing, testing, or other industrial process or equipment. *N/A*

(iii) The height modification is to allow up to the greater of two stories or the maximum number of stories permitted in Section 9-7-1, B.R.C. 1981, in a building and the height modification is necessary because of the topography of the site. *N/A*

(iv) The height modification is to allow up to the greater of two stories or the maximum number of stories permitted but no more than five feet above the maximum building height under Section 9-7-5(a) or 9-7-6, B.R.C. 1981, in a building where the height modification is necessary because the building has to be elevated to meet the required flood protection elevation. *Yes*

(v) At least forty percent of the dwelling units in the building meet the requirements for permanently affordable units in Chapter 9-13, "Inclusionary Housing," B.R.C. 1981; at least forty percent of the floor area of the building is used for dwelling units that meet the requirements for permanently affordable units in Chapter 9-13, B.R.C. 1981; all floor area above the first floor of the building is used for dwelling units; and the permanently affordable units in the building are not used to satisfy inclusionary housing requirements under Chapter 9-13, B.R.C. 1981, for dwelling units located in any other building. *N/A*

(vi) The height modification is to allow an emergency operations antenna or a pole. *N/A*

(vii) The height modification is to allow an expansion of an existing building that exceeds the permitted height requirements of Section 9-7-5 or 9-7-6, B.R.C. 1981, if the existing height was approved as part of a planned unit development, site review, or height review and the expansion is not within a fourth or fifth story. *N/A*

(viii) The building or use meets the requirements of Subparagraph 9-2-14(h)(6)(C), B.R.C. 1981, for a height bonus, and is not in the RR, RE, RL, RMX-1, MH, or A zoning district. *N/A*

(4) Additional Criteria for Buildings Requiring Height Modification or Exceeding the Maximum Floor Area Ratio: *Meets criteria*

Any building exceeding the by-right or conditional zoning district height as permitted by Section 9-2-14(b)(1)(E), B.R.C. 1981, and any building exceeding the by-right floor area limits as permitted by Section 9-2-14(h)(6)(B), B.R.C. 1981, shall meet the following requirements:

(A) Building Form and Massing: *Yes*

The building's form and massing are consistent with the character established in any adopted plans or guidelines applicable to the site or, if none apply, are compatible with the character of the area or improves upon that character, consistent with the intent of paragraph (3), Building Design Criteria. The building's form, massing and length are designed to a human scale and to create visual permeability into and through sites. In determining whether this is met, the approving authority will consider the following factors:

(i) The building does not exceed 200 feet in length along any public right-of-way. *Yes*

(ii) All building facades exceeding 120 feet in length along a public street, excluding alleys, are designed to appear as at least two distinct buildings. To achieve this, façade segments vary in at least two of the following design elements: *N/A*

a. Type of dominant material or color, scale, or orientation of that material;

b. Facade recessions and projections;

c. Location of entrance and window placements;

d. Roof forms; and

e. Building height.

Staff Response:

Building 3 is located adjacent to the proposed multi-use path crossing the northern boundary of the site. However, the context is industrial in nature. The building is not adjacent to a street, which would anticipate a higher generation of pedestrian, bicycle, and vehicle activity than the multi-use path. Even so the building has incorporated human scale elements to create visual permeability, such as façade recessions to create a primary and secondary mass, both of which are under 200 feet in length. The vertical notch to create the two masses is recessed from the ground to the roof to add variation to the roof line. To further articulate the ground floor and introduce a human scale element, the ground floor fronting the path is activated with glazing to provide visual permeability while still screening interior parking. Other features to introduce visual permeability is a top floor screened terrace that is expressed as a lantern. The planted terrace helps activate the space from within and adds transparency through the eroded roof, perforated screen walls, glass railings. The transparent architectural element creates a lantern and a textual shadow effect during the day and evening. There are no building lengths exceeding 120 feet along a public street as the three buildings as setback further into the interior of the site.

(B) Building and Site Design Requirements for Height Modifications: *Yes*

(i) Buildings requiring a height modification shall meet the following requirements:

a. Height Modification Other than Height Bonus: For buildings no taller than three stories and subject to a height modification pursuant to Subparagraph 9-2-14(b)(1)(E)(i) through (vii), the building's height, mass, and scale is compatible with the character of the surrounding area. *Yes*

Staff Response:

The proposed buildings will have three stories. The additional height is needed to accommodate the proposed use of Research and Development, which typically contain labs and spaces that

require higher ceilings. The subject site is located within the Flatirons Business Park and surrounded by other buildings of similar size and scale.

b. Height Bonus: For buildings taller than three stories subject to a height modification pursuant to Subparagraph 9-2-14(b)(1)(E)(viii), B.R.C. 1981: *N/A*

ADDITIONAL CRITERIA FOR PARKING REDUCTIONS OR LOCATION

(7) Additional Criteria for Parking Reductions: *Meets criteria*

The applicant demonstrates, and the approving authority finds, that any reduced parking on the site, if applicable, meets the parking reduction criteria outlined in Section 9-9-6, "Parking Standards," B.R.C. 1981.

(A) Whether the probable number of all motor vehicles to be owned by occupants of and visitors to dwelling units in the project will be adequately accommodated;
Staff Response:

N/A; nonresidential.

(B) The availability of off-street and nearby on-street parking;
Staff Response:

On-street parking is available along S. Flatiron Ct. as well as areas of Central Ave., just north of the subject site. According to the applicant's TDM plan, there are approximately 95 on-street parking spaces within a 0.25-mile walk.

(C) Whether any proposed shared parking can adequately accommodate the parking needs of different uses of the project considering daytime and nighttime variability of the parking needs of uses;
Staff Response:
N/A; shared parking is not proposed. The principal use of Research and Development will operate in conjunction with the accessory retail space on the ground floor of Building 3.

(D) The effectiveness of any multimodal transportation program that is proposed at reducing the parking needs of the project. Applications including such programs shall describe any existing or proposed facilities and proximity to transit lines and shall demonstrate that use of multimodal transportation options will continue to reduce the need for on-site parking on an ongoing basis;
Staff Response:

The site is within 0.5-miles from bus stops on 55th Street, which are served by high frequency bus routes. The site is also adjacent to the Boulder Creek multi-use path with an on-site connection to link the path to S. Flatiron Ct. The proximity of multi-modal facilities as well as the measures detailed in the TDM help reduce the need for on-site parking.

(E) If the number of off-street parking spaces is reduced because of the nature of the occupancy, whether the applicant provides assurances that the nature of the occupancy will not change; and
Staff Response:
Research and development offices typically have fewer employees per square foot than a general office building due to the nature of needing greater floor area for laboratory spaces. Further, telecommuting options are detailed in the submitted TDM, which help reduce the number of employees driving to work on the same days.

(F) If considering a parking reduction for a use nonconforming as to parking, the approving authority shall evaluate the existing parking arrangement to determine whether it can accommodate additional parking or be rearranged to accommodate additional parking in compliance with the design requirements of subsection (d) of this section. If additional parking can reasonably be provided, the provision of such parking shall be a condition of approval of the requested reduction.

Staff Response:

N/A; conforming use.

FOX TUTTLE

MEMORANDUM

To: City of Boulder Planning and Development Services

From: Cassie Slade, PE, PTOE

Date: November 22, 2024

Project: 1855 S. Flatiron Court Redevelopment – Boulder, CO

Subject: Transportation Demand Management (TDM) Plan

The Fox Tuttle Transportation Group has developed this Transportation Demand Management (TDM) plan for the proposed 1855 S. Flatiron Court project, which plans to demolish the existing office and industrial buildings on the site and construct three (3) office buildings for research and development purposes. The development will be phased as further detailed in the project's 25 September 2024 Written Statement.

The goal of the 1855 S. Flatiron Court TDM plan is to fully leverage the project's proximity to multi-modal facilities which is anticipated to reduce the single occupancy vehicle (SOV) trips and maximize traveler choice. The 1855 S. Flatiron Court site has a Bike Score® of 84, a Walk Score® of 33 and a Transit Score® of 33. Fundamentally a TDM plan involves programs, facilities and infrastructure which encourage people-powered transportation; encourage multiple occupancy trips; or eliminate the need for trips to be made. This TDM Plan is a vital component of the project's vision to fully utilize its location, improve resident quality of life, decrease carbon output, expand housing options, and reduce household transportation expenditures.

Existing Multi-Modal Facilities

The 1855 S. Flatiron Court site is located approximately 0.5-mile within walking distance from two (2) bus stops on 55th Street that are served by the Regional Transportation District (RTD). The bus routes that service the existing bus stops are listed on the following page.

- **Route JUMP (Boulder/Lafayette via Arapahoe/Erie):** This route travels along Arapahoe Avenue from the Downtown Boulder Station to the Lafayette Park and Ride and the Town of Erie.

- **Route 206 (Conestoga/ Arapahoe / Fairview H.S.):** This route travels along 55th Avenue, Arapahoe Avenue, Eisenhower Drive, McIntire Street, Laurel Avenue, Crescent Drive, and Manhattan Drive to south Boulder Road, where it connects to the Table Mesa Park and Ride.

- **Route 208 (Iris/Valmont):** This route travels along 55th Avenue and Valmont Road to the west where it connects with Route BOUND. This route circulates the North Boulder area between Downtown Boulder and the Flatiron Business Center via Broadway, Iris Avenue, Valmont Road, and 55th Street.

The Downtown Boulder Station is located approximately two (2) miles west of the project site and can be accessed by Route JUMP and Route 208. The transit routes provide a public transportation option to local and regional destinations throughout the metro area.

Adequate existing bicyclist and pedestrian facilities connect the 1855 S. Flatiron Court site to local and regional destinations within and outside the City of Boulder. There are on-street bike lanes on 55th Street, bike lanes and a multi-use path on Arapahoe Avenue, and sharrows along Flatiron Parkway and Central Avenue. There are sidewalks on both sides of Arapahoe Avenue, 55th Street, Pearl Parkway/Valmont Road, Flatiron Parkway, and Flatiron Court. Central Avenue has a continuous sidewalk on the north and west side only and discontinuous portions of a sidewalk on the opposite side.

The Boulder Creek Path is a paved bicycle and pedestrian trail which generally travels adjacent to Boulder Creek. The trail crosses Valmont Road and 55th Street via underpasses within the study area. The Boulder Creek Path travels directly east of the project site, providing direct bicycle and pedestrian access to the trail network which links to several local and regional trails within the City of Boulder.

Transportation Demand Management Strategies

TDM measures will be an important part of managing safe and efficient transportation operations within and in the areas around the project site. The goal of implementing TDM is to:

- Eliminate or shorten trips,
- Change the mode of travel,
- Change the time of day for a trip,
- Increase participation of carpooling, vanpooling, and transit, and
- Encourage bicycling and walking in place of driving.

TDM strategies also include employer-based programs such as alternative work schedules, which could shift demand away from peak travel times, and telework, which could reduce the need for trips entirely. The 1855 S. Flatiron Court employers will provide the following TDM measures in support of reducing single occupancy vehicle (SOV) trips and maximizing traveler choice:

Site Design

1. **Telecommuting Options:** Working hours which do not require commuting during peak periods (full time or part time work) as well as working from home (or elsewhere) is considered a valuable TDM strategy and this reduction in trip making is included in the non-SOV goals. As a result of changing work conditions and environments resulting from the pandemic, this will be an even larger reduction in historic trip making then in pre-COVID conditions.

2. **On-Site Bicycle Commuter Amenities:** Office buildings will include showers and changing facilities for employees.

3. **On-Site Bicycle Parking:** There will be outdoor short-term bicycle parking at a ratio consistent with the City of Boulder requirements. Long-term bicycle parking inside buildings or in covered parking areas. The long-term parking should be a bicycle room with limited access or a caged secure area within a parking area protected from the weather, as appropriate to the use of the facility/building. Consider including a bicycle maintenance area complete with tools and air pumps for employee use. The specific design of long-term bike parking racks will be determined during final site plan development. The 1855 S. Flatiron Court project proposes to provide 108 long-term bike parking spaces and 36 short-term bike parking spaces, for a total of 144 bike spaces.

There will be various bicycle storage types to accommodate different types and sizes of bicycles. The Bicycle Room will also include charging ports and electrical facilities to accommodate electric bicycles.

Making bike parking available in desirable, easy to access locations will provide the employees with the opportunity to make biking a more reasonable option and reduce the need for motor vehicle ownership or the use of a motor vehicle for certain trips.

Programs and Education

4. **Eco Passes**. Building on the proximity to RTD service and to encourage transit use, the 1855 S. Flatiron Court office redevelopment will take advantage of RTD's EcoPass program for employees. RTD's EcoPass is a bulk-rate, discounted transit pass that is purchased from RTD and provides unlimited usage of RTD services including local and regional bus routes, the Skyride bus service to the airport, light rail and commuter rail. Access to free or low-cost transit service has proven to be one of the most effective TDM programs for changing travel behavior and reducing the need to own a vehicle or multiple vehicles.

   EcoPasses will be financially secured for employees for the first three (3) years of building operation. It is anticipated that these initial years of free EcoPass use will show the value of this program to employees, so that they continue using the EcoPass programs in subsequent years.

5. **Carshare:** There are a number of programs across the front range which allow people to make use of carshare or vanpool vehicles. Use of these vehicles can limit the need for motor vehicle ownership and be a valuable component of a TDM program. Employment centers can support the use of these vehicles by providing dedicated space for these vehicles. Within the project site, up to three (3) parking spaces will be dedicated for carshare and/or vanpool vehicle parking.

   It is not intended that the development or the subsequent businesses occupying the buildings will operate either carshare or vanpool programs. Instead, the allocation of these parking spaces will be based on requests from employees who are using these services. The utilization of this service will be monitored to determine the appropriate number of spaces to allocate for carshare.

To date, the design team has identified two local companies that offer carshare services, Zipcar and Colorado Carshare, and has been in contact with both to understand the process of allocating shared vehicles to the site. Our correspondence to date is attached to this plan. We understand either program would take only 2 - 3 weeks to implement. Because it will take many years for these buildings to be occupied, it is not feasible to advance discussions at this time. There may also be an opportunity that future employers will want to provide company vehicles to be shared by employees in lieu of a car share program, yet this discussion cannot happen until we have a potential tenant. Both options will continue to be evaluated and explored to determine the most appropriate solution as our development progresses.

6. **Scooter/Bike Share:** The design team has reserved a space on-site for either a B-Cycle station or a Lime Grove. Refer to the site plan for the exact location dedicated for shared micromobility. The team has been discussing the options with both companies to understand the implementation process. B-Cycle has expressed interest in installing a station on-site. Conversations with both companies will continue to determine the most appropriate and feasible option for 1855 S. Flatiron Court. Correspondence to date is attached to this plan.

7. **Walk and Bike Month:** Actively encourage employees to register and participate in Bike to Work Day (June) or Winter Bike to Work Day (January).

8. **TDM Coordinator:** Partner with a local transportation management organization to have a TDM Coordinator to manage the TDM program for the site. The TDM Coordinator will provide employees with important travel information including transit maps and schedules, bicycle maps, local and regional marketing campaigns, and information on the commute benefits provided to employees. The TDM Coordinator's efforts will assist in ensuring the City's non-SOV mode share goals. In addition, the TDM coordinator would be responsible for coordinating the following programs/tools:

    - **TDM Plan evaluation:** Provide periodic surveys of employee travel behavior to evaluate the TDM Plan. The survey is designed to collect anonymous travel information and takes less than 10 minutes to complete.

    - **Orientation packets:** Prepare electronic orientation packets for employers that will include non-SOV program information and incentives. This information will be found on the employee website as appropriate.

- **Flexible work schedules and telecommuting:** The TDM Coordinator will work with employers to support this program. Each building specific TDM plan will be encouraged to include language which supports this program. Working conditions in the Front Range, after the COVID 19 Pandemic have resulted in a much higher prevalence of telecommuting for jobs where that is possible.

9. **Accessible Transportation Material:** 1855 S. Flatiron Court will maintain accessible information on transportation options in the lobby areas. This will include bus schedules, trail maps, carshare information, etc.

10. **Alternative Transportation Subsidy:** The applicant proposes to provide a $100,000 alternative transportation subsidy for future tenants. This subsidy will be used to expand alternative forms of transportation for future tenants, which may include, but are not limited to, scooter rentals, bicycle rentals, ride share, or shuttle access. Funds may be used to subsidize either capital investments to solely expand alternative forms of transportation and related amenities, or subscription subsidies to improve alternative transportation access for tenants.

    The applicant proposes to provide $11,111 of funding for the first three years of occupancy for each of the three buildings proposed, for a total of $100,000. This subsidy equates to approximately $80 per year per employee for the first three years of occupancy. Funding may be distributed on or before the end of each calendar year.

Proposed Parking Supply

The off-street parking requirements listed in the City of Boulder's Municipal Code Section 9-9-6 requires office developments to provide parking at a rate of 1:400. Therefore, the proposed project would be required to supply 518 parking spaces. Based on the proximity to transit and multi-modal facilities, as well as the implementation of a robust TDM plan, it is proposed that 398 parking spaces be provided, which is a 23% reduction from the City requirement. The City lists criteria for parking reductions in Code Section 9-9-6 (f) (2) and the following are met by this project:

- *(A) Whether the probable number of all motor vehicles to be owned by occupants of and visitors to dwelling units in the project will be adequately accommodated.*
    - Based on the Institute of Transportation Engineer's (ITE) *Parking Generation Manual*, 1855 S. Flatiron Court was estimated to have a parking demand between 381 and 405 parking spaces[1].
    - The ITE data was not from sites in Boulder or Colorado and the influence of multi-modal opportunities is unknown on the national data. It is anticipated that the parking demand is highly conservative for an office building in the Flatiron Business Park in Boulder. If reduced by a minimal 15% for multi-modal reductions, the parking demand would be adjusted to between 323 and 345 spaces.
    - The proposed parking supply is anticipated to adequately accommodate the parking demand for 1855 S. Flatiron Court.
- *(B) Availability of off-street and nearby on-street parking.*
    - The project proposed off-street parking and there is on-street parking on Flatiron Court and Central Avenue. There are approximately 95 on-street parking spaces within ¼ mile walk from the project site. The parking is first-come, first-serve and the availability is dependent on parking behavior of employees and visitors of neighboring businesses.

[1] The weighted average parking demand rate for ITE #710 "General Office" is 1.95 spaces per 1,000 square feet. The fitted curve is Ln(P) = 0.99 Ln(X) + 0.66.

- *(C) Whether any proposed shared parking can adequately accommodate the parking needs of different uses of the project considering daytime and nighttime variability of the parking needs of uses.*

    - Not applicable since there is one land use type on side, research and development offices. Shared parking is suited for sites with complimentary land uses with different parking patterns.

- *(D) The effectiveness of any multimodal transportation program that is proposed at reducing the parking needs of the project. Applications including such programs shall describe any existing or proposed facilities and proximity to transit lines and shall demonstrate that use of multimodal transportation options will continue to reduce the need for on-site parking on an ongoing basis.*

    - The project is within 0.5-mile from the bus stops on 55th Street that are served by high frequency bus routes and the site is adjacent to the Boulder Creek Path. The proximity to quality multi-modal facilities will encourage employees to reduce their reliance on SOV travel and reduce the need for parking.

- *(E) If the number of off-street parking spaces is reduced because of the nature of the occupancy, whether the applicant provides assurances that the nature of the occupancy will not change.*

    - Research and development offices typically have less employees per square footage than a typical office building due to the nature of needing space for laboratories and research.

- *(F) If considering a parking reduction for a use nonconforming as to parking, the approving authority shall evaluate the existing parking arrangement to determine whether it can accommodate additional parking or be rearranged to accommodate additional parking in compliance with the design requirements of subsection (d) of this section. If additional parking can reasonably be provided, the provision of such parking shall be a condition of approval of the requested reduction.*

    - Not applicable.

Parking Management

The City of Boulder encourages parking management to encourage people to reduce driving and the need for parking. The acronym utilized is SUMP, which stands for Shared, Unbundled, Managed, and Paid. The City's *Access Management and Parking Strategy (AMPS)* report summarizes the guiding principles and strategies to minimize parking throughout the City of Boulder. For 1855 S. Flatiron Court, the SUMP principles were reviewed and determined feasibility as follows:

- **Shared:** Not applicable since the project has one land use type, research and development offices. Therefore, there is not an opportunity to share parking spaces on-site. Complementary land uses are necessary to implement shared parking and reduce the parking supply.

- **Unbundled:** Not applicable since this is not a residential project.

- **Managed:** The parking will be managed and will be based on the tenant type. If the building is a single tenant, then the restrictions will be listed in the lease (reserved spaces) and then the single tenant can determine their methodology to manage the parking. If the building ends up with multiple tenants, then a specific number of spaces is assigned to each tenant (typically two spaces per 1,000 square feet) and hang tags are issued to employees. There is some podium parking on-site that will require badge entry or a license plate reader, which will manage the use of those spaces.

- **Paid:** There will not be a charge for parking. Employees are encouraged to park on-site and not park on-street to reduce the impact to the business park. It is infeasibility to provide a parking cash-out program at this site since there will be available, free parking throughout the business park. To save money, employees that must drive would potentially decide to park on-street, beyond a reasonable distance to the office site, and within private parking lots for other business owners. The provided parking will minimize impacts on neighboring businesses and public roadways. A paid program would be advantageous if the entire business park implemented similar programs to discourage driving and reduce the overall need for parking.

The proposed parking supply is reduced from the City's requirement which is anticipated to help manage the reliability on auto travel. The robust TDM plan will also encourage employees to utilize non-auto options and reduce the need for parking.

Conclusions

The development team understands the importance of an effective and implementable TDM plan in the success of 1855 S. Flatiron Court. These strategies build upon the most transit friendly component of the development which is its ideal location within 0.5-mile of frequent bus routes accessible on surrounding roadways. These TDM amenities and measures are expected to encourage employees working at 1855 S. Flatiron Court to reduce their daily use of an automobile and require less on-site parking.

Hopefully this TDM plan is helpful and meets the needs of the project. If you have any questions, please feel free to contact me.

Sincerely,
FOX TUTTLE TRANSPORTATION GROUP, LLC

Cassie Slade, PE, PTOE
Principal

Attachments:
Correspondence for Carshare and Micromobility

Cassie Slade

From: Ryan O'Connell <roconnell@zipcar.com>
Sent: Friday, September 6, 2024 3:03 PM
To: Andrew Faulkner; Olivia Negel
Subject: RE: [External] RE: Zipcar proposal follow up

Hi Andrew,

That is correct, it will take me 2-3 weeks to implement and deliver the vehicles to your property. For new developments where LEED is not a factor, we can add vehicles on site closer to launch.

Please let me know if you have any questions, I will be happy to help.

I look forward to hearing from you!

Best,

Ryan

Ryan O'Connell Business Development Manager
roconnell@zipcar.com | M 617.733.2048 | zipcar.com
Book Time on my calendar here

From: Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Sent: Friday, September 6, 2024 10:34 AM
To: Ryan O'Connell <roconnell@zipcar.com>; Olivia Negel <Olivia.Negel@biomedrealty.com>
Subject: [External] RE: Zipcar proposal follow up

Thanks Ryan!

I understand based on our conversation it would take ~2-3 weeks to implement this 1-year term after execution. I'll discuss internally and get back to you with any questions/comments/next steps regarding implementation in our existing portfolio, and we'll reach out about our new developments as they get closer to occupancy.

Have a great weekend! Thanks,

Andrew Faulkner
DIRECTOR, DEVELOPMENT

ADDRESS 700 Gateway Blvd., Suite 100, South San Francisco, CA 94080

DIRECT 858.723.1471

WEBSITE BioMedRealty.com

SOCIAL

BioMed Realty
20 YEARS

From: Ryan O'Connell <roconnell@zipcar.com>
Sent: Friday, September 6, 2024 6:49 AM
To: Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>; Olivia Negel <Olivia.Negel@biomedrealty.com>
Subject: Zipcar proposal follow up

Good morning Team,

Thank you for your time today, it was great meeting you both and learning more about BioMed Realty. I was able to complete the Zipcar proposal for your review and have attached the agreement to this email. Please let me know if you or the team have any questions, I will be happy to help anywhere that I can.

I look forward to hearing from you soon!

Best,

Ryan

Ryan O'Connell Business Development Manager

roconnell@zipcar.com | M 617.733.2048 | zipcar.com

Book Time on my calendar here

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Cassie Slade

From: Olivia Negel <Olivia.Negel@biomedrealty.com>
Sent: Thursday, September 12, 2024 9:16 AM
To: 'Kevin Crouse'; Andrew Faulkner
Subject: RE: BCycle / BMR - Flatiron Park

Hi Kevin,

Following up to see if we can get some time on our calendars tomorrow. We're available tomorrow between 12:30-1 PM MT or 3-4 PM MT. Let me know if either of those times work for you and I'll send over a calendar invite.

Thanks!

Olivia Negel
PROJECT COORDINATOR, DEVELOPMENT

ADDRESS 2108 55th Street, Suite 200, Boulder, CO 80301
DIRECT 303 941 0680
WEBSITE BioMedRealty.com
SOCIAL

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20 YEARS

From: Olivia Negel
Sent: Wednesday, September 11, 2024 7:54 AM
To: 'Kevin Crouse' <Kevin_Crouse@bcycle.com>; Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Subject: RE: BCycle / BMR - Flatiron Park

Hi Kevin,

No problem! Unfortunately, today is pretty busy for the both of us. Would you be available on Friday between 12:30-1 PM MT or 3-4 PM MT?

Thank you,

Olivia Negel
PROJECT COORDINATOR, DEVELOPMENT

ADDRESS 2108 55th Street, Suite 200, Boulder, CO 80301
DIRECT 303 941 0680
WEBSITE BioMedRealty.com
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From: Kevin Crouse <Kevin_Crouse@bcycle.com>
Sent: Tuesday, September 10, 2024 2:52 PM
To: Olivia Negel <Olivia.Negel@biomedrealty.com>; Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Subject: Re: BCycle / BMR - Flatiron Park

Olivia and Andrew,

I'm quite sorry I let this slip by! Yes, I'd love to talk. Any chance you're available for a phone call tomorrow (Wednesday) at noon MT (I'll be at the airport), or perhaps this Friday afternoon?

Kevin Crouse (he/him/his)
Boulder BCycle General Manager
kevin_crouse@bcycle.com

From: Olivia Negel <Olivia.Negel@biomedrealty.com>
Sent: Tuesday, September 10, 2024 2:31 PM
To: Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Cc: Kevin Crouse <kevin_crouse@bcycle.com>
Subject: Re: BCycle / BMR - Flatiron Park

[EXTERNAL]

Hi Kevin,

Following up on the email from Andrew below, any chance you have some availability this week for a 30 minute call?

Thanks,

Olivia Negel

Project Coordinator, Development

BioMed Realty

Cell: 303-941-0680

olivia.negel@biomedrealty.com

> On Sep 4, 2024, at 9:40 AM, Andrew Faulkner <Andrew.Faulkner@biomedrealty.com> wrote:
>
> Hey Kevin,
>
> Hope you had a good long weekend! I wanted to follow up on this and see if you might have 30 mins sometime this week or next? I believe you're familiar with our local portfolio – we have over 1M existing square feet with 200k sf in development and would love to discuss potential synergies further. Thanks,

Andrew Faulkner
DIRECTOR, DEVELOPMENT

ADDRESS 700 Gateway Blvd., Suite 100, South San Francisco, CA 94080
DIRECT 858.723.1471
WEBSITE BioMedRealty.com
SOCIAL
<image001.png>
<image002.png>

<image005.png>

From: Andrew Faulkner
Sent: Wednesday, August 28, 2024 1:10 PM
To: 'kevin_crouse@bcycle.com' <kevin_crouse@bcycle.com>
Cc: Jake Parisi <jake.parisi@biomedrealty.com>; Tressa Shiplett <tressa.shiplett@biomedrealty.com>
Subject: BCycle / BMR - Flatiron Park

Hey Kevin,

I understand you've previously coordinated with Jake and Tressa (cc'd). By way of introduction, I'm one of BMR's Development Directors, leading our new developments in Flatiron Park. I was hoping to understand a little more BCycle 's offering and discuss with you how BMR might be able to work with BCycle. Might you have 30 mins something this week or next for an introductory call?

Let me know when works best for you. Thanks,

Andrew Faulkner
DIRECTOR, DEVELOPMENT

ADDRESS 700 Gateway Blvd., Suite 100, South San Francisco, CA 94080
DIRECT 858.723.1471

WEBSITE BioMedRealty.com

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<image001.png>

<image002.png>

<image004.png>

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Cassie Slade

From: Robert Perry <robert.perry@li.me>
Sent: Tuesday, September 10, 2024 1:40 PM
To: Olivia Negel
Cc: Michael Norco; Andrew Faulkner
Subject: Re: Andrew x Robert Intro

Hi Olivia,

I just sent an invite for a zoom meeting this Friday at 12pm, please let me know if that works for you both.

Thank you!

On Mon, Sep 9, 2024 at 11:03 AM Olivia Negel <Olivia.Negel@biomedrealty.com> wrote:

> Hi Robert,
>
> No problem! Some availability between the both of us below:
>
> - Friday 9/13 – 10:00-11:30 AM MT, 12-1 PM MT
>
> If Friday doesn't work, I can also work on figuring out a few times earlier in the week.
>
> Thanks,
>
> **Olivia Negel**
> PROJECT COORDINATOR, DEVELOPMENT
>
> ADDRESS 2108 55th Street, Suite 200, Boulder, CO 80301
> DIRECT 303 941 0680
> WEBSITE BioMedRealty.com
> SOCIAL

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From: Robert Perry <robert.perry@li.me>
Sent: Monday, September 9, 2024 10:56 AM
To: Olivia Negel <Olivia.Negel@biomedrealty.com>
Cc: Michael Norco <michael.norco@li.me>; Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Subject: Re: Andrew x Robert Intro

Hi Andrew and Olivia,

Apologies as I was OOO all of last week. I would love to schedule a zoom call with you both this week. Would you mind providing me with a few days and times that work for you and I'll schedule accordingly?

Thank you both!

Lime
#RideGreen

Robert Perry
Boulder Operations Coordinator
Pronouns: He, Him, His
Fast Company Brand That Matters
Time100 Most Influential Company

On Mon, Sep 9, 2024 at 10:50 AM Olivia Negel <Olivia.Negel@biomedrealty.com> wrote:

> Hi Michael & Robert,

I hope you both had a great weekend. I'm following up to see if we can get some time scheduled this week, as mentioned in Andrew's email below.

Thank you!

Olivia Negel
PROJECT COORDINATOR, DEVELOPMENT

ADDRESS 2108 55th Street, Suite 200, Boulder, CO 80301

DIRECT 303 941 0680

WEBSITE BioMedRealty.com

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From: Michael Norco <michael.norco@li.me>
Sent: Wednesday, September 4, 2024 10:44 AM
To: Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Cc: Robert Perry <robert.perry@li.me>; Olivia Negel <Olivia.Negel@biomedrealty.com>
Subject: Re: Andrew x Robert Intro

Hey Andrew - I believe Robert is out of office this week! I'll make sure to follow up once he's back

On Wed, Sep 4, 2024 at 9:36 AM Andrew Faulkner <Andrew.Faulkner@biomedrealty.com> wrote:

> Hey Robert,
>
> Hope you had a great labor day weekend! I wanted to follow up on this – might you have some time this week or next to discuss further? We have an existing 1M sf campus in Boulder with another 200k sf in development and would like to explore any potential synergies.

Thanks,

Andrew Faulkner
DIRECTOR, DEVELOPMENT

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SOCIAL

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From: Andrew Faulkner
Sent: Tuesday, August 27, 2024 11:58 AM
To: 'Michael Norco' <michael.norco@li.me>; Robert Perry <robert.perry@li.me>
Cc: Olivia Negel <olivia.negel@biomedrealty.com>
Subject: RE: Andrew x Robert Intro

Michael, Thanks for the introduction!

Robert, I'd love to connect over the phone and hear more about your operations. Might you have some time this week or next?

Thanks,

Andrew Faulkner
DIRECTOR, DEVELOPMENT

ADDRESS 700 Gateway Blvd., Suite 100, South San Francisco, CA 94080
DIRECT 858.723.1471
WEBSITE BioMedRealty.com
SOCIAL

BioMed Realty
20 YEARS

From: Michael Norco <michael.norco@li.me>
Sent: Tuesday, August 27, 2024 11:56 AM
To: Robert Perry <robert.perry@li.me>; Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Subject: Andrew x Robert Intro

Hi Andrew - I'm happy to introduce you to my colleague Robert Perry who runs our operations in Boulder.

Robert - Andrew is interested in chatting about getting a Lime corral installed at their campus in Boulder. I'll let you take it from here.

Thanks both,

--

Lime
Ride Green

Michael Norco
Sr. Manager - City Operations (AMER-APAC)
Pronouns: He, Him, His
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--

Lime

Ride Green

Michael Norco

Sr. Manager - City Operations (AMER-APAC)

Pronouns: He, Him, His

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Cassie Slade

From: Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Sent: Monday, September 16, 2024 9:02 AM
To: 'Robert Perry'; Olivia Negel
Subject: RE: Flatiron Map

Thanks Robert. Could you also summarize what the feasibility process would look like for Flatiron?

My understanding based on our conversation is that, because you don't have existing data for this area, you'd recommend a "trial and error" feasibility study. This would entail rolling out several locations within Flatiron Park, monitoring which are used most frequently, and modifying locations / number of scooters accordingly. If we wanted to move forward, deploying this "trial and error" feasibility study would take only a week or two from contract execution.

Is that correct? Thanks,

Andrew Faulkner
DIRECTOR, DEVELOPMENT

ADDRESS 700 Gateway Blvd., Suite 100, South San Francisco, CA 94080
DIRECT 858.723.1471
WEBSITE BioMedRealty.com
SOCIAL

BioMed Realty
20 YEARS

From: Robert Perry <robert.perry@li.me>
Sent: Friday, September 13, 2024 12:02 PM
To: Olivia Negel <Olivia.Negel@biomedrealty.com>
Cc: Andrew Faulkner <Andrew.Faulkner@biomedrealty.com>
Subject: Re: Flatiron Map

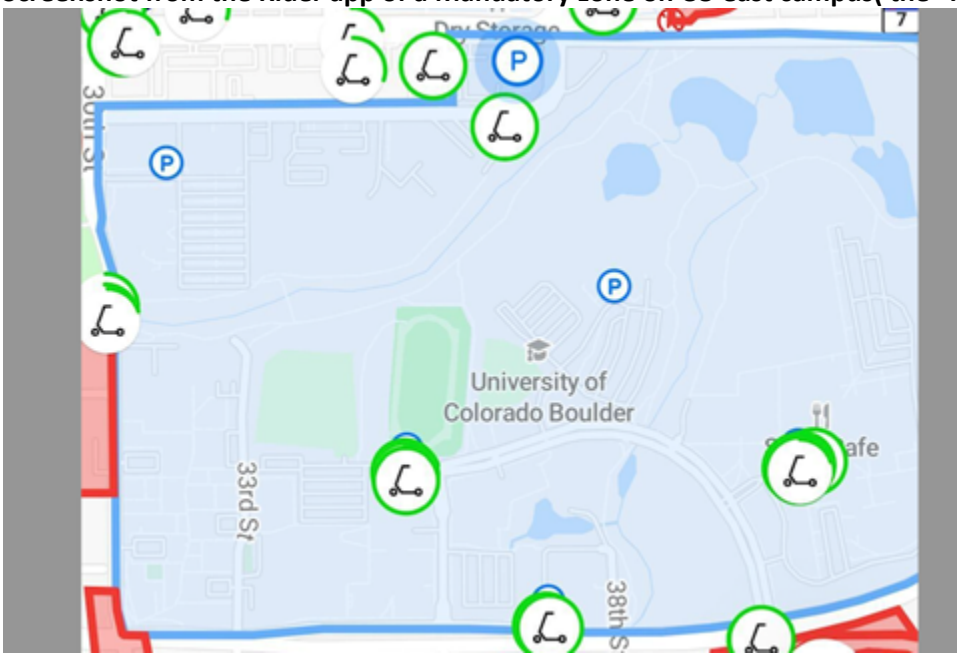
Olivia and Andrew,

Thank you for sending this over to me so quickly and for your time today, much appreciated! Below I have attached two images, one of a painted Lime Grove and a screenshot of one of the mandatory parking zones on CU east campus. Andrew, I will follow up with my legal department to get over the agreement to you as soon as possible for your review.

Olivia, Can you please provide me with a few 2hour time blocks for us to survey the properties for limegroves next week on Wednesday 9/18 or Friday 9/20. Please let me know and I'll schedule accordingly.

Painted Lime Grove:

Screenshot from the Rider app of a Mandatory zone on CU east campus(the "P" is a designated parking location)



Thank you and I look forward to hearing back from you,

On Fri, Sep 13, 2024 at 12:31 PM Olivia Negel <Olivia.Negel@biomedrealty.com> wrote:

Robert,

Per our call, please see attached map.

Thanks,

Olivia Negel
PROJECT COORDINATOR, DEVELOPMENT

ADDRESS 2108 55th Street, Suite 200, Boulder, CO 80301

DIRECT 303 941 0680

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SOCIAL

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--

Robert Perry

Boulder Operations Coordinator

Pronouns: He, Him, His

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1855 S. Flatiron Court

Traffic Impact Study

Date: November 27, 2024

Submitted To:
Perkins & Will
475 Lincoln Street #100
Denver, CO 80203

Submitted By:
Fox Tuttle Transportation Group, LLC
1580 Logan Street, 6th Floor
Denver, CO 80203

FOX TUTTLE

1855 S. FLATIRON COURT

TRAFFIC IMPACT STUDY

This Traffic Study was prepared by an Engineer with adequate experience and expertise in transportation engineering.

Prepared By:
Fox Tuttle Transportation Group, LLC
Cassie Slade, PE, PTOE
1580 Logan Street, 6th Floor
Denver, CO 80203

Submitted To:
Perkins & Will
475 Lincoln Street #100
Denver, CO 80203

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1855 S. FLATIRON COURT

TRAFFIC IMPACT STUDY

1.0 Introduction

The Fox Tuttle Transportation Group has prepared this traffic impact study for the proposed redevelopment of the property at 1855 S. Flatiron Court in Boulder, Colorado. The site is southeast of the cul-de-sac at the end of Flatiron Court, east of 55th Street and south of Central Avenue. It is understood that this redevelopment will provide office space for multiple occupants for research and development purposes. **Figure 1** provides a vicinity map for the proposed project. The site currently has two (2) structures on it that will be removed for the construction of the new office buildings.

The purpose of this study is to assist in identifying potential traffic impacts within the study area as a result of the project. The study addresses existing, short-term, and long-term peak hour intersection conditions in the study area, with and without the project-generated traffic. The information contained in this study is anticipated to be used to assist the City of Boulder in identifying any intersection or roadway deficiencies and potential improvements to support the project. This study has focused on the weekday AM and PM peak hours which represent the periods of highest traffic volumes on the adjacent streets.

2.0 Project Description

Currently, the project property is developed but appears to be vacant and not in use. The project proposes to develop three (3) buildings with up to 207,011 square feet of research and development office space. The 1855 S. Flatiron Court project is planned to be completed in three (3) phases with one building per phase. For the purpose of this study, it was assumed that all phases will be completed by the near-term scenario (Year 2027). The project proposes to utilize the existing two (2) accesses for the site onto the Flatiron Court cul-de-sac as full movement, stop-controlled accesses. **Figure 2** shows the site plan and access locations for the project.

The site is in the Industrial-General (IG) Zoning District which allows a wide range of light industrial uses, including research and manufacturing businesses and supporting services. The project is impacted by the East Boulder Subcommunity Plan.

3.0 Study Considerations

3.1 Data Collection

The study area for this project includes five (5) existing intersections (see **Section 4.2** for a list of these intersections). Weekday AM and PM peak hour turning movement volumes were collected in May 2024 for these locations. The highest volume day was Wednesday and utilized for the capacity analysis in this study. Daily traffic counts were taken from the City database at one (1) location. Signal-related information for the existing signalized intersections was provided by the City of Boulder staff and utilized within the analysis. All traffic count data are provided in the **Appendix**.

3.2 Evaluation Methodology

The traffic operations analysis addressed the signalized and unsignalized intersection operations using the procedures and methodologies set forth by the *Highway Capacity Manual (HCM)*[1]. Existing peak hour factors were applied to the intersections for the existing, short-term and long-term scenarios. The saturation flow rate factor (the maximum number of passenger cars per lane per hour (pcplph) that can pass through a location at traffic saturation) is utilized in the analysis process. Historic observations of peak hour traffic in Boulder (most recently as part of the East Arapahoe Corridor Project) have determined that the saturation flow rate of Boulder drivers is 2,100 pcplph. This value was utilized in the traffic operational analysis. Study intersections were evaluated using Synchro software (v11).

3.3 Level of Service Capacity Analysis

A Level of Service analysis was conducted to determine the existing and projected future performance of the study area intersections and accesses, and to determine any traffic control adjustments or mitigation measures that may be needed in the future.

To measure and describe the operational status of the study intersections, transportation engineers and planners commonly use a grading system referred to as "Level of Service" (LOS) that is defined by the *HCM*. LOS characterizes the operational conditions of an intersection's traffic flow, ranging from LOS A (indicating very good, free flow operations) and LOS F (indicating congested and sometimes oversaturated conditions). These grades represent the perspective of drivers and are an indication of the comfort and

[1] Highway Capacity Manual, Highway Research Board Special Report 209, Transportation Research Board, National Research Council, 6th Edition (2016).

convenience associated with traveling through the intersections. The intersection LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement.

Typically, LOS A through D are considered to be acceptable for the overall intersection operations and for individual movements during the peak hours. Individual movements may be allowed to fall to LOS E at signalized intersections. Minor movements at unsignalized intersections, such as left turns onto a major arterial, may be allowed to fall below LOS D. Criteria contained in the *HCM* was applied for these analyses in order to determine peak hour LOS for each scenario. A more detailed discussion of LOS methodology is contained in the **Appendix** for reference.

4.0 Existing Conditions

4.1 Roadways

The study area for this project was determined based on the anticipated impact of trips associated with the project. The primary public roadways that serve the project site are discussed in the following text and illustrated on **Figure 1**.

Arapahoe Avenue is an east-west arterial roadway that extends the entire length of the City and connects to the City of Louisville and the City of Lafayette. Near the study area, Arapahoe Avenue is six-lanes wide. East of Folsom Street, Arapahoe Avenue is a CDOT facility with a classification of NR-B: Non-Rural Arterial. This roadway provides directional connection to multiple arterial roadways including 55th Street within the study area, and has a posted speed of 45 miles per hour (mph) and serves approximately 24,500 vehicle per day (vpd) west of 55th Avenue.

Pearl Parkway/Valmont Road is an east-west arterial roadway that has a two-lane cross-section west of 55th Street and a four-lane cross-section east of 55th Street. Pearl Parkway/Street extends west to 15th Street where it becomes a pedestrian street for several blocks and returning to a local roadway to Canyon Boulevard. Valmont Road extends east to 95th Street and a reduction in through lanes east of 61st Street. This roadway provides direct connection to multiple arterial roadways including 55th Street within the study area. The posted speed is 40 mph within the study area and serves approximately 10,200 vpd west of 55th Avenue.

55th Street is a north-south roadway with a four-lane cross-section from Arapahoe Avenue to Pearl Parkway/Valmont Road. Beyond the study area, 55th Street is narrowed to a two-lane cross-section. The roadway extends from Minshal Drive (north) to Sioux Drive (south) with direct connection to Arapahoe Avenue, Pearl Parkway/Valmont Road, Flatiron Parkway, and Central

Avenue within the study area. 55th Street serves approximately 17,200 vehicles per day (vpd) north of Arapahoe Avenue, and has a posted speed of 40 mph.

Flatiron Parkway is a two-lane, east-west roadway extending from 55th Street (west) to Central Avenue (east) through the Flatiron Business Park. This roadway provides direct access to several office buildings. Flatiron Parkway has a posted speed of 30 mph and services approximately 3,800 vpd east of 55th Street.

Central Avenue is a two-lane circulatory roadway through the Flatiron Business Park. Central Avenue extends east from 55th Street and turns north to circulate through the business park. This roadway provides direct access to several office and industrial buildings. Central Avenue has a posted speed of 30 mph and services approximately 2,500 vpd east of 55th Street.

Flatiron Court is an unstriped, two-lane, north-south roadway extending from Central Avenue (north) to a cul-de-sac approximately 400 feet to the south. Flatiron Court provides local access to multiple businesses at the cul-de-sac, including the project site, and does not have a posted speed. Flatiron Court services less than 500 vpd.

4.2 Intersections

The study area includes five (5) existing intersections (listed below with the current traffic control) that were analyzed for existing and future year traffic operations (as appropriate):

1. Central Avenue at Flatiron Court [side-street stop-controlled]
2. 55th Street at Central Avenue [signalized]
3. 55th Street at Flatiron Parkway [signalized]
4. Pearl Parkway/Valmont Road at 55th Street [signalized]
5. Arapahoe Avenue at 55th Street [signalized]

The existing lane configuration at each of the study locations are illustrated on **Figure 2**.

4.3 Pedestrian and Bicycle

Currently, there are sidewalks on both sides of Arapahoe Avenue, 55th Street, Pearl Parkway/Valmont, Flatiron Parkway, and Flatiron Court. Central Avenue has a continuous sidewalk on the north and west side only and discontinuous portions of a sidewalk on the opposite side.

The Boulder Creek Path is a paved bicycle and pedestrian trail which generally travels adjacent to Boulder Creek. The trail crosses Valmont Road and 55th Street via underpasses within the study area. The Boulder Creek Path travels directly east of the project site, providing direct bicycle and pedestrian access to the trail network which links to several local and regional trails within the City of Boulder.

4.4 City Transit Access

Regional Transportation District (RTD) provides local and regional transit service for the City of Boulder. There are several bus stops along Arapahoe Avenue and 55th Street within the study area. The closest bus stops are on 55th Street just south of Central Avenue. These bus stops are serviced by the following routes:

- **Route JUMP (Boulder/Lafayette via Arapahoe/Erie):** This route travels along Arapahoe Avenue from the Downtown Boulder Station to the Lafayette Park and Ride and the Town of Erie.

- **Route 206 (Conestoga/ Arapahoe / Fairview H.S.):** This route travels along 55th Avenue, Arapahoe Avenue, Eisenhower Drive, McIntire Street, Laurel Avenue, Crescent Drive, and Manhattan Drive to south Boulder Road, where it connects to the Table Mesa Park and Ride.

- **Route 208 (Iris/Valmont):** This route travels along 55th Avenue and Valmont Road to the west where it connects with Route BOUND. This route circulates the North Boulder area between Downtown Boulder and the Flatiron Business Center via Broadway, Iris Avenue, Valmont Road, and 55th Street.

The Downtown Boulder Station is located approximately two (2) miles west of the project site. This park and ride station is serviced by the following routes:

- **Route BOLT (Boulder/Longmont):** This route travels along the Diagonal Highway connecting Downtown Boulder, Boulder Junction, Niwot, and Longmont.

- **Route DASH (Boulder/Lafayette via Louisville):** This route travels along Broadway and Table Mesa Drive from the Downtown Boulder Station to the US 36 & Table Mesa Park and Ride. The bus continues east to the neighboring communities of Louisville and Lafayette via South Boulder Road.

- **Route JUMP** – described above.

- **Route SKIP (Broadway):** This route travels along Broadway from the Lee Hill area in North Boulder to South Boulder around Fairview High School and the Table Mesa Shopping Center.

- **Route 204 (Table Mesa/Moorhead/North 19th):** This route connects the Lee Hill area in North Boulder to the Table Mesa Shopping Center in South Boulder via 19th Street, Broadway, Moorhead and Table Mesa Drive.

- **Route 205 (Boulder/Gunbarrel):** This route connects Downtown Boulder to Gunbarrel via Canyon Boulevard, 28th Street, and Jay Road.

- **Route 208 (Iris/Valmont):** described above.

- **Route 225/225D/225T (Boulder/Lafayette via Baseline):** This route travels along Baseline Road from the Downtown Boulder Station to the Lafayette Park and Ride.

- **Route SKIP (Broadway):** This route travels along Broadway from the Lee Hill area to South Boulder.

- **Route NB1/NB2 (Eldora/Nederland/Boulder):** This route connects Downtown Boulder to the towns of Eldora and Nederland via Colorado 119. Route NB1 turns around at Nederland while Route NB 2 continues onto Eldora.

- **Route FF1 (Flatiron Flyer):** This bus rapid transit (BRT) service travels between downtown Boulder and downtown Denver (Union Station) via Broadway, Table Mesa Drive, and US 36. The bus stops at all of the US 36 Stations between the two cities.

- **Route FF5 (Flatiron Flyer):** This BRT service travels between downtown Boulder and the Anschutz Medical Campus via Broadway, Table Mesa Drive, US 36, and I-70. The bus stops at all of the US 36 Stations between the two cities.

- **Route AB1 (DIA/Boulder):** This route travels between downtown Boulder and Denver International Airport via Broadway, Table Mesa Drive, US 36, and E-470.

Each of the bus routes link to other park and ride stations and stops that provide the opportunity to transfer.

4.5 Existing Intersection Capacity Analysis

The existing volumes, lane configuration, and traffic control are illustrated on **Figure 3**. The results of the LOS calculations for the intersections are summarized in **Table 1**. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

All of the study intersections currently operate overall at LOS C or better in both peak hours with most individual movements operating at LOS D or better. Two intersections have individual movements which operate below LOS D or with 95th percentile queues which exceed existing storage, as described below:

- ***#4 – Pearl Parkway/Valmont Road at 55th Street:*** This signalized intersection currently operates overall at LOS C during both peak hours.
    - Westbound left-turn: The 95th percentile queue was estimated to be up to 109 feet in the AM peak hour, which exceeds the 100 feet of available storage.
    - Northbound right-turn: The 95th percentile queue was estimated to be up to 292 feet in the PM peak hour, which exceeds the 80 feet of available storage.
    - Southbound left-turn: Operates at LOS E in the PM peak hour. The 95th percentile queue was estimated to be up to 238 feet, which exceeds the 180 feet of available storage.

  Recommendations: Adjust the signal timing in PM peak period. Add two (2) seconds to the southbound left-turn phase. This modification was included in the traffic model in future scenarios. Increase storage for westbound left-turn, northbound right-turn, and southbound left-turn as discussed in **Section 8.0**.

- ***#2 – Arapahoe Avenue at 55th Street:*** This signalized intersection operates overall at LOS C in both peak hours, with all individual movements operating at LOS D or better. The following movements have 95th percentile queues estimated to exceed the available storage:
    - Westbound left-turn: The 95th percentile queue was estimated to be up to 139 feet in the PM peak hour, which exceeds the 100 feet of available storage.
    - Southbound left-turn: The 95th percentile queue was estimated to be up to 198 feet in the PM peak hour, which exceeds the 170 feet of available storage.

  Recommendations: Increase storage for westbound left-turn and southbound left-turn as discussed in **Section 8.0**.

5.0 Future Background Conditions

5.1 Methodology for Projecting Future Background Volumes

To forecast the future background peak hour traffic volumes, it was necessary to project the change in traffic over the next 20 years (without the influence of the project). This step utilized information in the City of Boulder's traffic count database, where count stations have been monitoring traffic since the early 1980s. The historic trends in traffic growth are useful in projecting future traffic volumes, but the process also needs to consider land use changes and/or mobility pattern changes anticipated in the next 20 years that may be different than the past 35+ years.

For example, as an area approaches buildout, the annual growth in traffic will be reduced. Changes in trip making characteristics (such as the reduced use of automobiles due to TDM efforts in the community) should also be considered. The lasting influence of COVID travel pattern changes (such as increased use of home offices and telecommuting) even after the pandemic is behind us will also likely influence future traffic, particularly during AM and PM peak hours when office workers have historically commuted to/from their jobs. In this context a strict statistical analysis of historic traffic patterns is not appropriate for projecting future traffic volumes.

The following considerations have been incorporated:

- The linear regression growth rate on 55th Street north of Arapahoe Avenue was calculated by the City to be 0.23% annually.
- The linear regression growth rate on Pearl Parkway west of 55th Street was calculated by the City to be 0.62% annually.
- Developable land within the study area and surrounding areas is limited, with most new developments constrained to redevelopment of existing land uses.

Based on the considerations above, an annual background growth of **0.5%** was used to estimate future background traffic volumes. The growth assumptions were applied to the existing traffic volumes in **Figure 3** to result in the Year 2027 background traffic projects as shown on **Figure 4** and Year 2045 background traffic projections on **Figure 5.** It is anticipated that these background traffic volumes are conservatively high given the many factors that will influence how people will travel in the future.

5.2 Year 2027 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the anticipated completion of the project in Year 2027 (all three phases). The short-term background scenario was evaluated to identify any capacity constraints associated with background traffic. The short-term background volumes, lane configuration, and traffic control are illustrated on **Figure 4**.

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the short-term background volumes. The results of capacity analysis are shown in **Table 1** with the overall LOS and for each movement. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

In summary, the study intersections are anticipated to operate similarly to existing conditions with minor additional delay associated with an increase in background volumes. There is one (1) intersection that will continue to have a movement operating below LOS D in one (1) peak hour if signal timing is not adjusted. The following summarizes the short-term future analysis of the study intersection:

- ***#4 – Pearl Parkway/Valmont Road at 55th Street:*** This signalized intersection was estimated to continue to operate overall at LOS C in the AM peak hour and begin to operate overall at LOS D in the PM peak hour. The southbound left-turn movement was estimated to continue to operate at LOS E in the PM peak hour. The 95th percentile queue was estimated to be approximately 243 feet, which is beyond the existing storage length.

  Recommendations: Adjust the signal timing in PM peak period and length the southbound left-turn storage (same as existing recommendation). Add two (2) seconds to the southbound left-turn phase, reducing the northbound through phase by two (2) seconds to improve to LOS D and reduce the 95th percentile queue to 220 feet.

The improved operations are summarized in **Table 3** and the improved queues are in **Table 4**.

5.3 Year 2045 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the Year 2045 background scenario and to identify any capacity constraints associated with background traffic in the long-term scenario. The long-term background volumes, lane configuration, and traffic control are illustrated on **Figure 5**.

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the long-term background volumes. The results of capacity analysis are shown in **Table**

1 with the overall LOS and for each movement. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

In summary, the study intersections are anticipated to operate similarly to existing and short-term background conditions with minor additional delay associated with an increase in background volumes. There is one (1) intersection that will continue to have a movement operate below LOS D in one (1) peak hour if signal timing is not adjusted. The following summarizes the estimated performance of the subject intersection in the long-term background:

- ***#4 – Pearl Parkway/Valmont Road at 55th Street:*** This signalized intersection was estimated to operate overall at LOS C in the AM peak hour and LOS D in the PM peak hour. The southbound left-turn movement was estimated to degrade to LOS F in the PM peak hour. The 95th percentile queue was estimated to be approximately 276 feet, which would exceed the existing storage.

  Recommendations: Adjust the signal timing in PM peak period and extend the southbound left-turn storage (same as existing and short-term future recommendation). Add two (2) seconds to the southbound left-turn phase, reducing the northbound through phase by two (2) seconds to improve to LOS D and reduce the 95th percentile queue to 253 feet.

The improved operations are summarized in **Table 3** and the improved queues are in **Table 4**. It is understood that all changes to the signal timing are for consideration, and subject to the City's on-going evaluation of signal timing improvements in Boulder. As such, they would need to be evaluated with adjacent signalized intersections and understand the impacts to progression. It is likely that traffic signal operations will be reevaluated and adjusted city-wide over the next 20 years, and these recommendations should be considered in the process.

6.0 Proposed Development Traffic

6.1 Trip Generation

Trip generation rates are used to estimate the amount of automobile traffic that will be generated by the proposed land use associated with the project. **Table 3** details the proposed land use and the trip rates utilized. The trip rates for the proposed land use are based on national average information in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual (11th Edition)*. The ITE Land Use #760 "Research and Development Center" was used to estimate trip volume for the proposed project. The project will be constructed in three (3) phases and it was assumed all phases will be completed by Year 2027.

Table 3 provides the detailed trip generation estimates for the project. The project is expected to experience mostly new trips, also known as 'primary trips', as discussed below:

> Primary Trips. These trips are made specifically to visit the site and are considered "new" trips. Primary trips would not have been made if the project did not exist. Therefore, this is the only trip type that increases the total number of trips made on a regional basis.
>
> Non-Auto Trips. These trips are those that are completed by walking, bicycling, or riding transit. The existing transit, pedestrian, and bicycle amenities will encourage employees and visitors to make non-auto trips to/from the site. It is highly likely that 10-25% of the trips will be non-auto due to the proximity to the Boulder Creek Path, transit stops, multi-modal connectivity, and the planned TDM plan. For conservative purposes, a reduction was not applied.

The project was estimated to generate 2,294 daily trips with 213 trips in the AM peak hour and 203 trips in the PM peak hour as detailed in **Table 3**.

6.2 Trip Distribution and Assignment

The estimated trip volumes were distributed onto the street network based on existing traffic characteristics, land uses, and traffic patterns in the area, as well as regional growth and future roadway infrastructure as shown on **Figure 6** and listed below:

- To/from the west via Arapahoe Avenue: 30%
- To/from the east via Arapahoe Avenue: 20%
- To/from the west via Pearl Parkway: 30%
- To/from the east via Valmont Road: 10%
- To/from the north via 55th Street: 2%
- To/from the south via 55th Street: 8%

Using the distribution assumptions, the projected site traffic was assigned to the study area roadway network for the weekday AM and PM peak hour periods as shown on **Figure 7**.

7.0 Future Conditions with 1855 S. Flatiron Court

7.1 Proposed Roadway Network and Access

Access to the project site is planned via two (2) existing driveways, both located at the end of the cul-de-sac on Flatiron Court. Both existing driveways are planned to remain full movement and side-street stop-controlled. The project scenarios assumed that turn lane storage lengths recommended to be increased as part of the background analyses would be implemented prior to the project.

7.2 Proposed Multi-Modal Access

Internally, sidewalks will be provided to safely walk to/from parking, the separate buildings, and connect to the existing infrastructure on Flatiron Court. The project will include a public pedestrian and bicycle multi-use path connection along the north boundary of the site that will connect the Flatiron Court cul-de-sac to the existing Boulder Creek Path.

7.3 Year 2027 Background + Project Intersection Capacity Analysis

This section discusses impacts associated with the addition of the 1855 S. Flatiron Court trips in the anticipated build-out year. The site-generated volumes were added to the Year 2027 background volumes and are illustrated on **Figure 8**. The existing traffic control and lane configurations were assumed to remain the same at all of the study intersections. The details of the LOS for each movement are listed in **Table 1**. The 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

With the project trips, the study intersections were estimated to operate similarly to the Year 2027 Background scenario with little to no impact on the delays and queues. The overall levels of service were calculated to remain the same as the background scenario. The movements that were estimated to operate at LOS E during one peak hour in the background scenario were calculated to remain the same letter grade. The recommendation for adjustments in signal timing and extension of storage lengths continue to be needed. **No additional mitigation measures are recommended.**

As noted previously, it is understood that all changes to the signal timing are for illustration and consideration, and subject to the City's on-going evaluation of signal timing improvements in Boulder. As such, they would need to be evaluated with adjacent signalized intersections and understand the impacts to progression. It is likely that traffic signal operations will be reevaluated and adjusted city-wide over the next 20 years, and these recommendations should be considered in the process.

7.4 Year 2045 Background + Project Intersection Capacity Analysis

This section discusses impacts associated with the addition of the project trips in the long-term scenario. The site-generated volumes were added to the Year 2045 background volumes and are illustrated on **Figure 9**. The existing traffic control and lane configurations were assumed to remain the same at all the study intersections. The details of the LOS for each movement are listed in **Table 1**. The 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

With the project trips, the study intersections operate similarly to the Year 2045 Background scenario with little to no impact on the delays and queues. The majority of overall levels of service were calculated to remain the same as the background scenario. The movements that were estimated to operate at LOS F during one peak hour in the background scenario were calculated to remain the same letter grade and similar delay. The recommendation for adjustments in signal timing and extension of storage lengths continue to be needed. **No additional mitigation measures are recommended.**

8.0 Queuing Analysis

A queuing analysis was performed to determine if the 95th percentile queues would be accommodated by the existing storage length, to determine the storage lengths for future auxiliary lanes, and if any of the queues would impact an upstream intersection/access. **Table 2** provides the existing and proposed storage lengths, as well as the 95th percentile queues for each existing and future scenario as calculated by Synchro (assuming each vehicle utilizes 25 feet of space). It should be noted that the 95th percentile queue length is a theoretical queue that is 1.65 standard deviations above the average queue length. In theory, the 95th percentile queue would be exceeded 5% of the time based on the average queue length, but it is also possible that a queue this long may not occur.

As shown in **Table 2**, the majority of the queues are shorter than the provided storage length in all scenarios. The 95th percentile queues at the following intersections were calculated to extend beyond the existing storage length and need to be considered for extension:

- ***#4 – Pearl Parkway/Valmont Road at 55th Street:*** *[existing condition]*
    - **Westbound Left-Turn** – The 95th percentile queues exceed available storage by one vehicle or less. Adjust the signal timing to reduce queues to be maintained in existing storage. The bridge to the east of the intersection limits the ability to extend turn lane storage.

- **Northbound Right-Turn** – Adjust the signal timing to reduce queues to be maintained in the existing storage. If timing adjustments are not feasible, lengthen the storage to 410 feet (increase of 330 feet) by reconstructing the existing concrete median and restriping the existing painted median. Widening the roadway to the east may not be possible due to existing grades.
- **Southbound Left-Turn** – Adjust signal timing by increasing the southbound left-turn phase time by two (2) seconds and decreasing northbound through phase time by two (2) seconds. In addition, lengthen the storage to 255 feet (increase of 75 feet) if feasible.

- ***#5 – Arapahoe Road at 55th Street:*** *[existing condition]*
  - **Westbound Left-Turn** – Adjust signal timing to reduce this queue to be maintained in existing storage. There is a back-to-back left-turn lane to the east which makes it challenging to increase turn lane storage. If feasible, the storage should be increased to 180 feet (increase of 80 feet) and will require reconstruction of the existing concrete median.
  - **Southbound Left-Turn** – Lengthen the storage to 265 feet (increase of 95 feet) which requires restriping of the center striped median.

All improvements listed above were triggered with the Year 2024 Existing scenario. The recommended storage lengths would accommodate the calculated 95th percentile queues for the long-term volumes assuming signal timing modifications are implemented. It is anticipated that these mitigation measures will not have an impact on bicycle and pedestrian traffic in the area.

9.0 Conclusions

The purpose of this study is to quantify the anticipated new automobile traffic generated by the 1855 S. Flatiron Court project when operational, and to assist in identifying potential traffic impacts within the study area. The project proposes to develop three (3) buildings with up to 207,011 square feet of research and development office space. The project proposes to utilize the existing two (2) access onto the Flatiron Court cul-de-sac as full movement, stop-controlled accesses. It is assumed that the project will be completed by Year 2027.

The project is estimated to generate 2,294 daily trips with 213 trips occurring in the AM peak hour and 203 trips occurring in the PM peak hour. **It was determined that the existing roadway system can**

adequately accommodate the projected traffic volumes, although some signal timing adjustments may be needed.

The following mitigation measures should be considered to improve the existing and background traffic deficiencies, independent of the proposed project:

- ***#4 – Pearl Parkway/Valmont Road at 55th Street:***
    - Adjust the signal timing by adding two (2) seconds to the southbound left-turn phase and removing the time from the northbound phase.
    - Lengthen the southbound left-turn storage to 255 feet (increase of 75 feet).
    - Lengthen the northbound right-turn storage to 410 feet (increase of 330 feet).
- ***#5 – Arapahoe Road at 55th Street:***
    - Adjust signal timing to reduce the westbound left-turn queue
    - Lengthen the southbound left-turn storage to 265 feet (increase of 95 feet).

Tables and Figures:

Attachment C - Applicant's TDM Plan

Table 1 - Peak Hour Intersection Level of Service Summary

Intersections and Lane Groups	Year 2024 Existing				Year 2027 Background				Year 2027 Background (Improvements)		Year 2027 with Project				Year 2027 with Project (Improvements)		Year 2045 Background				Year 2045 Background (Improvements)		Year 2045 with Project				Year 2045 with Project (Improvements)	
	AM Peak		PM Peak		AM Peak		PM Peak		PM Peak		AM Peak		PM Peak		PM Peak		AM Peak		PM Peak		PM Peak		AM Peak		PM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SIGNAL CONTROL																												
2. 55th Street at Central Avenue	**5**	**A**	**7**	**A**	**5**	**A**	**7**	**A**			**6**	**A**	**9**	**A**			**6**	**A**	**7**	**A**			**7**	**A**	**9**	**A**		
Eastbound Left	41	D	28	C	41	D	28	C			39	D	28	C			40	D	28	C			38	D	29	C		
Eastbound Through + Right	41	D	27	C	41	D	27	C	*No Improvements*		39	D	27	C	*No Improvements*		40	D	27	C	*No Improvements*		38	D	26	C	*No Improvements*	
Westbound Left	42	D	30	C	42	D	30	C			41	D	35	C			41	D	31	C			40	D	36	D		
Westbound Through + Right	41	D	27	C	41	D	27	C			39	D	27	C			39	D	27	C			38	D	27	C		
Northbound Left	3	A	5	A	3	A	5	A			3	A	5	A			3	A	5	A			4	A	5	A		
Northbound Through	4	A	7	A	4	A	7	A			5	A	7	A			5	A	7	A			6	A	7	A		
Northbound Through + Right	4	A	7	A	4	A	7	A			5	A	7	A			5	A	7	A			6	A	7	A		
Southbound Left	2	A	1	A	2	A	1	A			3	A	1	A			3	A	1	A			3	A	1	A		
Southbound Through	0	A	1	A	0	A	1	A			0	A	1	A			0	A	1	A			0	A	1	A		
Southbound Through + Right	0	A	1	A	0	A	1	A			0	A	1	A			0	A	1	A			0	A	1	A		
3. 55th Street at Flatirons Parkway	**5**	**A**	**4**	**A**	**5**	**A**	**4**	**A**			**5**	**A**	**4**	**A**			**6**	**A**	**5**	**A**			**6**	**A**	**5**	**A**		
Eastbound Left	41	D	28	C	41	D	28	C			41	D	28	C			40	D	28	C			40	D	28	C		
Eastbound Through + Right	42	D	28	C	42	D	28	C	*No Improvements*		42	D	28	C	*No Improvements*		41	D	29	C	*No Improvements*		41	D	29	C	*No Improvements*	
Westbound Left	43	D	32	C	43	D	32	C			43	D	32	C			42	D	33	C			42	D	33	C		
Westbound Through	0	A	0	A	0	A	0	A			0	A	0	A			39	D	27	C			40	D	27	C		
Westbound Right	0	A	0	A	0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A		
Northbound Left	3	A	0	A	3	A	0	A			3	A	0	A			3	A	0	A			4	A	0	A		
Northbound Through	3	A	1	A	3	A	1	A			4	A	1	A			4	A	1	A			4	A	1	A		
Northbound Through + Right	4	A	1	A	4	A	1	A			4	A	1	A			4	A	1	A			5	A	1	A		
Southbound Left	2	A	0	A	2	A	0	A			2	A	0	A			2	A	0	A			3	A	1	A		
Southbound Through	4	A	1	A	4	A	1	A			4	A	1	A			5	A	1	A			5	A	1	A		
Southbound Through + Right	4	A	1	A	4	A	1	A			5	A	1	A			5	A	1	A			5	A	1	A		
4. Pearl Parkway/Valmont Road at 55th Street	**28**	**C**	**35**	**C**	**28**	**C**	**36**	**D**	**33**	**C**	**28**	**C**	**36**	**D**	**33**	**C**	**29**	**C**	**41**	**D**	**35**	**D**	**29**	**C**	**42**	**D**	**36**	**D**
Eastbound Left	32	C	21	C	32	C	21	C	21	C	32	C	21	C	21	C	33	C	21	C	21	C	32	C	21	C	21	C
Eastbound Through	35	D	27	C	35	D	27	C	27	C	35	D	27	C	27	C	35	D	28	C	28	C	35	D	28	C	28	C
Eastbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
Westbound Left	27	C	21	C	27	C	21	C	21	C	26	C	21	C	21	C	26	C	21	C	21	C	26	C	21	C	21	C
Westbound Through	32	C	24	C	32	C	24	C	24	C	32	C	24	C	24	C	32	C	24	C	24	C	32	C	24	C	24	C
Westbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
Northbound Left	44	D	43	D	44	D	43	D	43	D	44	D	43	D	43	D	44	D	43	D	43	D	43	D	43	D	43	D
Northbound Through	25	C	40	D	25	C	40	D	43	D	25	C	40	D	43	D	26	C	42	D	46	D	26	C	43	D	46	D
Northbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
Southbound Left	41	D	59	E	41	D	62	E	45	D	41	D	62	E	45	D	41	D	85	F	52	D	41	D	85	F	52	D
Southbound Through	15	B	24	C	15	B	24	C	24	C	16	B	26	C	26	C	17	B	26	C	26	C	17	B	29	C	29	C
Southbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
5. Arapahoe Road at 55th Street	**29**	**C**	**33**	**C**	**29**	**C**	**33**	**C**			**29**	**C**	**33**	**C**			**30**	**C**	**36**	**D**			**31**	**C**	**37**	**D**		
Eastbound Left	38	D	42	D	38	D	42	D			40	D	43	D			39	D	46	D			43	D	47	D		
Eastbound Through	20	B	35	C	20	B	35	D	*No Improvements*		20	B	35	D	*No Improvements*		20	C	39	D	*No Improvements*		20	C	39	D	*No Improvements*	
Eastbound Through + Right	21	C	38	D	21	C	39	D			21	C	39	D			21	C	44	D			21	C	44	D		
Westbound Left	27	C	36	D	27	C	37	D			27	C	37	D			27	C	42	D			27	C	42	D		
Westbound Through	33	C	29	C	33	C	29	C			34	C	29	C			35	D	30	C			36	D	30	C		
Westbound Through + Right	37	D	31	C	37	D	31	C			38	D	31	C			40	D	32	C			41	D	32	C		
Northbound Left	26	C	32	C	26	C	32	C			26	C	32	C			27	C	35	C			27	C	36	D		
Northbound Through	31	C	38	D	32	C	38	D			32	C	38	D			33	C	38	D			33	C	38	D		
Northbound Through + Right	32	C	39	D	32	C	39	D			32	C	39	D			33	C	39	D			34	C	40	D		
Southbound Left	25	C	29	C	25	C	29	C			26	C	31	C			26	C	34	C			26	C	38	D		
Southbound Through	29	C	36	D	29	C	37	D			29	C	38	D			29	C	39	D			29	C	40	D		
Southbound Right	9	A	12	B	9	A	12	B			9	A	13	B			9	A	12	B			9	A	14	B		

Attachment C - Applicant's TDM Plan

Table 1 - Peak Hour Intersection Level of Service Summary

Intersections and Lane Groups	Year 2024 Existing				Year 2027 Background				Year 2027 Background (Improvements)		Year 2027 with Project				Year 2027 with Project (Improvements)		Year 2045 Background				Year 2045 Background (Improvements)		Year 2045 with Project				Year 2045 with Project (Improvements)	
	AM Peak		PM Peak		AM Peak		PM Peak		PM Peak		AM Peak		PM Peak		PM Peak		AM Peak		PM Peak		PM Peak		AM Peak		PM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
STOP SIGN CONTROL																												
1. Central Avenue at Flatirons Court	**1**	**A**	**2**	**A**	**1**	**A**	**2**	**A**			**3**	**A**	**7**	**A**			**1**	**A**	**2**	**A**			**3**	**A**	**7**	**A**		
Eastbound Through + Right	0	A	0	A	0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A		
Westbound Left + Through	8	A	7	A	8	A	7	A	*No Improvements*		8	A	8	A	*No Improvements*		8	A	7	A	*No Improvements*		8	A	8	A	*No Improvements*	
Northbound Left + Right	9	A	9	A	9	A	9	A			11	B	12	B			9	A	10	A			12	B	12	B		

1855 Flatiron Court Traffic Impact Study

Attachment C - Applicant's TDM Plan

Table 2 - Peak Hour Estimated Queue Lengths

Intersections and Lane Groups	2024 Existing 95th% Queue		2027 Background 95th% Queue			2027 with Project 95th% Queue			2045 Background 95th% Queue			2045 with Project 95th% Queue			Max. Queue	Existing Storage	Proposed Storage
	AM	PM	AM	PM	PM (Improvements)	AM	PM	PM (Improvements)	AM	PM	PM (Improvements)	AM	PM	PM (Improvements)			
1. Central Avenue at Flatirons Court	*Stop-Controlled*		*Stop-Controlled*			*Stop-Controlled*			*Stop-Controlled*			*Stop-Controlled*					
Eastbound Through + Right	0'	0'	0'	0'		0'	0'		0'	0'		0'	0'		0'	-	-
Westbound Left + Through	0'	0'	0'	0'	*No Improvements*	8'	0'	*No Improvements*	0'	0'	*No Improvements*	8'	0'	*No Improvements*	8'	-	-
Northbound Left + Right	0'	3'	0'	3'		8'	43'		0'	3'		8'	43'		43'	-	-
2. 55th Street at Central Avenue	*Signal*		*Signal*			*Signal*			*Signal*			*Signal*					
Eastbound Left	10'	6'	10'	6'		9'	6'		11'	11'		11'	10'		11'	50'	50'
Eastbound Through + Right	0'	0'	0'	0'	*No Improvements*	0'	0'	*No Improvements*	12'	22'	*No Improvements*	12'	21'	*No Improvements*	22'	-	-
Westbound Left	45'	128'	45'	129'		65'	209'		50'	138'		69'	222'		222'	50'	50'
Westbound Through + Right	0'	0'	0'	0'		0'	0'		24'	32'		25'	35'		35'	-	-
Northbound Left	10'	2'	10'	2'		11'	2'		11'	5'		13'	6'		13'	180'	180'
Northbound Through	113'	95'	115'	96'		148'	115'		135'	112'		173'	127'		173'	-	-
Northbound Through + Right	113'	95'	115'	96'		148'	115'		135'	112'		173'	127'		173'	-	-
Southbound Left	22'	7'	22'	7'		29'	9'		23'	8'		31'	11'		31'	75'	75'
Southbound Through	60'	77'	60'	77'		70'	98'		66'	97'		76'	113'		113'	-	-
Southbound Through + Right	60'	77'	60'	77'		70'	98'		66'	97'		76'	113'		113'	-	-
3. 55th Street at Flatirons Parkway	*Signal*		*Signal*			*Signal*			*Signal*			*Signal*					
Eastbound Left	11'	31'	11'	31'		11'	31'		12'	31'		12'	31'		31'	-	-
Eastbound Through + Right	8'	0'	8'	0'	*No Improvements*	8'	0'	*No Improvements*	15'	20'	*No Improvements*	15'	20'	*No Improvements*	20'	-	-
Westbound Left	32'	122'	32'	123'		33'	127'		36'	131'		37'	134'		134'	430'	430'
Westbound Through	0'	0'	0'	0'		0'	0'		12'	12'		12'	12'		12'	-	-
Westbound Right	0'	1'	0'	5'		0'	45'		0'	50'		5'	75'		75'	430'	430'
Northbound Left	13'	1'	13'	1'		13'	1'		15'	3'		16'	3'		16'	100'	100'
Northbound Through	42'	96'	43'	98'		53'	101'		58'	103'		61'	105'		105'	-	-
Northbound Through + Right	42'	96'	43'	98'		53'	101'		58'	103'		61'	105'		105'	-	-
Southbound Left	9'	6'	10'	6'		18'	6'		13'	6'		22'	7'		22'	130'	130'
Southbound Through	10'	25'	11'	23'		11'	24'		14'	26'		15'	27'		27'	-	-
Southbound Through + Right	10'	25'	11'	23'		11'	24'		14'	26'		15'	27'		27'	-	-
4. Pearl Parkway/Valmont Road at 55th Street	*Signal*		*Signal*			*Signal*			*Signal*			*Signal*					
Eastbound Left	33'	59'	33'	59'	59'	33'	59'	59'	33'	65'	65'	33'	65'	65'	65'	215'	215'
Eastbound Through	45'	183'	45'	185'	185'	45'	185'	185'	47'	203'	203'	47'	203'	203'	203'	-	-
Eastbound Right	0'	51'	0'	52'	52'	31'	52'	52'	1'	54'	54'	35'	55'	55'	55'	135'	135'
Westbound Left	109'	41'	110'	41'	41'	115'	42'	42'	116'	45'	45'	121'	46'	46'	121'	100'	125'
Westbound Through	161'	64'	162'	65'	65'	162'	65'	65'	172'	70'	70'	172'	70'	70'	172'	-	-
Westbound Right	63'	32'	63'	31'	31'	63'	31'	31'	63'	32'	32'	63'	32'	32'	63'	100'	100'
Northbound Left	54'	62'	54'	63'	63'	63'	87'	87'	56'	68'	68'	66'	91'	91'	91'	90'	90'
Northbound Through	169'	272'	173'	276'	280'	144'	282'	286'	201'	306'	335'	183'	311'	340'	340'	-	-
Northbound Right	4'	292'	5'	302'	309'	0'	331'	338'	8'	377'	386'	0'	408'	410'	410'	80'	410'
Southbound Left	61'	238'	62'	243'	220'	62'	243'	220'	66'	276'	253'	66'	276'	253'	276'	180'	255'
Southbound Through	210'	307'	215'	313'	313'	221'	329'	329'	246'	357'	357'	252'	399'	399'	399'	-	-
Southbound Right	0'	6'	0'	6'	6'	0'	7'	7'	0'	11'	11'	0'	12'	12'	12'	50'	50'

Attachment C - Applicant's TDM Plan

Table 2 - Peak Hour Estimated Queue Lengths

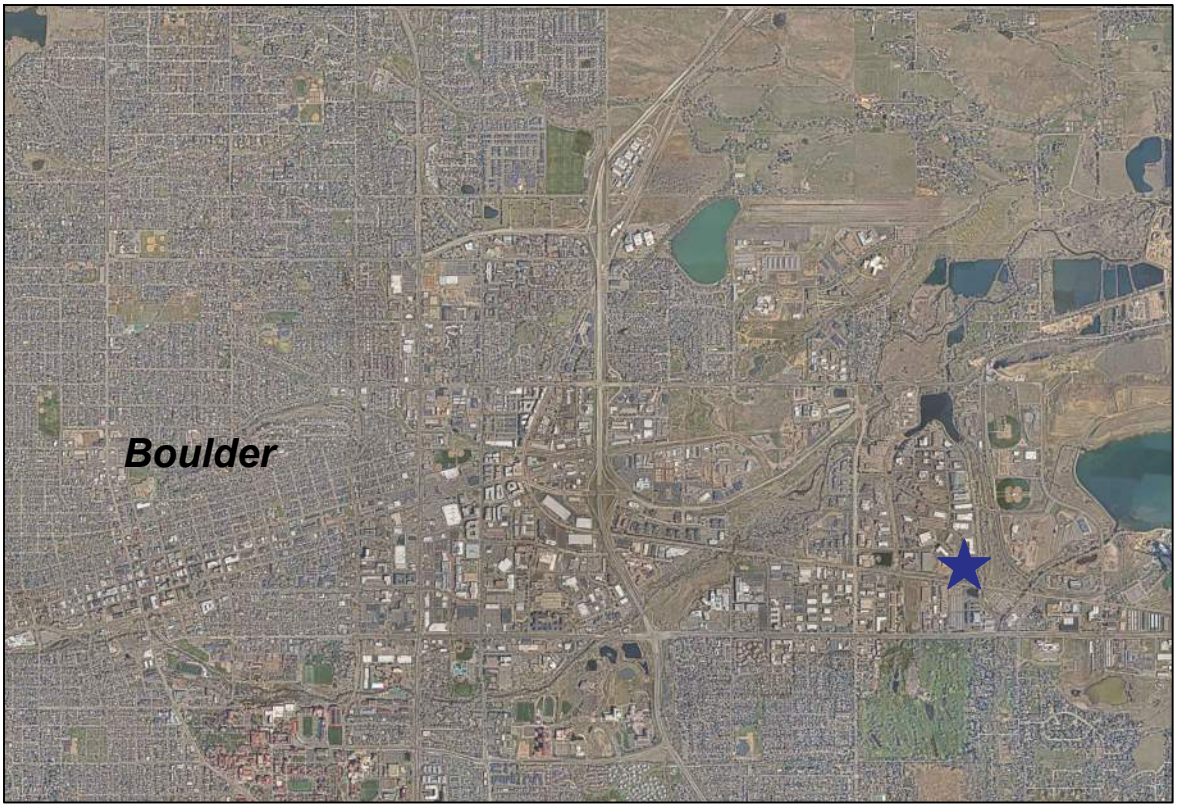
Intersections and Lane Groups	2024 Existing 95th% Queue		2027 Background 95th% Queue			2027 with Project 95th% Queue			2045 Background 95th% Queue			2045 with Project 95th% Queue			Max. Queue	Existing Storage	Proposed Storage
	AM	PM	AM	PM	PM (Improvements)	AM	PM	PM (Improvements)	AM	PM	PM (Improvements)	AM	PM	PM (Improvements)			
5. Arapahoe Road at 55th Street	*Signal*		*Signal*			*Signal*			*Signal*			*Signal*					
Eastbound Left	94'	122'	96'	124'		135'	132'		103'	132'		153'	144'		153'	345'	345'
Eastbound Through	110'	408'	112'	416'	*No Improvements*	112'	416'	*No Improvements*	123'	471'	*No Improvements*	123'	471'	*No Improvements*	471'	-	-
Eastbound Through + Right	110'	408'	112'	416'		112'	416'		123'	471'		123'	471'		471'	-	-
Westbound Left	67'	139'	68'	150'		68'	150'		71'	178'		71'	178'		178'	100'	180'
Westbound Through	279'	247'	284'	252'		293'	254'		319'	281'		330'	283'		330'	-	-
Westbound Through + Right	279'	247'	284'	252'		293'	254'		319'	281'		330'	283'		330'	-	-
Northbound Left	126'	82'	128'	84'		128'	84'		138'	92'		138'	92'		138'	220'	220'
Northbound Through	226'	131'	230'	133'		237'	136'		252'	148'		258'	151'		258'	-	-
Northbound Through + Right	226'	131'	230'	133'		237'	136'		252'	148'		258'	151'		258'	-	-
Southbound Left	43'	198'	44'	202'		47'	215'		47'	227'		50'	263'		263'	170'	265'
Southbound Through	110'	390'	112'	397'		115'	414'		121'	439'		123'	458'		458'	-	-
Southbound Right	35'	54'	36'	56'		41'	86'		42'	64'		47'	96'		96'	175'	175'

Table 3 - Trip Generation

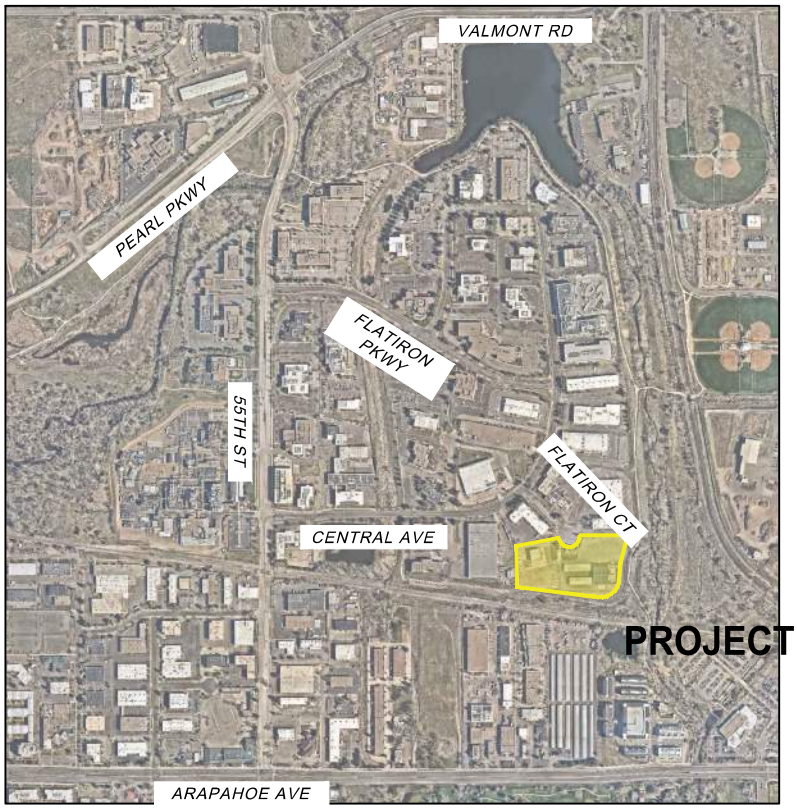
Land Use	Size	Unit	Internal Capture	Non-Auto Factor	Weekday											
					Average Daily				AM Peak Hour				PM Peak Hour			
					Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
ITE 760 - Research and Development Center	207.01	KSF	1.00	1.00	11.08	2294	1147	1147	1.03	213	175	38	0.98	203	32	171
Total						***2294***	***1147***	***1147***		***213***	***175***	***38***		***203***	***32***	***171***

Source : ITE Trip Generation 11th Edition, 2021.

Area Map



Location within Boulder



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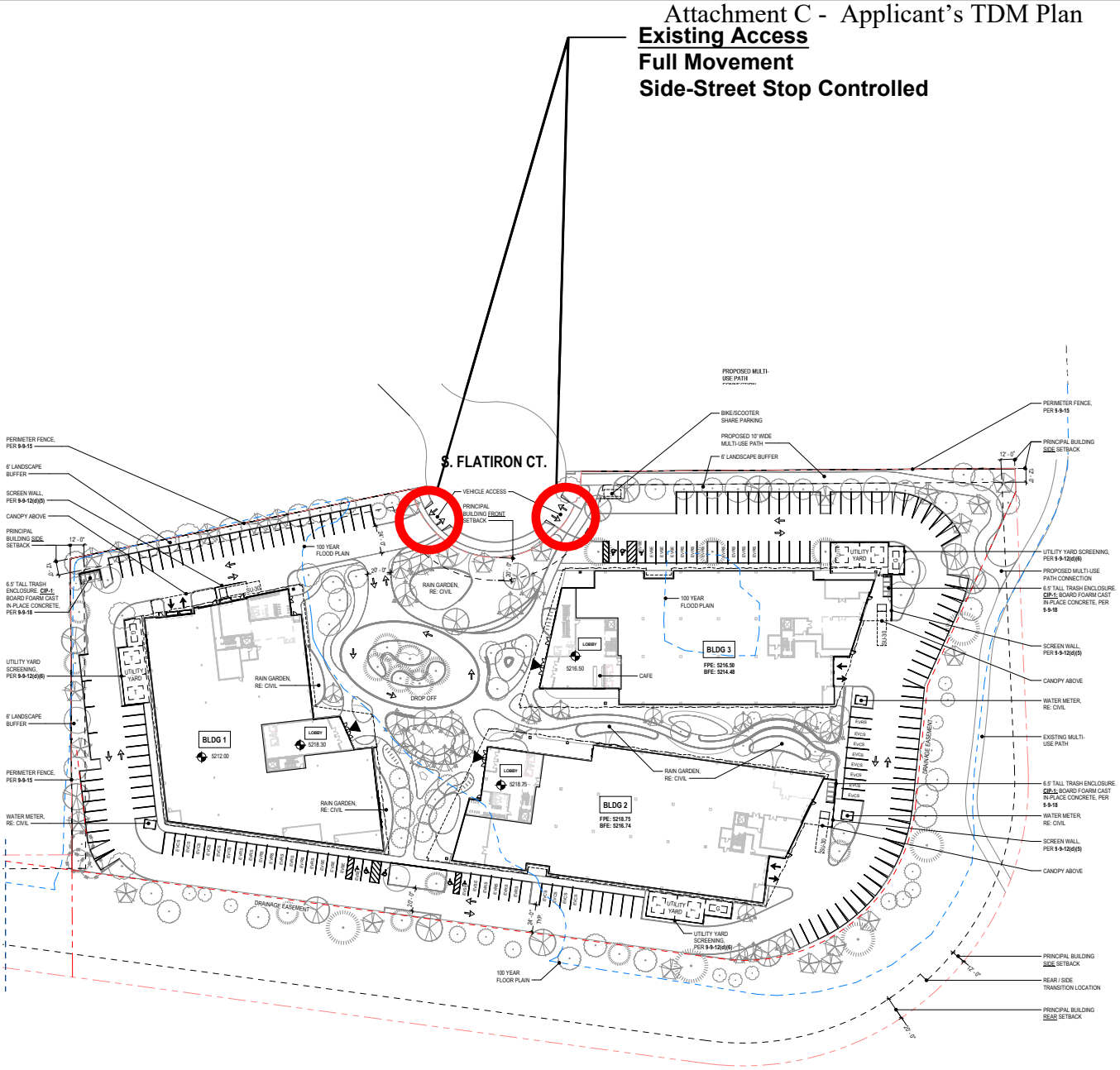
1855 S. FLATIRON COURT Traffic Impact Study

VICINITY MAP

Project #	24024	Original Scale	NTS	Date	6/21/2024	Drawn by	CAF	Figure #	1



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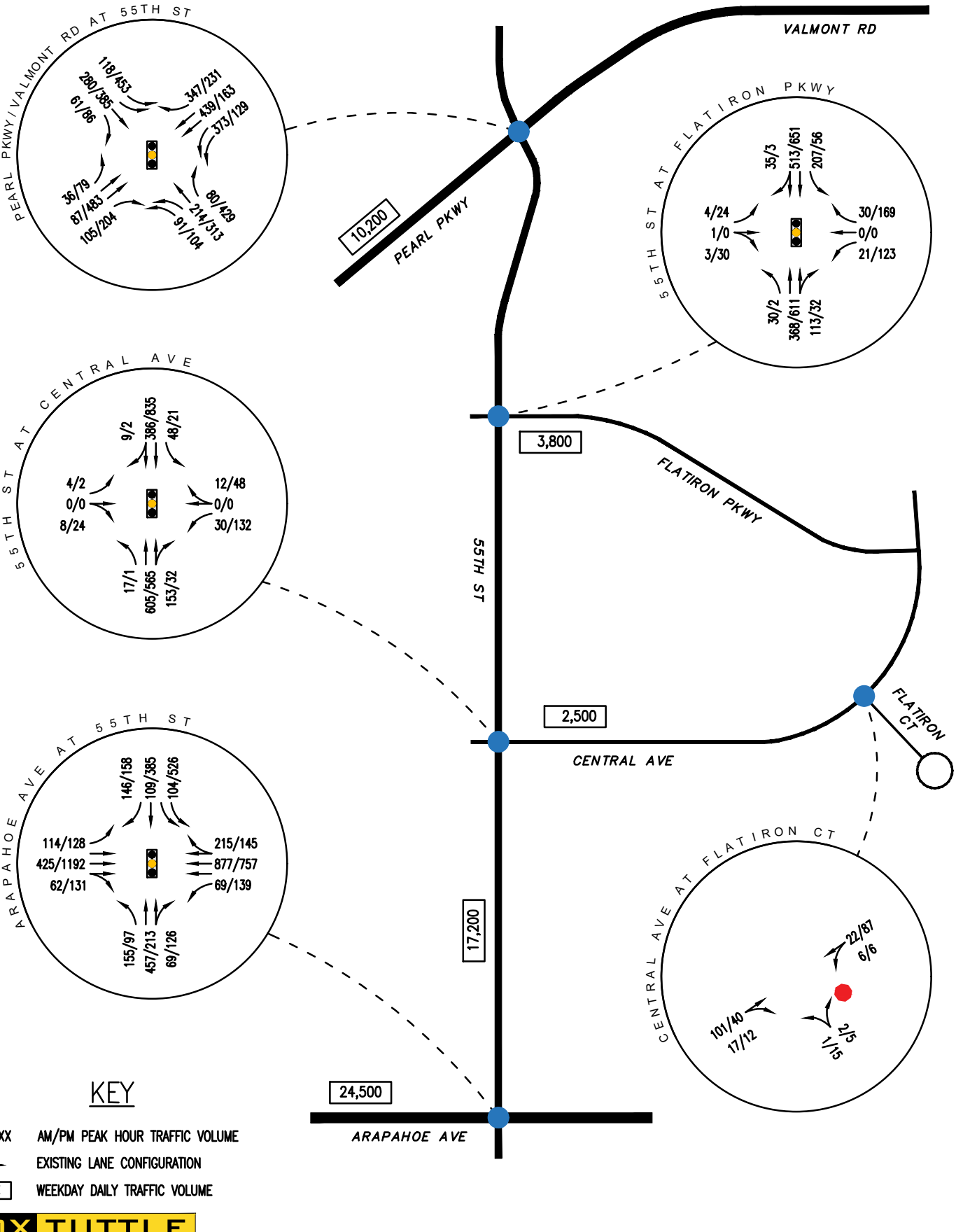
1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

CONCEPTUAL SITE PLAN

Project #	24024	Original Scale	NTS	Date	11/21/2024	Drawn by	CRS	Figure #	2



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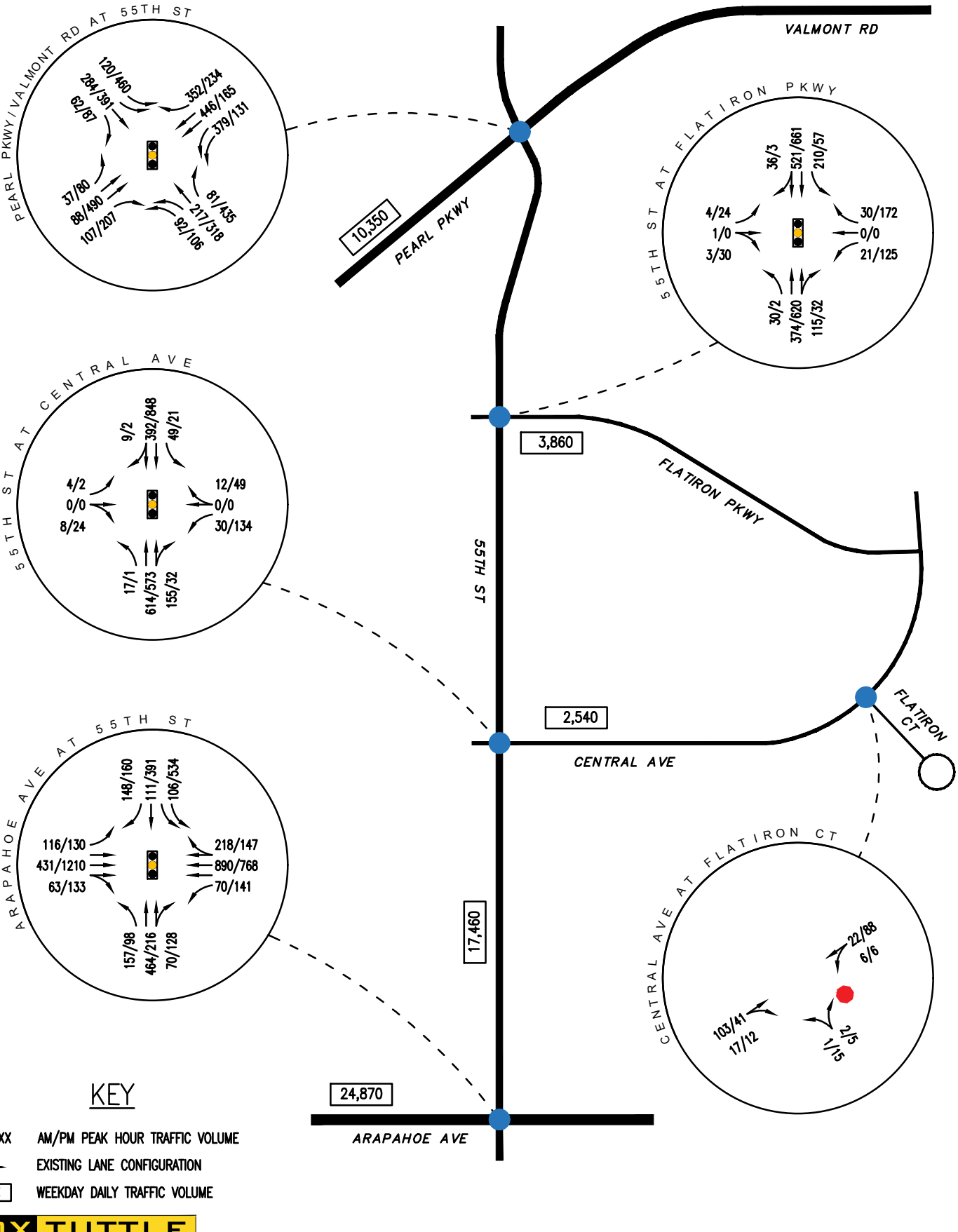
1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

EXISTING TRAFFIC VOLUMES

Project #	24024	Original Scale	NTS	Date	6/21/2024	Drawn by	CAF	Figure #	3



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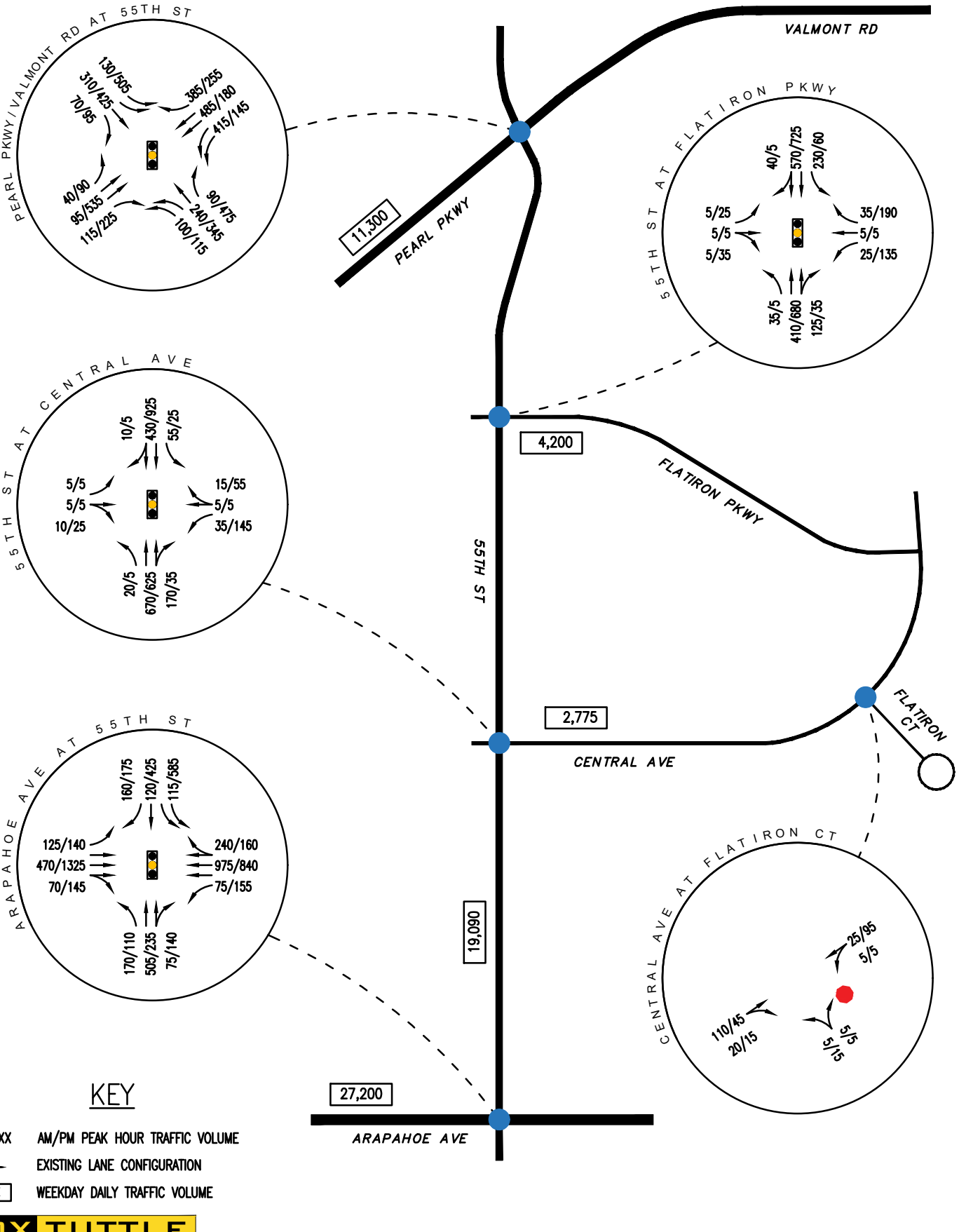
1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

YEAR 2027 BACKGROUND TRAFFIC VOLUMES

Project #	24024	Original Scale	NTS	Date	6/21/2024	Drawn by	CAF	Figure #	4



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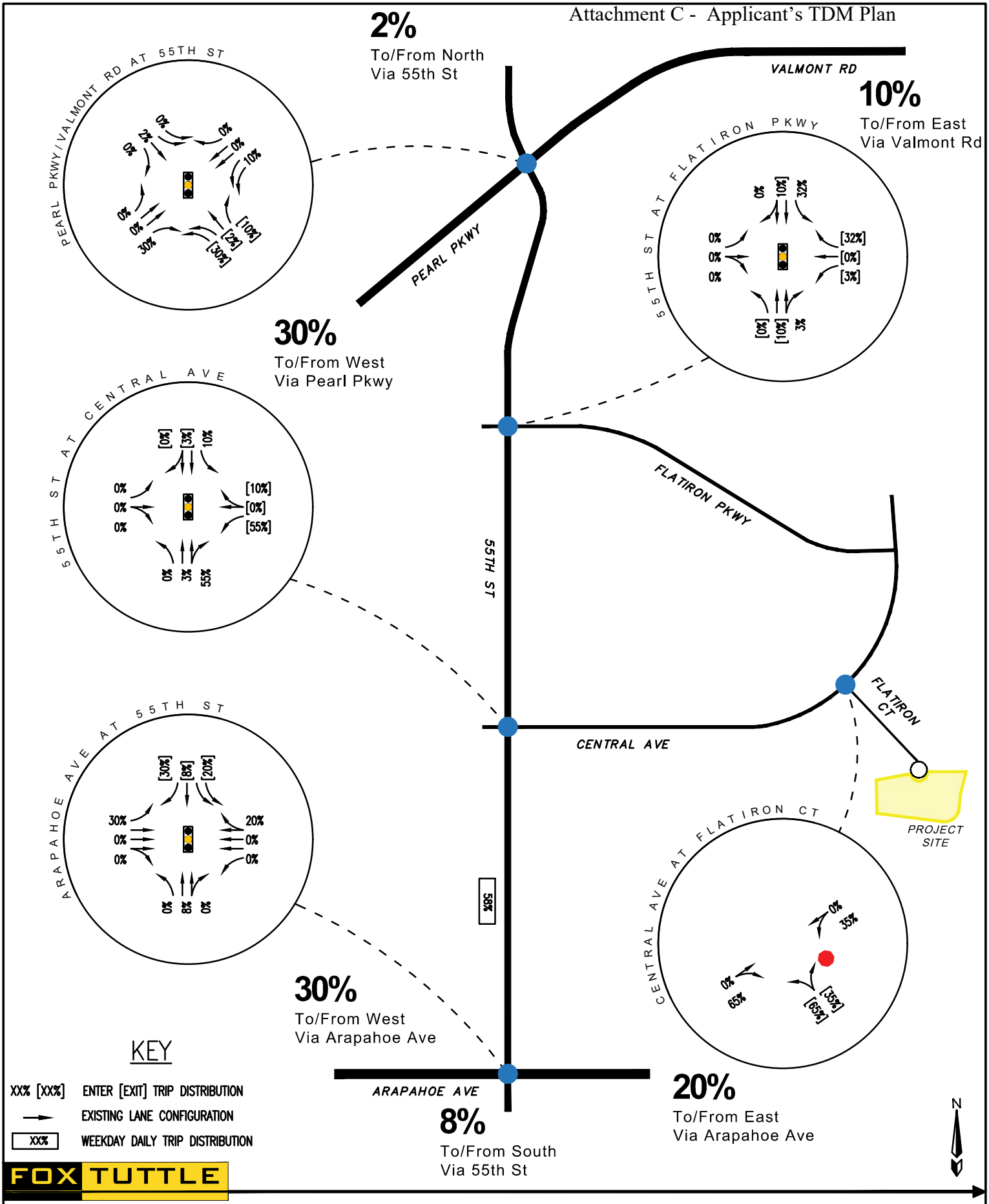
1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

YEAR 2045 BACKGROUND TRAFFIC VOLUMES

Project #	24024	Original Scale	NTS	Date	6/21/2024	Drawn by	CAF	Figure #	5



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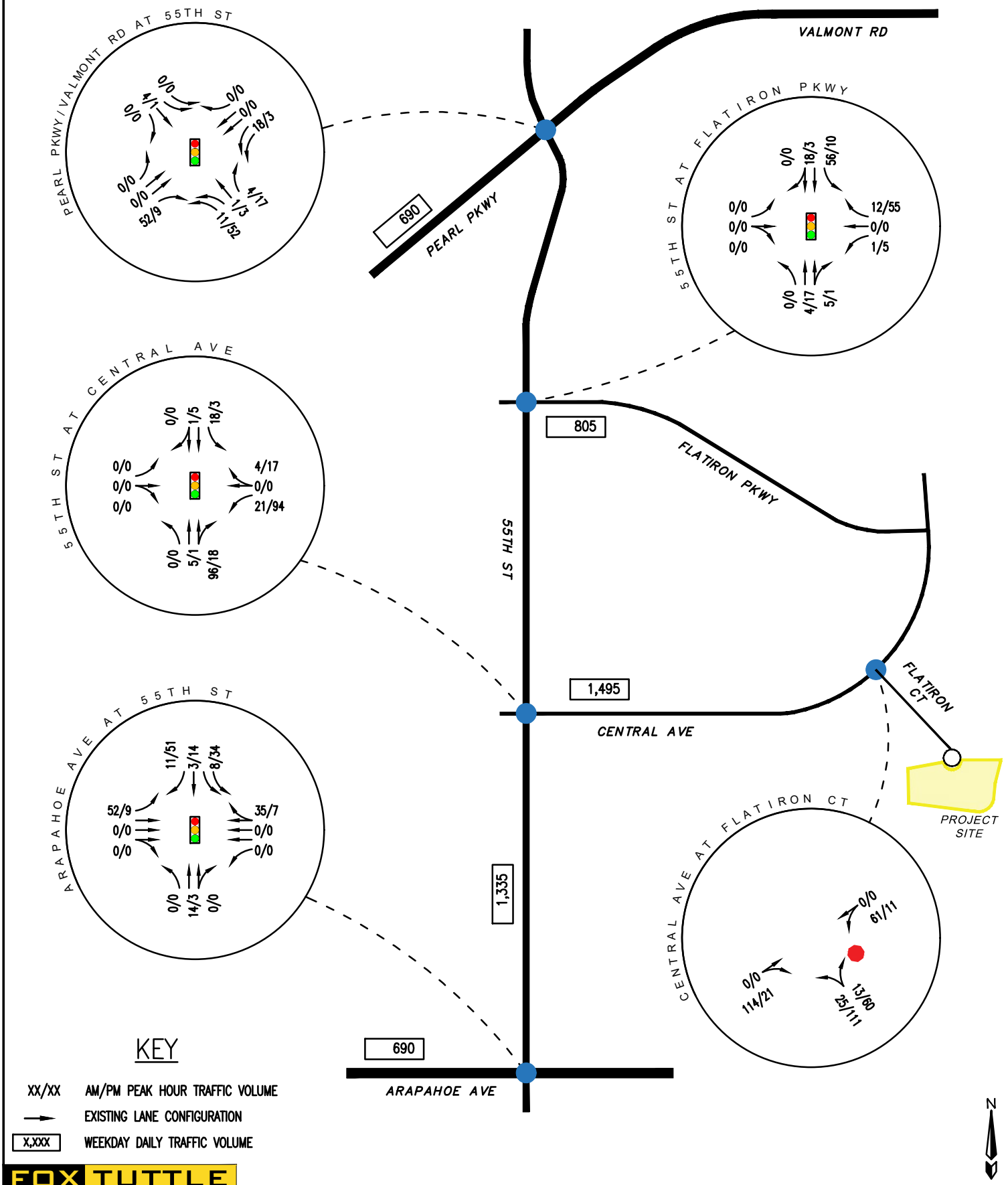
1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

SITE TRIP DISTRIBUTION

Project #	24024	Original Scale	NTS	Date	6/21/2024	Drawn by	CAF	Figure #	6



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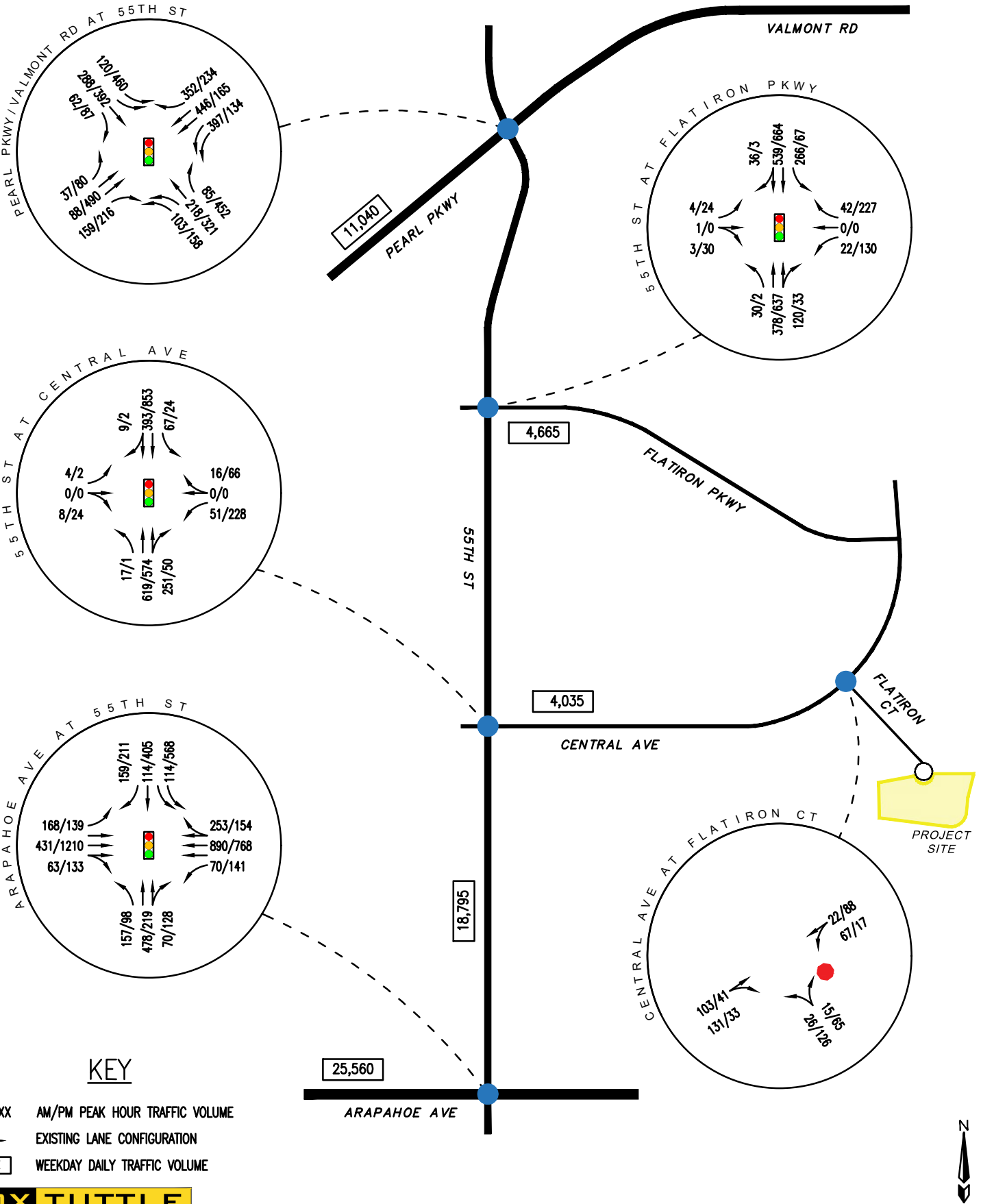
1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

SITE-GENERATED TRIPS

Project #	24024	Original Scale	NTS	Date	11/21/2024	Drawn by	CRS	Figure #	7



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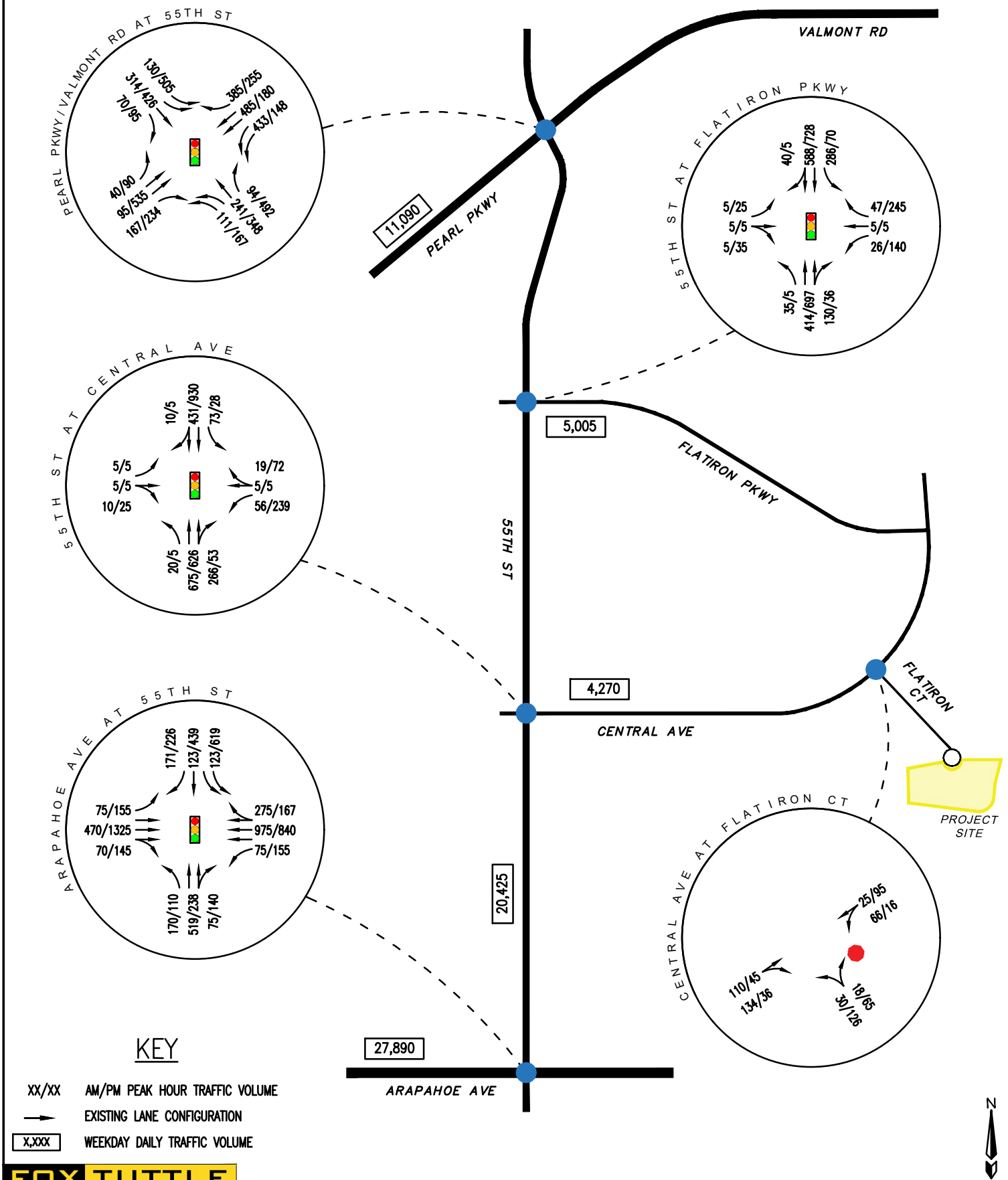
1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

YEAR 2027 BACKGROUND + PROJECT TRAFFIC VOLUMES

Project #	24024	Original Scale	NTS	Date	11/21/2024	Drawn by	CRS	Figure #	8



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1855 S. FLATIRON COURT TRAFFIC IMPACT STUDY

YEAR 2045 BACKGROUND + PROJECT TRAFFIC VOLUMES

Project #	24024	Scale	NTS	Date	11/21/2024	Drawn by	CRS	Figure #	9

Appendix:

Level of Service Definitions

Existing Traffic Data

Intersection Capacity Worksheets

Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, "Levels of Service" (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

Level of Service Rating	Delay in seconds per vehicle *(a)*		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.

(a) Delay ranges based on Highway Capacity Manual (6th Edition, 2016) criteria.

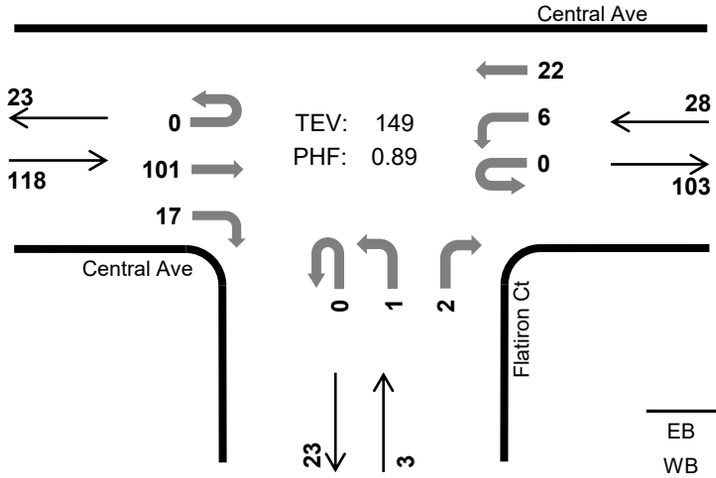
Existing Traffic Data

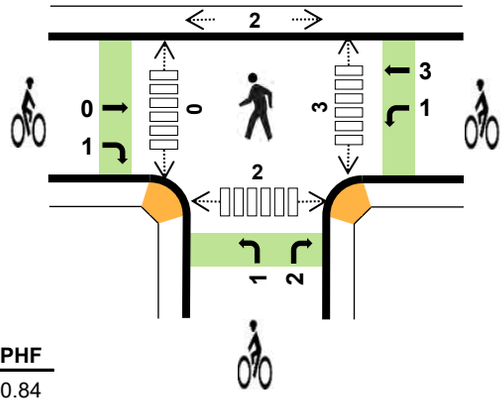
Flatiron Ct
Central Ave

N

Peak Hour

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	6.8%	0.84
WB	17.9%	0.70
NB	0.0%	0.75
SB	-	-
TOTAL	8.7%	0.89

Two-Hour Count Summaries

Interval Start		Central Ave Eastbound				Central Ave Westbound				Flatiron Ct Northbound				N/A Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	17	3	0	1	4	0	0	0	0	0	0	0	0	0	25	0
7:15 AM		0	0	23	2	0	2	3	0	0	0	0	0	0	0	0	0	30	0
7:30 AM		0	0	10	2	0	2	5	0	0	0	0	0	0	0	0	0	19	0
7:45 AM		0	0	23	1	0	0	6	0	0	1	0	1	0	0	0	0	32	106
8:00 AM		**0**	**0**	**18**	**5**	**0**	**1**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**30**	111
8:15 AM		**0**	**0**	**28**	**3**	**0**	**1**	**9**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**42**	123
8:30 AM		**0**	**0**	**30**	**5**	**0**	**1**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**42**	146
8:45 AM		**0**	**0**	**25**	**4**	**0**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**149**
Count Total		0	0	174	25	0	11	40	0	0	2	0	3	0	0	0	0	255	0
Peak Hour	**All**	**0**	**0**	**101**	**17**	**0**	**6**	**22**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**149**	**0**
	HV	**0**	**0**	**6**	**2**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**
	HV%	**-**	**-**	**6%**	**12%**	**-**	**17%**	**18%**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**9%**	**0**

Note: Two-hour count summary volumes 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	East	West	North	South	Total
7:00 AM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	1	1	0	0	*2*	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*
7:45 AM	1	2	0	0	*3*	0	0	0	0	*0*	0	0	1	0	*1*
8:00 AM	**4**	**1**	**0**	**0**	***5***	**0**	**1**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**2**	**4**	**0**	**0**	***6***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**1**	*1*
8:30 AM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**2**	**1**	*3*
8:45 AM	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**0**	**0**	***3***	**3**	**0**	**0**	**0**	***3***
Count Total	13	8	0	0	*21*	1	4	3	0	*8*	3	0	3	2	*8*
Peak Hr	**8**	**5**	**0**	**0**	***13***	**1**	**4**	**3**	**0**	***8***	**3**	**0**	**2**	**2**	***7***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Central Ave Eastbound				Central Ave Westbound				Flatiron Ct Northbound				N/A Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
7:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	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	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	8
8:00 AM	**0**	**0**	**3**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	10
8:15 AM	**0**	**0**	**2**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	14
8:30 AM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	16
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**
Count Total	0	0	11	2	0	1	7	0	0	0	0	0	0	0	0	0	21	0
Peak Hour	**0**	**0**	**6**	**2**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**

Two-Hour Count Summaries - Bikes

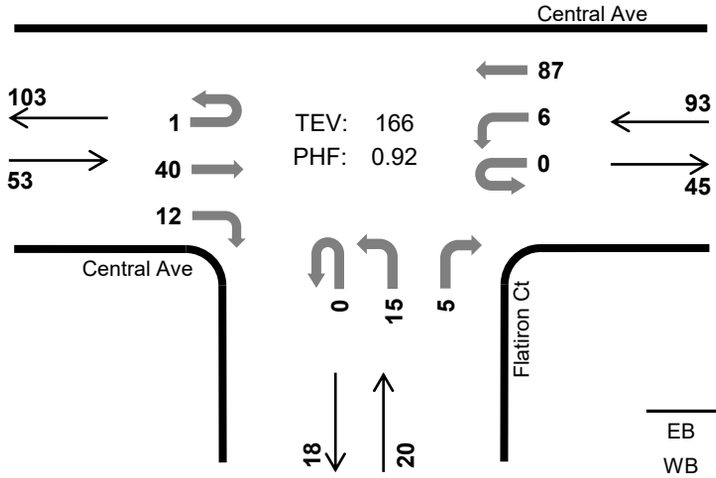
Interval Start	Central Ave Eastbound			Central Ave Westbound			Flatiron Ct Northbound			N/A Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**3**	3
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	5
8:45 AM	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**8**
Count Total	0	0	1	1	3	0	1	0	2	0	0	0	8	0
Peak Hour	**0**	**0**	**1**	**1**	**3**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**8**	**0**

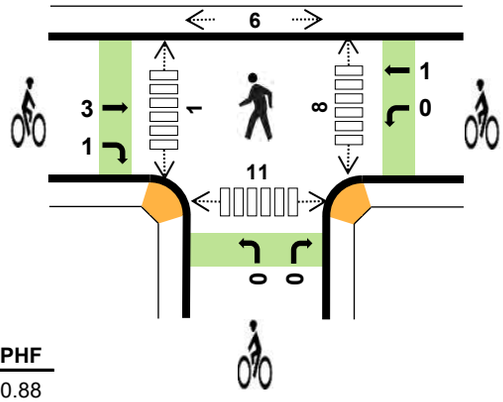
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Flatiron Ct
Central Ave

Peak Hour

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	3.8%	0.88
WB	7.5%	0.83
NB	5.0%	0.63
SB	-	-
TOTAL	6.0%	0.92

Two-Hour Count Summaries

Interval Start		Central Ave Eastbound				Central Ave Westbound				Flatiron Ct Northbound				N/A Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**0**	**8**	**7**	**0**	**0**	**21**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**44**	0
4:15 PM		**0**	**0**	**11**	**1**	**0**	**2**	**23**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**40**	0
4:30 PM		**0**	**0**	**13**	**2**	**0**	**3**	**25**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**45**	0
4:45 PM		**1**	**0**	**8**	**2**	**0**	**1**	**18**	**0**	**0**	**3**	**0**	**4**	**0**	**0**	**0**	**0**	**37**	**166**
5:00 PM		0	0	7	1	0	2	20	0	0	7	0	4	0	0	0	0	41	163
5:15 PM		0	0	9	1	0	1	19	0	0	4	0	1	0	0	0	0	35	158
5:30 PM		0	0	7	1	0	2	18	0	0	5	0	3	0	0	0	0	36	149
5:45 PM		2	0	11	0	0	1	11	0	0	9	0	1	0	0	0	0	35	147
Count Total		3	0	74	15	0	12	155	0	0	40	0	14	0	0	0	0	313	0
Peak Hour	**All**	**1**	**0**	**40**	**12**	**0**	**6**	**87**	**0**	**0**	**15**	**0**	**5**	**0**	**0**	**0**	**0**	**166**	**0**
	HV	**0**	**0**	**2**	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	**0**
	HV%	**0%**	**-**	**5%**	**0%**	**-**	**33%**	**6%**	**-**	**-**	**0%**	**-**	**20%**	**-**	**-**	**-**	**-**	**6%**	**0**

Note: Two-hour count summary volumes 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	East	West	North	South	Total
4:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***	**2**	**0**	**0**	**1**	*3*
4:15 PM	**0**	**2**	**0**	**0**	***2***	**2**	**0**	**0**	**0**	***2***	**5**	**0**	**6**	**3**	*14*
4:30 PM	**2**	**4**	**0**	**0**	***6***	**1**	**0**	**0**	**0**	***1***	**1**	**0**	**0**	**3**	*4*
4:45 PM	**0**	**1**	**1**	**0**	***2***	**1**	**0**	**0**	**0**	***1***	**0**	**1**	**0**	**4**	***5***
5:00 PM	1	1	1	0	*3*	1	0	0	0	*1*	0	0	0	0	*0*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	4	0	4	3	*11*
5:30 PM	0	0	0	0	*0*	0	1	0	0	*1*	2	0	0	2	*4*
5:45 PM	0	1	0	0	*1*	1	0	0	0	*1*	0	0	0	6	*6*
Count Total	3	9	2	0	*14*	6	2	0	0	*8*	14	1	10	22	*47*
Peak Hr	**2**	**7**	**1**	**0**	***10***	**4**	**1**	**0**	**0**	***5***	**8**	**1**	**6**	**11**	***26***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Central Ave Eastbound				Central Ave Westbound				Flatiron Ct Northbound				N/A Southbound				15-min Total	Rolling One Hour
	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**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:30 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**10**
5:00 PM	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	3	13
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	4
Count Total	0	0	3	0	0	3	6	0	0	1	0	1	0	0	0	0	14	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Central Ave Eastbound			Central Ave Westbound			Flatiron Ct Northbound			N/A Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	3
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	3
Count Total	0	4	2	0	2	0	0	0	0	0	0	0	8	0
Peak Hour	**0**	**3**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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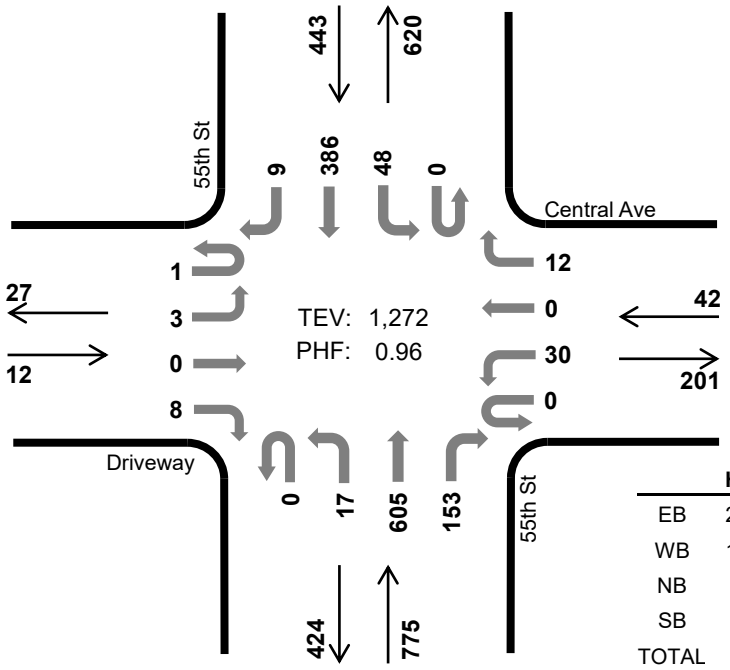
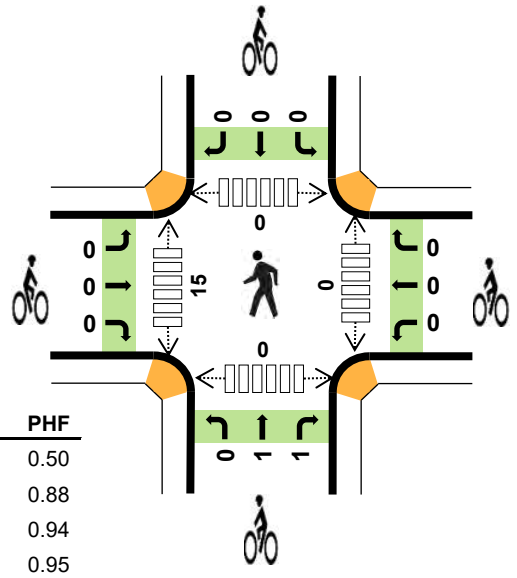
55th St
Central Ave

Peak Hour

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	25.0%	0.50
WB	14.3%	0.88
NB	2.7%	0.94
SB	3.4%	0.95
TOTAL	3.5%	0.96



Two-Hour Count Summaries

Interval Start	Driveway Eastbound UT	LT	TH	RT	Central Ave Westbound UT	LT	TH	RT	55th St Northbound UT	LT	TH	RT	55th St Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	2	0	1	0	4	1	1	0	11	97	25	0	4	38	5	189	0
7:15 AM	0	0	0	1	0	3	0	3	0	5	88	32	0	7	46	5	190	0
7:30 AM	0	1	0	2	0	4	0	2	0	3	121	24	0	6	76	3	242	0
7:45 AM	0	2	0	0	0	2	0	1	0	9	137	39	0	19	93	2	304	925
8:00 AM	**1**	**1**	**0**	**0**	**0**	**11**	**0**	**1**	**0**	**5**	**144**	**31**	**0**	**7**	**100**	**3**	**304**	1,040
8:15 AM	**0**	**1**	**0**	**5**	**0**	**7**	**0**	**4**	**0**	**5**	**156**	**41**	**0**	**15**	**91**	**1**	**326**	1,176
8:30 AM	**0**	**1**	**0**	**2**	**0**	**10**	**0**	**2**	**0**	**4**	**163**	**40**	**0**	**15**	**92**	**2**	**331**	1,265
8:45 AM	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**5**	**0**	**3**	**142**	**41**	**0**	**11**	**103**	**3**	**311**	**1,272**
Count Total	1	8	0	12	0	43	1	19	0	45	1,048	273	0	84	639	24	2,197	0
Peak Hour All	**1**	**3**	**0**	**8**	**0**	**30**	**0**	**12**	**0**	**17**	**605**	**153**	**0**	**48**	**386**	**9**	**1,272**	**0**
Peak Hour HV	**0**	**0**	**0**	**3**	**0**	**5**	**0**	**1**	**0**	**0**	**15**	**6**	**0**	**1**	**12**	**2**	**45**	**0**
Peak Hour HV%	**0%**	**0%**	**-**	**38%**	**-**	**17%**	**-**	**8%**	**-**	**0%**	**2%**	**4%**	**-**	**2%**	**3%**	**22%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	0	0	7	2	*9*	0	0	1	0	*1*	0	12	0	0	*12*
7:15 AM	0	0	4	0	*4*	0	0	0	0	*0*	0	2	0	0	*2*
7:30 AM	1	1	3	5	*10*	0	0	1	0	*1*	0	2	0	0	*2*
7:45 AM	0	0	6	3	*9*	0	0	0	0	*0*	2	3	0	0	*5*
8:00 AM	**0**	**3**	**6**	**2**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
8:15 AM	**2**	**3**	**5**	**1**	***11***	**0**	**0**	**2**	**0**	***2***	**0**	**3**	**0**	**0**	*3*
8:30 AM	**1**	**0**	**4**	**9**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**9**	**0**	**0**	*9*
8:45 AM	**0**	**0**	**6**	**3**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	***2***
Count Total	4	7	41	25	*77*	0	0	4	0	*4*	2	34	0	0	*36*
Peak Hour	**3**	**6**	**21**	**15**	***45***	**0**	**0**	**2**	**0**	***2***	**0**	**15**	**0**	**0**	***15***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Driveway				Central Ave				55th St				55th St				15-min Total	Rolling One Hour
	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	3	3	1	0	0	2	0	9	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	4	0
7:30 AM	0	0	0	1	0	1	0	0	0	2	1	0	0	2	2	1	10	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	5	1	0	0	3	0	9	32
8:00 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**2**	**0**	**11**	34
8:15 AM	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**1**	**0**	**0**	**2**	**3**	**0**	**0**	**1**	**0**	**11**	41
8:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**7**	**1**	**14**	45
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**1**	**9**	**45**
Count Total	0	0	0	4	0	6	0	1	0	5	27	9	0	3	19	3	77	0
Peak Hour	**0**	**0**	**0**	**3**	**0**	**5**	**0**	**1**	**0**	**0**	**15**	**6**	**0**	**1**	**12**	**2**	**45**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Driveway			Central Ave			55th St			55th St			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	3
8:30 AM	**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**	**0**	**0**	**0**	**2**
Count Total	0	0	0	0	0	0	0	3	1	0	0	0	4	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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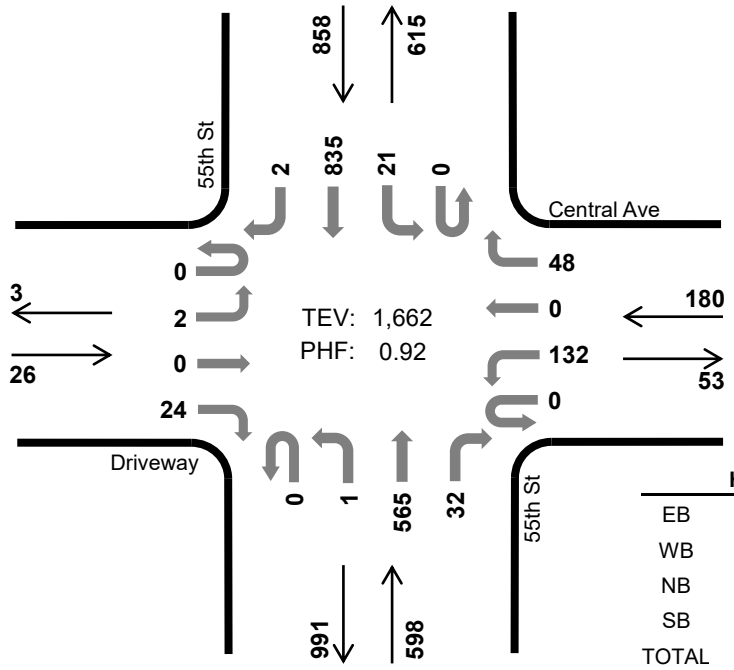
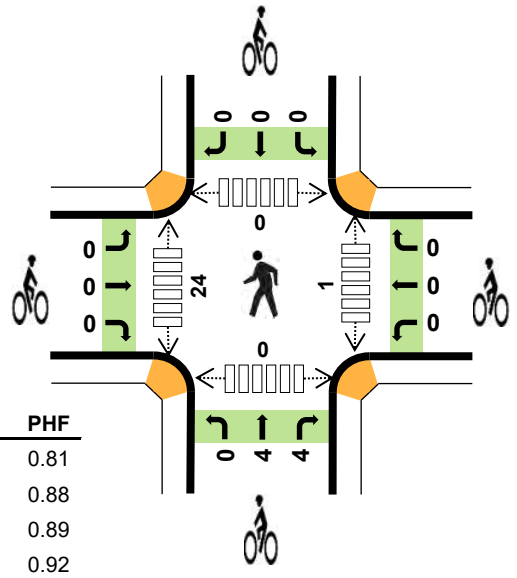
55th St
Central Ave

Peak Hour

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	0.0%	0.81
WB	3.3%	0.88
NB	2.3%	0.89
SB	1.0%	0.92
TOTAL	1.7%	0.92



Two-Hour Count Summaries

Interval Start	Driveway Eastbound UT	LT	TH	RT	Central Ave Westbound UT	LT	TH	RT	55th St Northbound UT	LT	TH	RT	55th St Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	**0**	**1**	**0**	**6**	**0**	**31**	**0**	**12**	**0**	**0**	**132**	**7**	**0**	**7**	**191**	**0**	**387**	0
4:15 PM	**0**	**1**	**0**	**7**	**0**	**33**	**0**	**10**	**0**	**0**	**157**	**11**	**0**	**3**	**228**	**1**	**451**	0
4:30 PM	**0**	**0**	**0**	**7**	**0**	**30**	**0**	**13**	**0**	**0**	**155**	**7**	**0**	**6**	**224**	**0**	**442**	0
4:45 PM	**0**	**0**	**0**	**4**	**0**	**38**	**0**	**13**	**0**	**1**	**121**	**7**	**0**	**5**	**192**	**1**	**382**	**1,662**
5:00 PM	0	0	0	4	0	43	0	17	0	3	135	5	0	2	176	1	386	1,661
5:15 PM	0	0	0	3	0	26	0	10	0	4	128	7	0	2	159	1	340	1,550
5:30 PM	0	2	0	32	0	27	0	8	0	5	88	9	0	2	126	2	301	1,409
5:45 PM	0	3	0	5	0	24	0	6	0	4	85	11	0	2	112	1	253	1,280
Count Total	0	7	0	68	0	252	0	89	0	17	1,001	64	0	29	1,408	7	2,942	0
Peak Hour All	**0**	**2**	**0**	**24**	**0**	**132**	**0**	**48**	**0**	**1**	**565**	**32**	**0**	**21**	**835**	**2**	**1,662**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**0**	**1**	**11**	**2**	**0**	**1**	**8**	**0**	**29**	**0**
Peak Hour HV%	**-**	**0%**	**-**	**0%**	**-**	**2%**	**-**	**8%**	**-**	**100%**	**2%**	**6%**	**-**	**5%**	**1%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	**0**	**0**	**3**	**2**	***5***	**0**	**0**	**1**	**0**	***1***	**0**	**7**	**0**	**0**	*7*
4:15 PM	**0**	**2**	**5**	**3**	***10***	**0**	**0**	**2**	**0**	***2***	**1**	**3**	**0**	**0**	*4*
4:30 PM	**0**	**2**	**1**	**2**	***5***	**0**	**0**	**1**	**0**	***1***	**0**	**9**	**0**	**0**	*9*
4:45 PM	**0**	**2**	**5**	**2**	***9***	**0**	**0**	**4**	**0**	***4***	**0**	**5**	**0**	**0**	***5***
5:00 PM	0	1	3	1	*5*	0	0	1	0	*1*	1	2	1	0	*4*
5:15 PM	0	0	1	1	*2*	1	0	0	0	*1*	0	6	0	0	*6*
5:30 PM	0	0	3	1	*4*	0	0	0	0	*0*	1	2	0	0	*3*
5:45 PM	1	0	5	0	*6*	0	0	0	0	*0*	0	5	0	0	*5*
Count Total	1	7	26	12	*46*	1	0	9	0	*10*	3	39	1	0	*43*
Peak Hour	**0**	**6**	**14**	**9**	***29***	**0**	**0**	**8**	**0**	***8***	**1**	**24**	**0**	**0**	***25***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Driveway				Central Ave				55th St				55th St				15-min Total	Rolling One Hour
	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**	**3**	**0**	**0**	**0**	**2**	**0**	**5**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**4**	**1**	**0**	**0**	**3**	**0**	**10**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**5**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**3**	**1**	**0**	**1**	**1**	**0**	**9**	**29**
5:00 PM	0	0	0	0	0	0	0	1	0	0	3	0	0	0	1	0	5	29
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	21
5:30 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	4	20
5:45 PM	0	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	6	17
Count Total	0	0	0	1	0	2	0	5	0	2	22	2	0	1	11	0	46	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**0**	**1**	**11**	**2**	**0**	**1**	**8**	**0**	**29**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Driveway			Central Ave			55th St			55th St			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**8**
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	8
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	7
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	1	0	0	0	0	0	0	5	4	0	0	0	10	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**8**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008

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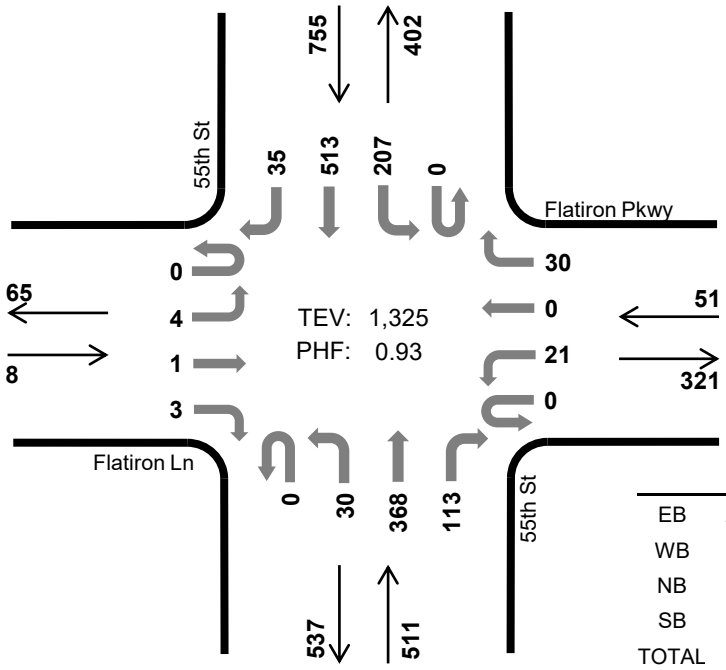
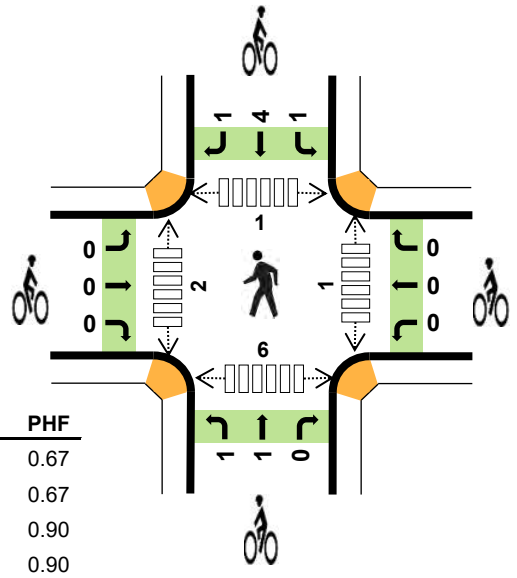
55th St
Flatiron Ln

Peak Hour

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	25.0%	0.67
WB	9.8%	0.67
NB	2.7%	0.90
SB	2.5%	0.90
TOTAL	3.0%	0.93

Two-Hour Count Summaries

Interval Start	Flatiron Ln Eastbound				Flatiron Pkwy Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	1	0	6	0	6	40	23	0	27	71	4	179	0
7:15 AM	0	0	0	0	0	2	0	5	0	2	47	18	0	36	75	3	188	0
7:30 AM	0	0	0	1	0	1	0	4	0	7	72	29	1	40	100	3	258	0
7:45 AM	0	1	0	0	0	6	0	5	0	6	88	25	1	42	119	7	300	925
8:00 AM	**0**	**1**	**1**	**1**	**0**	**2**	**0**	**8**	**0**	**6**	**81**	**23**	**0**	**46**	**128**	**13**	**310**	1,056
8:15 AM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**8**	**0**	**7**	**101**	**27**	**0**	**44**	**120**	**10**	**322**	1,190
8:30 AM	**0**	**2**	**0**	**1**	**0**	**5**	**0**	**4**	**0**	**8**	**100**	**34**	**0**	**55**	**124**	**5**	**338**	1,270
8:45 AM	**0**	**1**	**0**	**1**	**0**	**9**	**0**	**10**	**0**	**9**	**86**	**29**	**0**	**62**	**141**	**7**	**355**	**1,325**
Count Total	0	5	1	5	0	31	0	50	0	51	615	208	2	352	878	52	2,250	0
Peak Hour All	**0**	**4**	**1**	**3**	**0**	**21**	**0**	**30**	**0**	**30**	**368**	**113**	**0**	**207**	**513**	**35**	**1,325**	**0**
Peak Hour HV	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**3**	**0**	**1**	**11**	**2**	**0**	**4**	**14**	**1**	**40**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**67%**	**-**	**10%**	**-**	**10%**	**-**	**3%**	**3%**	**2%**	**-**	**2%**	**3%**	**3%**	**3%**	**0**

Note: Two-hour count summary volumes 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	East	West	North	South	Total
7:00 AM	0	1	2	2	*5*	0	0	0	1	*1*	0	0	0	1	*1*
7:15 AM	0	0	2	1	*3*	0	0	1	0	*1*	0	1	0	0	*1*
7:30 AM	0	0	0	4	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	0	0	3	3	*6*	0	0	0	1	*1*	0	0	0	0	*0*
8:00 AM	**0**	**1**	**3**	**4**	***8***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**2**	**2**	**4**	***8***	**0**	**0**	**1**	**2**	***3***	**1**	**0**	**0**	**1**	*2*
8:30 AM	**1**	**0**	**4**	**8**	***13***	**0**	**0**	**0**	**2**	***2***	**0**	**1**	**1**	**5**	*7*
8:45 AM	**1**	**2**	**5**	**3**	***11***	**0**	**0**	**0**	**2**	***2***	**0**	**1**	**0**	**0**	***1***
Count Total	2	6	21	29	*58*	0	0	3	8	*11*	1	3	1	7	*12*
Peak Hour	**2**	**5**	**14**	**19**	***40***	**0**	**0**	**2**	**6**	***8***	**1**	**2**	**1**	**6**	***10***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Flatiron Ln Eastbound				Flatiron Pkwy Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	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	1	0	0	2	0	0	0	2	0	5	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	4	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	2	1	0	1	2	0	6	18
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**1**	**3**	**0**	**8**	21
8:15 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**1**	**1**	**8**	26
8:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**7**	**0**	**13**	35
8:45 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**1**	**0**	**0**	**3**	**0**	**11**	**40**
Count Total	0	0	0	2	0	2	0	4	0	1	17	3	0	6	22	1	58	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**3**	**0**	**1**	**11**	**2**	**0**	**4**	**14**	**1**	**40**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Flatiron Ln Eastbound			Flatiron Pkwy Westbound			55th St Northbound			55th St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:30 AM	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	1	1	3
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	3
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**3**	5
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	7
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**8**
Count Total	0	0	0	0	0	0	1	2	0	1	5	2	11	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**4**	**1**	**8**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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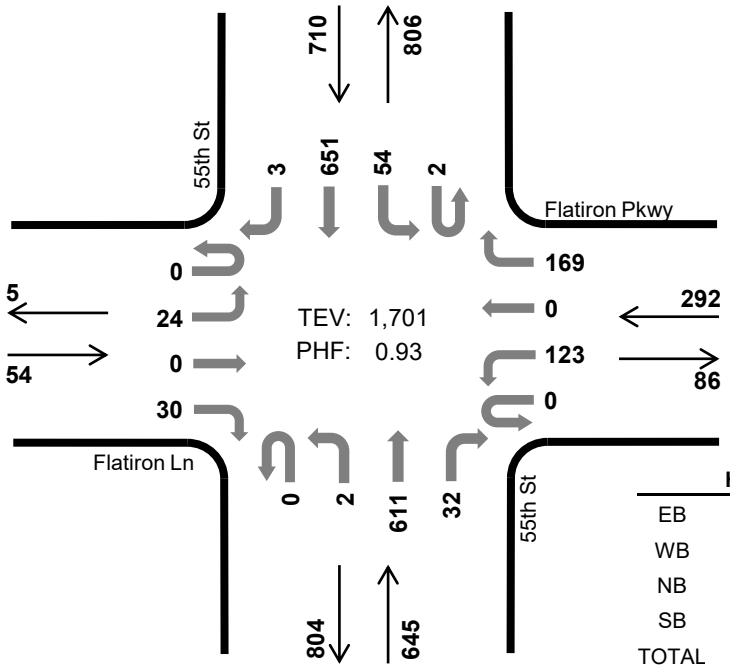
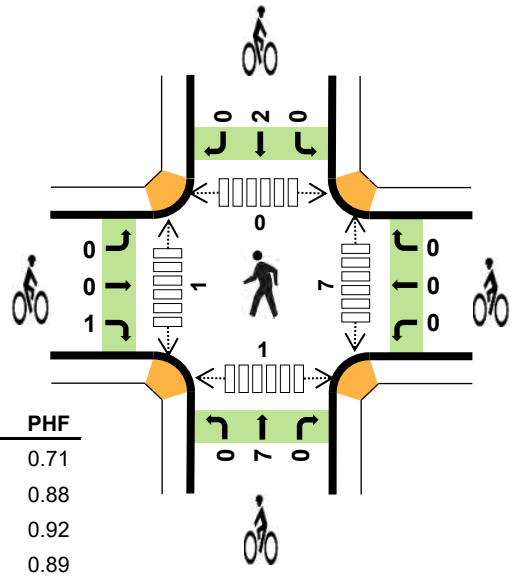
55th St
Flatiron Ln

Peak Hour

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



	HV %:	PHF
EB	0.0%	0.71
WB	0.7%	0.88
NB	2.0%	0.92
SB	1.5%	0.89
TOTAL	1.5%	0.93



Two-Hour Count Summaries

Interval Start	Flatiron Ln Eastbound UT	LT	TH	RT	Flatiron Pkwy Westbound UT	LT	TH	RT	55th St Northbound UT	LT	TH	RT	55th St Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	7	1	4	0	27	0	38	1	2	146	3	1	13	143	2	388	0
4:15 PM	**0**	**4**	**0**	**5**	**0**	**35**	**0**	**38**	**0**	**0**	**167**	**8**	**0**	**17**	**182**	**1**	**457**	0
4:30 PM	**0**	**5**	**0**	**9**	**0**	**37**	**0**	**43**	**0**	**2**	**156**	**9**	**2**	**12**	**165**	**2**	**442**	0
4:45 PM	**0**	**5**	**0**	**7**	**0**	**19**	**0**	**37**	**0**	**0**	**133**	**8**	**0**	**15**	**153**	**0**	**377**	1,664
5:00 PM	**0**	**10**	**0**	**9**	**0**	**32**	**0**	**51**	**0**	**0**	**155**	**7**	**0**	**10**	**151**	**0**	**425**	**1,701**
5:15 PM	0	6	0	7	0	30	0	30	0	0	135	4	1	9	121	0	343	1,587
5:30 PM	0	0	0	11	0	28	0	38	0	0	89	2	1	10	122	1	302	1,447
5:45 PM	0	4	0	5	0	29	0	34	0	0	92	3	0	8	80	0	255	1,325
Count Total	0	41	1	57	0	237	0	309	1	4	1,073	44	5	94	1,117	6	2,989	0
Peak Hour All	**0**	**24**	**0**	**30**	**0**	**123**	**0**	**169**	**0**	**2**	**611**	**32**	**2**	**54**	**651**	**3**	**1,701**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**13**	**0**	**0**	**2**	**9**	**0**	**26**	**0**
Peak Hour HV%	**-**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**1%**	**-**	**0%**	**2%**	**0%**	**0%**	**4%**	**1%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	1	1	2	4	*8*	0	0	0	0	*0*	0	0	0	1	*1*
4:15 PM	**0**	**0**	**3**	**5**	***8***	**0**	**0**	**2**	**1**	***3***	**1**	**0**	**0**	**0**	*1*
4:30 PM	**0**	**0**	**2**	**3**	***5***	**0**	**0**	**0**	**0**	***0***	**4**	**0**	**0**	**1**	*5*
4:45 PM	**0**	**1**	**4**	**2**	***7***	**0**	**0**	**3**	**1**	***4***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**1**	**4**	**1**	***6***	**1**	**0**	**2**	**0**	***3***	**2**	**1**	**0**	**0**	***3***
5:15 PM	0	0	1	0	*1*	0	0	1	0	*1*	0	0	0	0	*0*
5:30 PM	0	0	2	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	4	0	*4*	0	0	0	2	*2*	0	0	0	0	*0*
Count Total	1	3	22	16	*42*	1	0	8	4	*13*	7	1	0	2	*10*
Peak Hour	**0**	**2**	**13**	**11**	***26***	**1**	**0**	**7**	**2**	***10***	**7**	**1**	**0**	**1**	***9***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Flatiron Ln Eastbound				Flatiron Pkwy Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	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	1	0	0	2	0	0	1	2	1	8	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**4**	**0**	**8**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**2**	**0**	**5**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**7**	28
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**6**	**26**
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	19
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	17
5:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	14
Count Total	0	0	1	0	0	0	0	3	0	0	22	0	0	3	12	1	42	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**13**	**0**	**0**	**2**	**9**	**0**	**26**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Flatiron Ln Eastbound			Flatiron Pkwy Westbound			55th St Northbound			55th St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	7
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**3**	**10**
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	8
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	6
Count Total	0	0	1	0	0	0	0	8	0	0	4	0	13	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**2**	**0**	**10**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008

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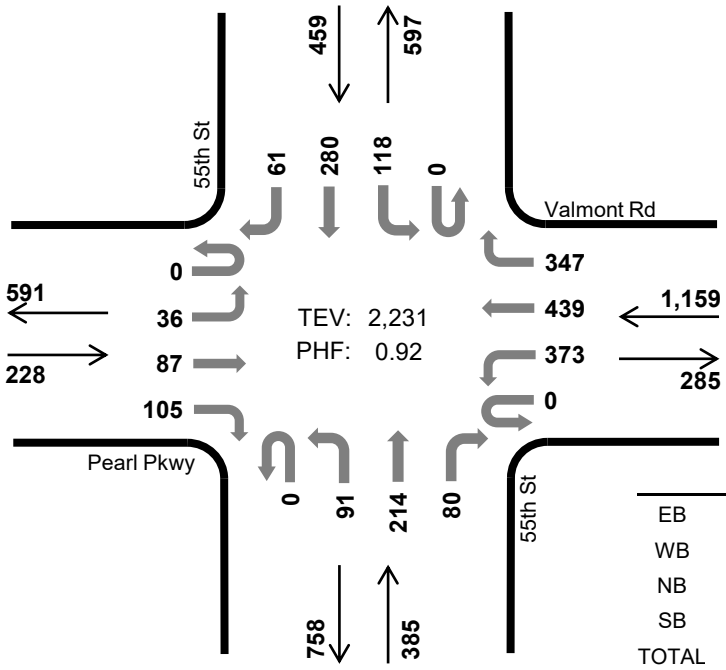
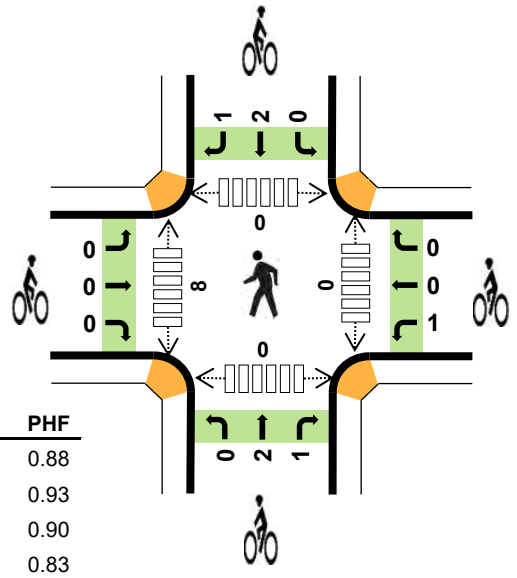
55th St
Pearl Pkwy

Peak Hour

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	7.0%	0.88
WB	4.7%	0.93
NB	3.9%	0.90
SB	3.9%	0.83
TOTAL	4.6%	0.92

Two-Hour Count Summaries

Interval Start	Pearl Pkwy Eastbound				Valmont Rd Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	10	12	0	43	35	27	0	7	28	10	1	15	50	8	249	0
7:15 AM	0	7	19	11	0	65	58	51	0	7	29	11	0	22	43	13	336	0
7:30 AM	0	7	18	10	0	66	76	72	0	17	33	19	0	24	67	17	426	0
7:45 AM	0	3	17	24	0	72	127	85	0	23	48	24	0	28	78	22	551	1,562
8:00 AM	**0**	**9**	**23**	**23**	**0**	**107**	**94**	**91**	**0**	**23**	**42**	**17**	**0**	**31**	**52**	**11**	**523**	1,836
8:15 AM	**0**	**10**	**20**	**25**	**0**	**91**	**126**	**89**	**0**	**26**	**63**	**18**	**0**	**39**	**69**	**14**	**590**	2,090
8:30 AM	**0**	**7**	**24**	**34**	**0**	**74**	**98**	**77**	**0**	**20**	**51**	**25**	**0**	**18**	**72**	**15**	**515**	2,179
8:45 AM	**0**	**10**	**20**	**23**	**0**	**101**	**121**	**90**	**0**	**22**	**58**	**20**	**0**	**30**	**87**	**21**	**603**	**2,231**
Count Total	0	56	151	162	0	619	735	582	0	145	352	144	1	207	518	121	3,793	0
Peak Hour All	**0**	**36**	**87**	**105**	**0**	**373**	**439**	**347**	**0**	**91**	**214**	**80**	**0**	**118**	**280**	**61**	**2,231**	**0**
Peak Hour HV	**0**	**0**	**11**	**5**	**0**	**8**	**28**	**18**	**0**	**3**	**8**	**4**	**0**	**10**	**6**	**2**	**103**	**0**
Peak Hour HV%	**-**	**0%**	**13%**	**5%**	**-**	**2%**	**6%**	**5%**	**-**	**3%**	**4%**	**5%**	**-**	**8%**	**2%**	**3%**	**5%**	**0**

Note: Two-hour count summary volumes 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	East	West	North	South	Total
7:00 AM	1	5	3	0	*9*	0	0	0	0	*0*	1	1	0	0	*2*
7:15 AM	4	12	3	5	*24*	0	1	0	0	*1*	0	0	0	0	*0*
7:30 AM	3	19	0	4	*26*	0	0	0	0	*0*	1	1	0	0	*2*
7:45 AM	5	15	6	4	*30*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	**4**	**14**	**3**	**2**	***23***	**0**	**1**	**0**	**2**	***3***	**0**	**2**	**0**	**0**	*2*
8:15 AM	**2**	**15**	**2**	**8**	***27***	**0**	**0**	**2**	**0**	***2***	**0**	**3**	**0**	**0**	*3*
8:30 AM	**7**	**12**	**4**	**4**	***27***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	*2*
8:45 AM	**3**	**13**	**6**	**4**	***26***	**0**	**0**	**1**	**1**	***2***	**0**	**1**	**0**	**0**	***1***
Count Total	29	105	27	31	*192*	0	2	3	3	*8*	2	10	0	0	*12*
Peak Hour	**16**	**54**	**15**	**18**	***103***	**0**	**1**	**3**	**3**	***7***	**0**	**8**	**0**	**0**	***8***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pearl Pkwy Eastbound				Valmont Rd Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	1	4	0	0	1	1	1	0	0	0	0	9	0
7:15 AM	0	0	4	0	0	0	7	5	0	1	2	0	0	1	1	3	24	0
7:30 AM	0	1	2	0	0	3	8	8	0	0	0	0	0	2	2	0	26	0
7:45 AM	0	0	3	2	0	0	7	8	0	1	5	0	0	3	0	1	30	89
8:00 AM	**0**	**0**	**3**	**1**	**0**	**2**	**5**	**7**	**0**	**1**	**2**	**0**	**0**	**1**	**1**	**0**	**23**	103
8:15 AM	**0**	**0**	**1**	**1**	**0**	**2**	**9**	**4**	**0**	**0**	**1**	**1**	**0**	**5**	**1**	**2**	**27**	106
8:30 AM	**0**	**0**	**5**	**2**	**0**	**3**	**4**	**5**	**0**	**1**	**2**	**1**	**0**	**2**	**2**	**0**	**27**	107
8:45 AM	**0**	**0**	**2**	**1**	**0**	**1**	**10**	**2**	**0**	**1**	**3**	**2**	**0**	**2**	**2**	**0**	**26**	**103**
Count Total	0	1	20	8	0	12	54	39	0	6	16	5	0	16	9	6	192	0
Peak Hour	**0**	**0**	**11**	**5**	**0**	**8**	**28**	**18**	**0**	**3**	**8**	**4**	**0**	**10**	**6**	**2**	**103**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Pearl Pkwy Eastbound			Valmont Rd Westbound			55th St Northbound			55th St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0
7:30 AM	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	1
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**3**	4
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	5
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	5
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**7**
Count Total	0	0	0	2	0	0	0	2	1	0	2	1	8	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**1**	**0**	**2**	**1**	**7**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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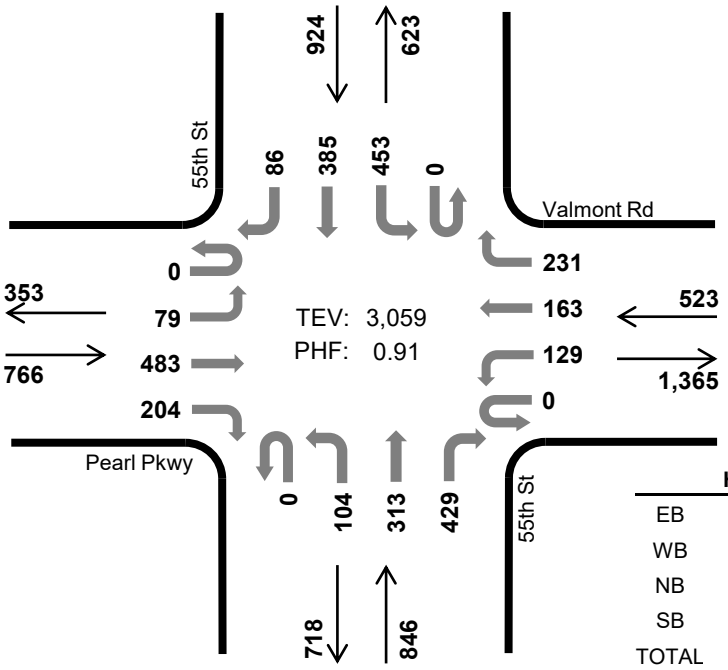
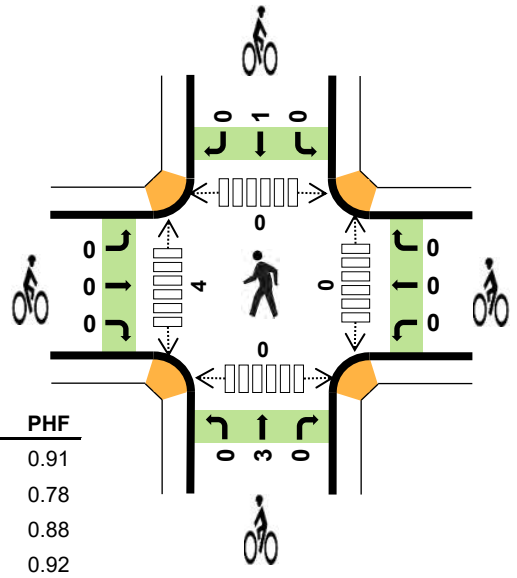
55th St
Pearl Pkwy

Peak Hour

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	2.5%	0.91
WB	2.7%	0.78
NB	2.1%	0.88
SB	3.2%	0.92
TOTAL	2.6%	0.91

Two-Hour Count Summaries

Interval Start	Pearl Pkwy Eastbound				Valmont Rd Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	17	112	48	0	25	46	49	0	30	68	118	0	88	96	17	714	0
4:15 PM	**0**	**28**	**118**	**63**	**0**	**36**	**50**	**82**	**0**	**32**	**81**	**103**	**0**	**124**	**98**	**28**	**843**	0
4:30 PM	**0**	**14**	**91**	**53**	**0**	**28**	**34**	**45**	**0**	**23**	**76**	**116**	**0**	**122**	**99**	**20**	**721**	0
4:45 PM	**0**	**20**	**122**	**47**	**0**	**30**	**38**	**60**	**0**	**18**	**70**	**86**	**0**	**89**	**93**	**22**	**695**	2,973
5:00 PM	**0**	**17**	**152**	**41**	**0**	**35**	**41**	**44**	**0**	**31**	**86**	**124**	**0**	**118**	**95**	**16**	**800**	**3,059**
5:15 PM	0	14	109	29	0	24	43	35	0	22	85	81	0	86	78	23	629	2,845
5:30 PM	0	12	86	32	0	36	30	50	0	19	52	67	0	51	59	15	509	2,633
5:45 PM	1	12	70	20	0	19	32	51	0	20	58	57	0	45	50	11	446	2,384
Count Total	1	134	860	333	0	233	314	416	0	195	576	752	0	723	668	152	5,357	0
Peak Hour All	**0**	**79**	**483**	**204**	**0**	**129**	**163**	**231**	**0**	**104**	**313**	**429**	**0**	**453**	**385**	**86**	**3,059**	**0**
Peak Hour HV	**0**	**2**	**14**	**3**	**0**	**2**	**7**	**5**	**0**	**3**	**4**	**11**	**0**	**22**	**5**	**3**	**81**	**0**
Peak Hour HV%	**-**	**3%**	**3%**	**1%**	**-**	**2%**	**4%**	**2%**	**-**	**3%**	**1%**	**3%**	**-**	**5%**	**1%**	**3%**	**3%**	**0**

Note: Two-hour count summary volumes 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	East	West	North	South	Total
4:00 PM	6	5	2	6	*19*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	**5**	**4**	**4**	**11**	***24***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**4**	**6**	**4**	**10**	***24***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	*2*
4:45 PM	**5**	**2**	**6**	**6**	***19***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**5**	**2**	**4**	**3**	***14***	**0**	**0**	**1**	**0**	***1***	**0**	**2**	**0**	**0**	***2***
5:15 PM	2	1	1	2	*6*	0	0	1	0	*1*	0	1	0	0	*1*
5:30 PM	2	0	2	3	*7*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	2	1	4	1	*8*	0	0	0	1	*1*	1	1	0	0	*2*
Count Total	31	21	27	42	*121*	0	0	4	2	*6*	1	6	0	0	*7*
Peak Hour	**19**	**14**	**18**	**30**	***81***	**0**	**0**	**3**	**1**	***4***	**0**	**4**	**0**	**0**	***4***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pearl Pkwy Eastbound				Valmont Rd Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	3	0	0	3	2	0	0	0	2	0	4	2	0	19	0
4:15 PM	**0**	**1**	**3**	**1**	**0**	**1**	**1**	**2**	**0**	**0**	**1**	**3**	**0**	**9**	**2**	**0**	**24**	0
4:30 PM	**0**	**0**	**3**	**1**	**0**	**0**	**4**	**2**	**0**	**0**	**1**	**3**	**0**	**6**	**2**	**2**	**24**	0
4:45 PM	**0**	**1**	**3**	**1**	**0**	**1**	**1**	**0**	**0**	**1**	**2**	**3**	**0**	**6**	**0**	**0**	**19**	86
5:00 PM	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	**0**	**2**	**0**	**1**	**1**	**1**	**14**	**81**
5:15 PM	0	1	1	0	0	0	1	0	0	0	0	1	0	2	0	0	6	63
5:30 PM	0	0	2	0	0	0	0	0	0	0	1	1	0	2	1	0	7	46
5:45 PM	0	0	2	0	0	0	0	1	0	1	1	2	0	1	0	0	8	35
Count Total	0	3	22	6	0	2	11	8	0	4	6	17	0	31	8	3	121	0
Peak Hour	**0**	**2**	**14**	**3**	**0**	**2**	**7**	**5**	**0**	**3**	**4**	**11**	**0**	**22**	**5**	**3**	**81**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Pearl Pkwy Eastbound			Valmont Rd Westbound			55th St Northbound			55th St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	3
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**4**
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Count Total	0	0	0	0	0	0	0	4	0	0	2	0	6	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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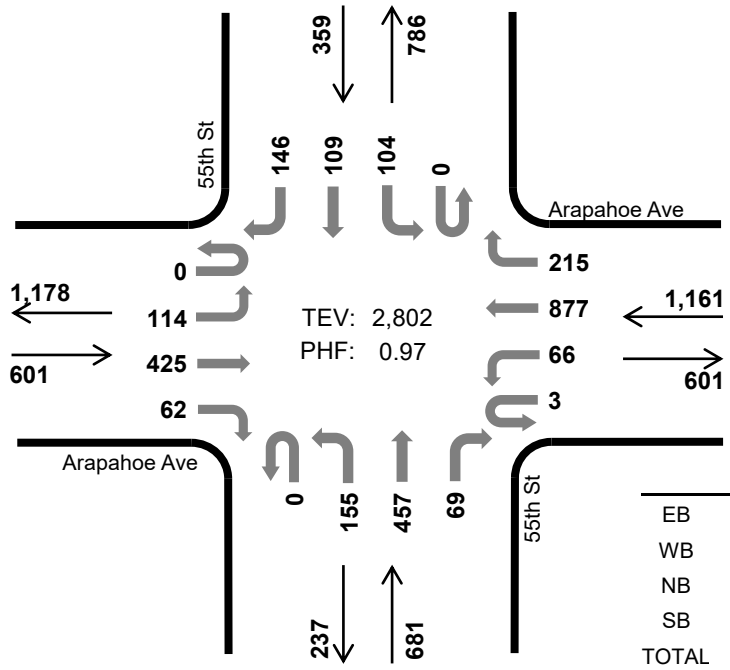
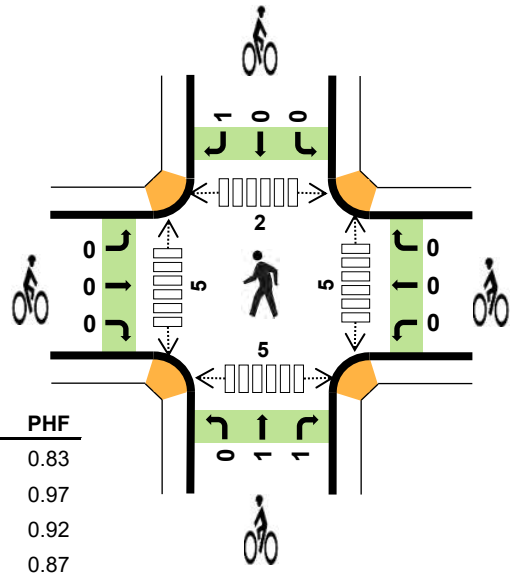
55th St
Arapahoe Ave

Peak Hour

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	6.0%	0.83
WB	4.3%	0.97
NB	1.3%	0.92
SB	7.2%	0.87
TOTAL	4.3%	0.97



Two-Hour Count Summaries

Interval Start	Arapahoe Ave Eastbound				Arapahoe Ave Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	1	19	71	6	0	5	98	32	0	10	66	17	0	24	13	13	375	0
7:15 AM	0	21	79	7	0	12	149	41	0	17	79	8	0	19	13	22	467	0
7:30 AM	0	22	86	9	0	10	171	43	0	20	101	18	0	16	14	26	536	0
7:45 AM	0	21	101	9	0	19	199	61	0	37	115	18	0	27	21	19	647	2,025
8:00 AM	**0**	**29**	**92**	**15**	**0**	**16**	**214**	**64**	**0**	**44**	**100**	**21**	**0**	**22**	**32**	**38**	**687**	2,337
8:15 AM	**0**	**29**	**99**	**20**	**1**	**23**	**211**	**57**	**0**	**30**	**116**	**13**	**0**	**26**	**19**	**31**	**675**	2,545
8:30 AM	**0**	**26**	**94**	**16**	**2**	**16**	**236**	**46**	**0**	**32**	**138**	**16**	**0**	**28**	**35**	**40**	**725**	2,734
8:45 AM	**0**	**30**	**140**	**11**	**0**	**11**	**216**	**48**	**0**	**49**	**103**	**19**	**0**	**28**	**23**	**37**	**715**	**2,802**
Count Total	1	197	762	93	3	112	1,494	392	0	239	818	130	0	190	170	226	4,827	0
Peak Hour All	**0**	**114**	**425**	**62**	**3**	**66**	**877**	**215**	**0**	**155**	**457**	**69**	**0**	**104**	**109**	**146**	**2,802**	**0**
Peak Hour HV	**0**	**9**	**26**	**1**	**1**	**5**	**35**	**9**	**0**	**1**	**5**	**3**	**0**	**7**	**7**	**12**	**121**	**0**
Peak Hour HV%	**-**	**8%**	**6%**	**2%**	**33%**	**8%**	**4%**	**4%**	**-**	**1%**	**1%**	**4%**	**-**	**7%**	**6%**	**8%**	**4%**	**0**

Note: Two-hour count summary volumes 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	East	West	North	South	Total
7:00 AM	8	4	1	2	*15*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	7	10	2	1	*20*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	7	11	2	3	*23*	0	0	0	0	*0*	3	2	0	1	*6*
7:45 AM	7	11	4	4	*26*	0	0	0	0	*0*	0	2	0	1	*3*
8:00 AM	**7**	**18**	**1**	**6**	***32***	**0**	**0**	**0**	**0**	***0***	**1**	**2**	**0**	**0**	*3*
8:15 AM	**10**	**5**	**3**	**8**	***26***	**0**	**0**	**1**	**0**	***1***	**0**	**2**	**0**	**2**	*4*
8:30 AM	**8**	**10**	**2**	**7**	***27***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**0**	**0**	*2*
8:45 AM	**11**	**17**	**3**	**5**	***36***	**0**	**0**	**1**	**1**	***2***	**3**	**0**	**2**	**3**	***8***
Count Total	65	86	18	36	*205*	0	0	2	1	*3*	8	9	2	7	*26*
Peak Hour	**36**	**50**	**9**	**26**	***121***	**0**	**0**	**2**	**1**	***3***	**5**	**5**	**2**	**5**	***17***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Arapahoe Ave Eastbound				Arapahoe Ave Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	5	0	0	0	3	1	0	0	0	1	0	1	1	0	15	0
7:15 AM	0	2	5	0	0	3	5	2	0	1	1	0	0	1	0	0	20	0
7:30 AM	0	3	4	0	0	2	9	0	0	1	0	1	0	0	1	2	23	0
7:45 AM	0	1	5	1	0	2	7	2	0	2	2	0	0	2	0	2	26	84
8:00 AM	**0**	**1**	**6**	**0**	**0**	**2**	**12**	**4**	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**3**	**32**	101
8:15 AM	**0**	**3**	**7**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**2**	**1**	**0**	**2**	**0**	**6**	**26**	107
8:30 AM	**0**	**3**	**5**	**0**	**1**	**1**	**7**	**1**	**0**	**0**	**0**	**2**	**0**	**3**	**2**	**2**	**27**	111
8:45 AM	**0**	**2**	**8**	**1**	**0**	**2**	**11**	**4**	**0**	**1**	**2**	**0**	**0**	**1**	**3**	**1**	**36**	**121**
Count Total	0	18	45	2	1	12	59	14	0	5	8	5	0	11	9	16	205	0
Peak Hour	**0**	**9**	**26**	**1**	**1**	**5**	**35**	**9**	**0**	**1**	**5**	**3**	**0**	**7**	**7**	**12**	**121**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Arapahoe Ave Eastbound			Arapahoe Ave Westbound			55th St Northbound			55th St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	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
7:30 AM	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
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**3**
Count Total	0	0	0	0	0	0	0	1	1	0	0	1	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**3**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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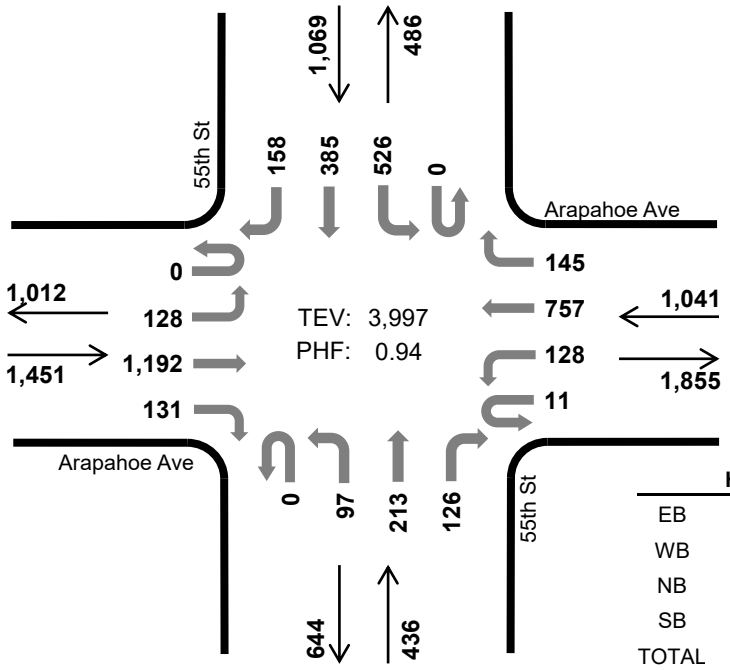
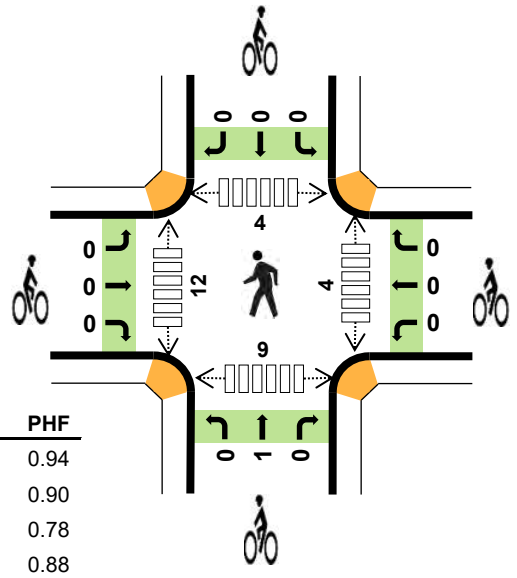
55th St
Arapahoe Ave

Peak Hour

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	1.7%	0.94
WB	1.7%	0.90
NB	3.2%	0.78
SB	1.0%	0.88
TOTAL	1.7%	0.94

Two-Hour Count Summaries

Interval Start	Arapahoe Ave Eastbound				Arapahoe Ave Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	2	13	198	14	3	24	190	40	0	23	55	69	0	111	83	40	865	0
4:15 PM	**0**	**26**	**304**	**20**	**6**	**23**	**205**	**46**	**0**	**20**	**53**	**37**	**0**	**155**	**73**	**42**	**1,010**	0
4:30 PM	**0**	**33**	**298**	**30**	**3**	**31**	**183**	**39**	**0**	**32**	**63**	**45**	**0**	**165**	**106**	**32**	**1,060**	0
4:45 PM	**0**	**34**	**313**	**38**	**0**	**27**	**168**	**21**	**0**	**25**	**37**	**16**	**0**	**108**	**87**	**42**	**916**	3,851
5:00 PM	**0**	**35**	**277**	**43**	**2**	**47**	**201**	**39**	**0**	**20**	**60**	**28**	**0**	**98**	**119**	**42**	**1,011**	**3,997**
5:15 PM	0	27	341	70	2	28	181	45	0	17	49	24	0	83	99	35	1,001	3,988
5:30 PM	1	19	275	40	3	32	169	24	0	9	37	21	0	77	110	30	847	3,775
5:45 PM	1	31	243	47	0	28	161	24	0	13	37	13	0	63	74	25	760	3,619
Count Total	4	218	2,249	302	19	240	1,458	278	0	159	391	253	0	860	751	288	7,470	0
Peak Hour All	**0**	**128**	**1,192**	**131**	**11**	**128**	**757**	**145**	**0**	**97**	**213**	**126**	**0**	**526**	**385**	**158**	**3,997**	**0**
Peak Hour HV	**0**	**5**	**19**	**1**	**0**	**1**	**16**	**1**	**0**	**0**	**7**	**7**	**0**	**5**	**2**	**4**	**68**	**0**
Peak Hour HV%	**-**	**4%**	**2%**	**1%**	**0%**	**1%**	**2%**	**1%**	**-**	**0%**	**3%**	**6%**	**-**	**1%**	**1%**	**3%**	**2%**	**0**

Note: Two-hour count summary volumes 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	East	West	North	South	Total
4:00 PM	4	3	4	1	*12*	0	0	1	0	*1*	1	1	0	2	*4*
4:15 PM	**7**	**3**	**4**	**4**	***18***	**0**	**0**	**1**	**0**	***1***	**0**	**2**	**1**	**3**	*6*
4:30 PM	**5**	**4**	**4**	**4**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**2**	**1**	*5*
4:45 PM	**10**	**6**	**2**	**2**	***20***	**0**	**0**	**0**	**0**	***0***	**4**	**5**	**0**	**4**	*13*
5:00 PM	**3**	**5**	**4**	**1**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**1**	**1**	***5***
5:15 PM	5	3	6	1	*15*	0	0	0	0	*0*	0	1	1	1	*3*
5:30 PM	11	4	2	1	*18*	0	0	0	0	*0*	0	1	2	0	*3*
5:45 PM	5	5	1	1	*12*	0	0	0	0	*0*	1	2	2	1	*6*
Count Total	50	33	27	15	*125*	0	0	2	0	*2*	6	17	9	13	*45*
Peak Hour	**25**	**18**	**14**	**11**	***68***	**0**	**0**	**1**	**0**	***1***	**4**	**12**	**4**	**9**	***29***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Arapahoe Ave Eastbound				Arapahoe Ave Westbound				55th St Northbound				55th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	2	0	2	0	0	0	3	0	0	0	2	2	0	1	0	0	12	0
4:15 PM	**0**	**1**	**6**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**2**	**2**	**0**	**1**	**1**	**2**	**18**	0
4:30 PM	**0**	**0**	**4**	**1**	**0**	**0**	**3**	**1**	**0**	**0**	**1**	**3**	**0**	**2**	**1**	**1**	**17**	0
4:45 PM	**0**	**4**	**6**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**1**	**20**	67
5:00 PM	**0**	**0**	**3**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**3**	**1**	**0**	**1**	**0**	**0**	**13**	**68**
5:15 PM	0	0	5	0	0	0	3	0	0	0	2	4	0	0	0	1	15	65
5:30 PM	0	1	10	0	0	0	3	1	0	0	2	0	0	1	0	0	18	66
5:45 PM	0	2	3	0	0	0	5	0	0	0	1	0	0	0	0	1	12	58
Count Total	2	8	39	1	0	1	30	2	0	0	14	13	0	7	2	6	125	0
Peak Hour	**0**	**5**	**19**	**1**	**0**	**1**	**16**	**1**	**0**	**0**	**7**	**7**	**0**	**5**	**2**	**4**	**68**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Arapahoe Ave Eastbound			Arapahoe Ave Westbound			55th St Northbound			55th St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**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**	2
5:00 PM	**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
5:30 PM	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
Count Total	0	0	0	0	0	0	0	1	1	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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Intersection Capacity Worksheets: Existing

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	101	17	6	22	1	2
Future Vol, veh/h	101	17	6	22	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	70	70	75	75
Heavy Vehicles, %	7	7	18	18	1	1
Mvmt Flow	120	20	9	31	1	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	140	0	179	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	-	-	4.28	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.362	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1351	-	813	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1351	-	807	922
Mov Cap-2 Maneuver	-	-	-	-	807	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	969	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	880	-	-	1351	-
HCM Lane V/C Ratio	0.005	-	-	0.006	-
HCM Control Delay (s)	9.1	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	0	30	0	17	605	48	386
Future Volume (vph)	4	0	30	0	17	605	48	386
Lane Group Flow (vph)	8	16	34	14	18	807	51	415
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		8		4		6	5	2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	9.0	29.9
Total Split (s)	27.0	27.0	27.0	27.0	48.0	48.0	15.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	53.3%	53.3%	16.7%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.0	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.08	0.03	0.30	0.03	0.02	0.29	0.09	0.13
Control Delay	37.5	0.1	44.0	0.1	4.5	4.0	4.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	0.1	44.0	0.1	4.5	4.0	4.2	3.5
Queue Length 50th (ft)	4	0	18	0	3	69	9	40
Queue Length 95th (ft)	10	0	45	0	10	113	22	60
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	290	696	318	635	767	2787	642	3083
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.02	0.11	0.02	0.02	0.29	0.08	0.13

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: 55th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	8	30	0	12	17	605	153	48	386	9
Future Volume (veh/h)	4	0	8	30	0	12	17	605	153	48	386	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1693	1693	1693	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	8	0	16	34	0	14	18	644	163	51	406	9
Peak Hour Factor	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	25	25	25	14	14	14	3	3	3	3	3	3
Cap, veh/h	143	0	83	146	0	92	812	2116	535	608	2986	66
Arrive On Green	0.06	0.00	0.05	0.06	0.00	0.05	0.76	0.76	0.74	0.09	1.00	1.00
Sat Flow, veh/h	1145	0	1296	1264	0	1434	964	2787	705	1767	3526	78
Grp Volume(v), veh/h	8	0	16	34	0	14	18	407	400	51	203	212
Grp Sat Flow(s),veh/h/ln	1145	0	1296	1264	0	1434	964	1763	1729	1767	1763	1841
Q Serve(g_s), s	0.6	0.0	1.1	2.4	0.0	0.8	0.4	6.5	6.7	0.5	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	1.1	3.4	0.0	0.8	0.4	6.5	6.7	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.04
Lane Grp Cap(c), veh/h	143	0	83	146	0	92	812	1339	1313	608	1493	1560
V/C Ratio(X)	0.06	0.00	0.19	0.23	0.00	0.15	0.02	0.30	0.30	0.08	0.14	0.14
Avail Cap(c_a), veh/h	362	0	331	388	0	367	812	1339	1313	748	1493	1560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	0.99	0.99	0.99
Uniform Delay (d), s/veh	40.5	0.0	40.5	41.5	0.0	40.4	2.7	3.4	3.5	2.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.3	0.0	0.3	0.0	0.5	0.5	0.0	0.2	0.2
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(50%),veh/ln	0.2	0.0	0.3	0.7	0.0	0.3	0.1	1.6	1.6	0.1	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	40.9	41.8	0.0	40.6	2.7	3.9	4.0	2.0	0.2	0.2
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		24			48			825			466	
Approach Delay, s/veh		40.8			41.5			3.9			0.4	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		80.2		9.8	7.9	72.3		9.8				
Change Period (Y+Rc), s		5.9		* 5.2	5.0	5.9		* 5.2				
Max Green Setting (Gmax), s		57.1		* 22	10.0	42.1		* 22				
Max Q Clear Time (g_c+I1), s		2.0		5.4	2.5	8.7		3.4				
Green Ext Time (p_c), s		1.6		0.1	0.0	3.6		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	4.7	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1	21	30	30	368	207	513
Future Volume (vph)	4	1	21	30	30	368	207	513
Lane Group Flow (vph)	6	5	31	45	33	535	230	609
Turn Type	Perm	NA	Perm	Perm	Perm	NA	pm+pt	NA
Protected Phases		8				6	5	2
Permitted Phases	8		4	4	6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.2	24.2	24.2	24.2	23.8	23.8	9.0	23.8
Total Split (s)	25.0	25.0	25.0	25.0	45.0	45.0	20.0	65.0
Total Split (%)	27.8%	27.8%	27.8%	27.8%	50.0%	50.0%	22.2%	72.2%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.0	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.06	0.04	0.27	0.07	0.06	0.22	0.31	0.20
Control Delay	37.5	25.7	43.4	0.2	4.9	3.9	1.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	25.7	43.4	0.2	4.9	3.9	1.9	0.6
Queue Length 50th (ft)	3	1	17	0	5	30	2	2
Queue Length 95th (ft)	11	8	32	0	13	42	9	10
Internal Link Dist (ft)		68				1445		1323
Turn Bay Length (ft)			430	430	100		130	
Base Capacity (vph)	268	315	303	762	561	2461	835	2991
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.10	0.06	0.06	0.22	0.28	0.20

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: 55th St. & Flatiron Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	3	21	0	30	30	368	113	207	513	35
Future Volume (veh/h)	4	1	3	21	0	30	30	368	113	207	513	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1752	1752	1752	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	6	1	4	31	0	0	33	409	126	230	570	39
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	25	25	10	10	10	3	3	3	2	2	2
Cap, veh/h	133	12	48	135	79		694	2029	619	801	2922	200
Arrive On Green	0.05	0.05	0.03	0.05	0.00	0.00	0.76	0.76	0.74	0.04	0.58	0.57
Sat Flow, veh/h	1159	267	1070	1322	1752	1485	806	2661	811	1781	3375	231
Grp Volume(v), veh/h	6	0	5	31	0	0	33	269	266	230	300	309
Grp Sat Flow(s),veh/h/ln	1159	0	1337	1322	1752	1485	806	1763	1710	1781	1777	1829
Q Serve(g_s), s	0.4	0.0	0.3	2.1	0.0	0.0	0.9	3.9	4.1	2.1	7.2	7.2
Cycle Q Clear(g_c), s	0.4	0.0	0.3	2.4	0.0	0.0	0.9	3.9	4.1	2.1	7.2	7.2
Prop In Lane	1.00		0.80	1.00		1.00	1.00		0.47	1.00		0.13
Lane Grp Cap(c), veh/h	133	0	61	135	79		694	1344	1304	801	1538	1583
V/C Ratio(X)	0.05	0.00	0.08	0.23	0.00		0.05	0.20	0.20	0.29	0.19	0.20
Avail Cap(c_a), veh/h	350	0	312	384	409		694	1344	1304	1013	1538	1583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.97	0.97	0.97	0.92	0.92	0.92
Uniform Delay (d), s/veh	41.2	0.0	41.6	42.3	0.0	0.0	2.6	3.0	3.1	1.7	4.0	4.1
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.3	0.0	0.0	0.1	0.3	0.3	0.1	0.3	0.3
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(50%),veh/ln	0.1	0.0	0.1	0.7	0.0	0.0	0.1	0.9	1.0	0.3	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	0.0	41.8	42.6	0.0	0.0	2.8	3.3	3.5	1.8	4.3	4.3
LnGrp LOS	D	A	D	D	A		A	A	A	A	A	A
Approach Vol, veh/h		11			31			568			839	
Approach Delay, s/veh		41.5			42.6			3.4			3.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		81.9		8.1	9.3	72.6		8.1				
Change Period (Y+Rc), s		* 5.8		* 5.2	5.0	* 5.8		* 5.2				
Max Green Setting (Gmax), s		* 59		* 20	15.0	* 39		* 20				
Max Q Clear Time (g_c+I1), s		9.2		4.4	4.1	6.1		2.4				
Green Ext Time (p_c), s		2.5		0.0	0.2	2.4		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	4.6	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

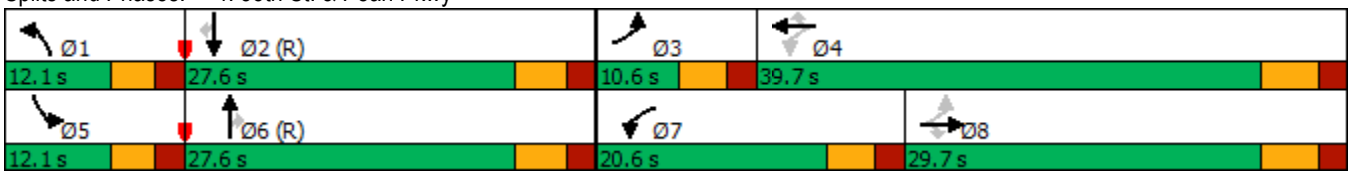
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

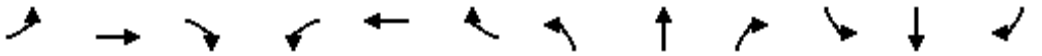
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	87	105	373	439	347	91	214	80	118	280	61
Future Volume (vph)	36	87	105	373	439	347	91	214	80	118	280	61
Lane Group Flow (vph)	41	99	119	401	472	373	101	238	89	142	337	73
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	10.6	29.7	29.7	20.6	39.7	39.7	12.1	27.6	27.6	12.1	27.6	27.6
Total Split (%)	11.8%	33.0%	33.0%	22.9%	44.1%	44.1%	13.4%	30.7%	30.7%	13.4%	30.7%	30.7%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.16	0.18	0.28	0.46	0.50	0.54	0.38	0.30	0.11	0.46	0.40	0.09
Control Delay	20.0	32.2	1.6	23.0	29.6	6.0	52.1	13.6	1.3	43.4	20.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	32.2	1.6	23.0	29.6	6.0	52.1	13.6	1.3	43.4	20.3	0.2
Queue Length 50th (ft)	15	25	0	86	126	0	31	60	0	40	127	0
Queue Length 95th (ft)	33	45	0	109	161	63	54	169	4	61	210	0
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	263	963	586	931	1363	835	312	781	791	333	840	834
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.10	0.20	0.43	0.35	0.45	0.32	0.30	0.11	0.43	0.40	0.09

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 4: 55th St. & Pearl Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	87	105	373	439	347	91	214	80	118	280	61
Future Volume (veh/h)	36	87	105	373	439	347	91	214	80	118	280	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	41	99	0	401	472	0	101	238	0	142	337	0
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.90	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	7	7	7	5	5	5	4	4	4	4	4	4
Cap, veh/h	236	451		856	780		200	890		246	914	
Arrive On Green	0.04	0.13	0.00	0.13	0.22	0.00	0.02	0.16	0.00	0.07	0.50	0.00
Sat Flow, veh/h	1711	3413	1522	3374	3469	1547	3401	1841	1560	3401	1841	1560
Grp Volume(v), veh/h	41	99	0	401	472	0	101	238	0	142	337	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1687	1735	1547	1700	1841	1560	1700	1841	1560
Q Serve(g_s), s	1.8	2.3	0.0	8.7	11.0	0.0	2.6	10.2	0.0	3.6	10.2	0.0
Cycle Q Clear(g_c), s	1.8	2.3	0.0	8.7	11.0	0.0	2.6	10.2	0.0	3.6	10.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	236	451		856	780		200	890		246	914	
V/C Ratio(X)	0.17	0.22		0.47	0.61		0.50	0.27		0.58	0.37	
Avail Cap(c_a), veh/h	290	975		1024	1376		306	890		306	914	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.99	0.99	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.1	34.9	0.0	26.5	31.3	0.0	42.8	23.8	0.0	40.4	14.0	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.1	0.8	0.0	0.7	0.7	0.0	0.8	1.1	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(50%),veh/ln	0.8	1.0	0.0	3.4	4.5	0.0	1.1	5.0	0.0	1.5	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	35.1	0.0	26.7	32.1	0.0	43.6	24.6	0.0	41.2	15.1	0.0
LnGrp LOS	C	D		C	C		D	C		D	B	
Approach Vol, veh/h		140			873			339			479	
Approach Delay, s/veh		34.3			29.6			30.2			22.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	48.7	7.8	24.2	10.5	47.5	16.1	15.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	7.1	22.0	* 5.4	33.8	7.1	22.0	* 15	23.8
Max Q Clear Time (g_c+I1), s	4.6	12.2	3.8	13.0	5.6	12.2	10.7	4.3
Green Ext Time (p_c), s	0.0	0.9	0.0	2.1	0.0	0.6	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	114	425	69	877	155	457	104	109	146
Future Volume (vph)	114	425	69	877	155	457	104	109	146
Lane Group Flow (vph)	137	587	71	1126	168	572	120	125	168
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	20.0	48.0	13.0	41.0	11.0	36.0	11.0	36.0	20.0
Total Split (%)	18.5%	44.4%	12.0%	38.0%	10.2%	33.3%	10.2%	33.3%	18.5%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.39	0.28	0.26	0.66	0.36	0.53	0.25	0.24	0.23
Control Delay	34.0	19.5	27.0	30.7	24.8	32.8	21.8	30.4	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	19.5	27.0	30.7	24.8	32.8	21.8	30.4	3.9
Queue Length 50th (ft)	59	91	33	228	76	168	26	66	10
Queue Length 95th (ft)	94	110	67	279	126	226	43	110	35
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	349	2115	285	1700	471	1072	508	526	743
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	0.39	0.28	0.25	0.66	0.36	0.53	0.24	0.24	0.23

Intersection Summary

Cycle Length: 108
Actuated Cycle Length: 108
Offset: 98 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: 55th St. & Arapahoe Rd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	425	62	69	877	215	155	457	69	104	109	146
Future Volume (veh/h)	114	425	62	69	877	215	155	457	69	104	109	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1885	1885	1885	1796	1796	1796
Adj Flow Rate, veh/h	137	512	75	71	904	222	168	497	75	120	125	168
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	4	4	4	1	1	1	7	7	7
Cap, veh/h	366	1915	276	297	1380	337	440	964	145	568	531	655
Arrive On Green	0.14	0.44	0.42	0.05	0.34	0.32	0.06	0.31	0.29	0.05	0.30	0.29
Sat Flow, veh/h	1725	4365	629	1753	4028	985	1795	3123	469	3319	1796	1522
Grp Volume(v), veh/h	137	384	203	71	751	375	168	284	288	120	125	168
Grp Sat Flow(s),veh/h/ln	1725	1648	1698	1753	1675	1663	1795	1791	1801	1659	1796	1522
Q Serve(g_s), s	0.0	8.0	8.3	3.1	20.5	20.8	7.0	14.1	14.3	2.7	5.7	1.2
Cycle Q Clear(g_c), s	0.0	8.0	8.3	3.1	20.5	20.8	7.0	14.1	14.3	2.7	5.7	1.2
Prop In Lane	1.00		0.37	1.00		0.59	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	366	1446	745	297	1148	570	440	553	556	568	531	655
V/C Ratio(X)	0.37	0.27	0.27	0.24	0.65	0.66	0.38	0.51	0.52	0.21	0.24	0.26
Avail Cap(c_a), veh/h	377	1446	745	350	1148	570	440	553	556	612	532	657
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	0.99	0.99	0.99
Uniform Delay (d), s/veh	37.4	19.3	19.6	26.8	30.1	30.7	25.3	30.7	30.9	25.3	28.8	8.7
Incr Delay (d2), s/veh	0.2	0.5	0.9	0.2	2.9	5.8	0.2	0.6	0.7	0.1	0.2	0.2
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(50%),veh/ln	3.2	3.1	3.4	1.3	8.6	9.2	3.1	6.1	6.3	1.1	2.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	19.7	20.5	27.0	33.0	36.5	25.5	31.3	31.6	25.4	29.0	8.9
LnGrp LOS	D	B	C	C	C	D	C	C	C	C	C	A
Approach Vol, veh/h		724			1197			740			413	
Approach Delay, s/veh		23.3			33.7			30.1			19.8	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	41.0	9.6	37.3	9.7	51.4	11.0	35.9
Change Period (Y+Rc), s	* 6	* 6	5.0	5.9	* 5.2	* 6	5.0	5.9
Max Green Setting (Gmax), s	* 15	* 35	6.0	30.1	* 7.8	* 42	6.0	30.1
Max Q Clear Time (g_c+I1), s	2.0	22.8	4.7	16.3	5.1	10.3	9.0	7.7
Green Ext Time (p_c), s	0.1	4.5	0.0	1.6	0.0	2.8	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	12	6	87	15	5
Future Vol, veh/h	40	12	6	87	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	83	83	63	63
Heavy Vehicles, %	4	4	8	8	5	5
Mvmt Flow	45	14	7	105	24	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	59	0	171	52
Stage 1	-	-	-	-	52	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	-	-	4.18	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.272	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1507	-	812	1007
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	899	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1507	-	808	1007
Mov Cap-2 Maneuver	-	-	-	-	808	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	895	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	850	-	-	1507	-
HCM Lane V/C Ratio	0.037	-	-	0.005	-
HCM Control Delay (s)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	0	132	0	1	565	21	835
Future Volume (vph)	2	0	132	0	1	565	21	835
Lane Group Flow (vph)	2	30	150	55	1	671	23	910
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	29.9	29.9
Total Split (s)	30.0	30.0	30.0	30.0	60.0	60.0	60.0	60.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.9	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.06	0.45	0.09	0.00	0.29	0.05	0.38
Control Delay	26.0	0.2	33.8	0.3	5.0	6.5	3.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	0.2	33.8	0.3	5.0	6.5	3.5	4.0
Queue Length 50th (ft)	1	0	72	0	0	72	2	47
Queue Length 95th (ft)	6	0	128	0	2	95	m7	77
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	391	575	393	658	342	2336	467	2374
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.38	0.08	0.00	0.29	0.05	0.38

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 5 (6%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 55th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	24	132	0	48	1	565	32	21	835	2
Future Volume (veh/h)	2	0	24	132	0	48	1	565	32	21	835	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	2	0	30	150	0	55	1	635	36	23	908	2
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.89	0.89	0.89	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	1	1	1
Cap, veh/h	377	0	393	397	0	387	488	2274	129	534	2439	5
Arrive On Green	0.25	0.00	0.23	0.25	0.00	0.23	0.67	0.67	0.64	1.00	1.00	1.00
Sat Flow, veh/h	1359	0	1598	1369	0	1572	613	3419	194	773	3667	8
Grp Volume(v), veh/h	2	0	30	150	0	55	1	330	341	23	444	466
Grp Sat Flow(s),veh/h/ln	1359	0	1598	1369	0	1572	613	1777	1836	773	1791	1884
Q Serve(g_s), s	0.1	0.0	1.3	8.5	0.0	2.5	0.0	6.9	6.9	0.3	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	1.3	9.8	0.0	2.5	0.0	6.9	6.9	7.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	377	0	393	397	0	387	488	1182	1221	534	1191	1253
V/C Ratio(X)	0.01	0.00	0.08	0.38	0.00	0.14	0.00	0.28	0.28	0.04	0.37	0.37
Avail Cap(c_a), veh/h	435	0	462	455	0	454	488	1182	1221	534	1191	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.88	0.88	0.88	0.95	0.95	0.95
Uniform Delay (d), s/veh	27.5	0.0	26.5	29.9	0.0	27.0	5.1	6.2	6.2	0.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.5	0.5	0.1	0.8	0.8
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(50%),veh/ln	0.0	0.0	0.5	2.8	0.0	0.9	0.0	2.2	2.3	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	0.0	26.6	30.1	0.0	27.1	5.1	6.7	6.8	0.6	0.8	0.8
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		32			205			672			933	
Approach Delay, s/veh		26.6			29.3			6.7			0.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	63.9	26.1	63.9	26.1
Change Period (Y+Rc), s	5.9	* 5.2	5.9	* 5.2
Max Green Setting (Gmax), s	54.1	* 25	54.1	* 25
Max Q Clear Time (g_c+I1), s	9.2	11.8	8.9	4.6
Green Ext Time (p_c), s	4.2	0.4	2.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

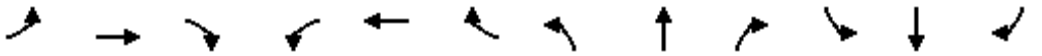
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	24	0	123	169	2	611	56	651
Future Volume (vph)	24	0	123	169	2	611	56	651
Lane Group Flow (vph)	34	42	140	192	2	699	63	734
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	NA
Protected Phases		8				6		2
Permitted Phases	8		4	4	6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	19.0	19.0	19.0	19.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.2	24.2	24.2	24.2	23.8	23.8	23.8	23.8
Total Split (s)	27.0	27.0	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.11	0.08	0.45	0.33	0.00	0.29	0.14	0.30
Control Delay	28.6	0.3	35.4	1.8	5.0	5.8	2.5	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	0.3	35.4	1.8	5.0	5.8	2.5	3.2
Queue Length 50th (ft)	15	0	69	0	0	69	3	25
Queue Length 95th (ft)	31	0	122	1	m1	96	m6	23
Internal Link Dist (ft)		68				1445		1323
Turn Bay Length (ft)			430	430	100		130	
Base Capacity (vph)	363	598	350	626	446	2409	465	2422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.40	0.31	0.00	0.29	0.14	0.30

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 87 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 55th St. & Flatiron Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	0	30	123	0	169	2	611	32	56	651	3
Future Volume (veh/h)	24	0	30	123	0	169	2	611	32	56	651	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	0	42	140	0	0	2	664	35	63	731	3
Peak Hour Factor	0.71	0.71	0.71	0.88	0.88	0.88	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	2	2	2
Cap, veh/h	399	0	357	358	421		577	2361	124	594	2496	10
Arrive On Green	0.22	0.00	0.21	0.22	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1429	0	1598	1376	1885	1598	723	3434	181	747	3630	15
Grp Volume(v), veh/h	34	0	42	140	0	0	2	343	356	63	358	376
Grp Sat Flow(s),veh/h/ln	1429	0	1598	1376	1885	1598	723	1777	1838	747	1777	1868
Q Serve(g_s), s	1.7	0.0	1.9	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	0.0	1.9	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	399	0	357	358	421		577	1222	1264	594	1222	1284
V/C Ratio(X)	0.09	0.00	0.12	0.39	0.00		0.00	0.28	0.28	0.11	0.29	0.29
Avail Cap(c_a), veh/h	445	0	408	402	482		577	1222	1264	594	1222	1284
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.97	0.97	0.97	0.88	0.88	0.88
Uniform Delay (d), s/veh	27.8	0.0	28.4	31.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.6	0.5	0.3	0.5	0.5
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(50%),veh/ln	0.6	0.0	0.7	2.7	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	0.0	28.4	32.1	0.0	0.0	0.0	0.6	0.5	0.3	0.5	0.5
LnGrp LOS	C	A	C	C	A		A	A	A	A	A	A
Approach Vol, veh/h		76			140			701			797	
Approach Delay, s/veh		28.2			32.1			0.5			0.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.9		24.1		65.9		24.1				
Change Period (Y+Rc), s		* 5.8		* 5.2		* 5.8		* 5.2				
Max Green Setting (Gmax), s		* 57		* 22		* 57		* 22				
Max Q Clear Time (g_c+I1), s		2.0		12.1		2.0		3.9				
Green Ext Time (p_c), s		3.8		0.2		2.9		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	4.3
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

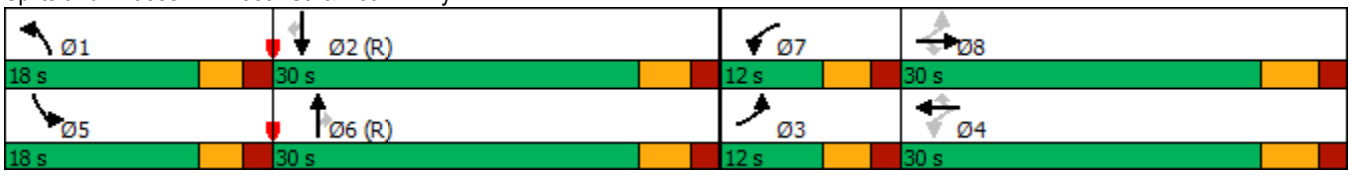
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	483	204	129	163	231	104	313	429	453	385	86
Future Volume (vph)	79	483	204	129	163	231	104	313	429	453	385	86
Lane Group Flow (vph)	87	531	224	165	209	296	118	356	488	492	418	93
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	30.0	30.0	18.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	33.3%	33.3%	20.0%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.18	0.51	0.36	0.27	0.19	0.43	0.41	0.65	0.78	0.92	0.62	0.14
Control Delay	17.0	28.3	5.3	17.4	24.3	5.3	50.8	29.1	21.9	62.4	28.8	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	28.3	5.3	17.4	24.3	5.3	50.8	29.1	21.9	62.4	28.8	0.9
Queue Length 50th (ft)	29	130	0	28	47	0	36	183	156	143	193	0
Queue Length 95th (ft)	59	183	51	41	64	32	62	272	#292	#238	307	6
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	499	1048	626	643	1083	689	534	548	624	534	678	677
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.51	0.36	0.26	0.19	0.43	0.22	0.65	0.78	0.92	0.62	0.14

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	483	204	129	163	231	104	313	429	453	385	86
Future Volume (veh/h)	79	483	204	129	163	231	104	313	429	453	385	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	87	531	0	165	209	0	118	356	0	492	418	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	474	1023		653	1031		224	582		533	745	
Arrive On Green	0.06	0.29	0.00	0.07	0.29	0.00	0.02	0.10	0.00	0.16	0.40	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	87	531	0	165	209	0	118	356	0	492	418	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.0	11.3	0.0	3.0	4.0	0.0	3.0	16.4	0.0	12.7	15.7	0.0
Cycle Q Clear(g_c), s	3.0	11.3	0.0	3.0	4.0	0.0	3.0	16.4	0.0	12.7	15.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	474	1023		653	1031		224	582		533	745	
V/C Ratio(X)	0.18	0.52		0.25	0.20		0.53	0.61		0.92	0.56	
Avail Cap(c_a), veh/h	520	1027		725	1031		538	582		533	745	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.97	0.97	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.5	26.8	0.0	20.9	24.0	0.0	42.7	35.2	0.0	37.5	20.8	0.0
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.1	0.1	0.0	0.7	4.6	0.0	21.4	3.0	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(50%),veh/ln	1.2	4.6	0.0	1.1	1.6	0.0	1.3	8.9	0.0	6.7	7.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	27.3	0.0	21.0	24.0	0.0	43.4	39.8	0.0	58.8	23.8	0.0
LnGrp LOS	C	C		C	C		D	D		E	C	
Approach Vol, veh/h		618			374			474			910	
Approach Delay, s/veh		26.4			22.7			40.7			42.8	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	40.1	9.7	30.3	18.0	32.0	10.1	29.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	* 6.8	24.1	13.0	24.4	* 6.8	24.1
Max Q Clear Time (g_c+I1), s	5.0	17.7	5.0	6.0	14.7	18.4	5.0	13.3
Green Ext Time (p_c), s	0.1	1.0	0.0	0.8	0.0	0.7	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

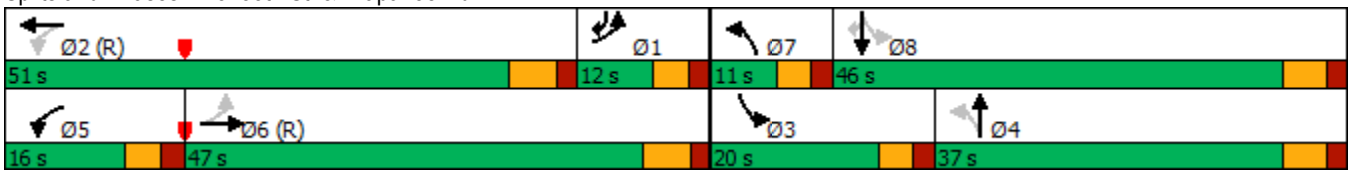
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	128	1192	139	757	97	213	526	385	158
Future Volume (vph)	128	1192	139	757	97	213	526	385	158
Lane Group Flow (vph)	136	1407	154	1002	124	435	598	438	180
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	12.0	47.0	16.0	51.0	11.0	37.0	20.0	46.0	12.0
Total Split (%)	10.0%	39.2%	13.3%	42.5%	9.2%	30.8%	16.7%	38.3%	10.0%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.49	0.74	0.68	0.50	0.49	0.45	0.74	0.68	0.25
Control Delay	41.3	35.4	40.7	26.9	29.5	29.5	29.9	40.3	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	35.4	40.7	26.9	29.5	29.5	29.9	40.3	6.4
Queue Length 50th (ft)	72	343	77	201	58	113	160	290	22
Queue Length 95th (ft)	122	408	#139	247	82	131	198	390	54
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	275	1891	242	2013	251	982	809	658	722
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	0.49	0.74	0.64	0.50	0.49	0.44	0.74	0.67	0.25

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 64 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 55th St. & Arapahoe Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	1192	131	139	757	145	97	213	126	526	385	158
Future Volume (veh/h)	128	1192	131	139	757	145	97	213	126	526	385	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	136	1268	139	154	841	161	124	273	162	598	438	180
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.78	0.78	0.78	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	1	1	1
Cap, veh/h	300	1780	195	227	1687	321	270	573	330	858	643	646
Arrive On Green	0.07	0.38	0.36	0.09	0.39	0.38	0.06	0.27	0.25	0.13	0.34	0.34
Sat Flow, veh/h	1781	4670	512	1781	4307	820	1767	2155	1240	3483	1885	1598
Grp Volume(v), veh/h	136	924	483	154	664	338	124	222	213	598	438	180
Grp Sat Flow(s),veh/h/ln	1781	1702	1778	1781	1702	1723	1767	1763	1632	1742	1885	1598
Q Serve(g_s), s	0.0	27.7	27.8	7.2	17.7	18.0	6.2	12.7	13.4	14.7	23.9	1.2
Cycle Q Clear(g_c), s	0.0	27.7	27.8	7.2	17.7	18.0	6.2	12.7	13.4	14.7	23.9	1.2
Prop In Lane	1.00		0.29	1.00		0.48	1.00		0.76	1.00		1.00
Lane Grp Cap(c), veh/h	300	1298	678	227	1333	675	270	469	434	858	643	646
V/C Ratio(X)	0.45	0.71	0.71	0.68	0.50	0.50	0.46	0.47	0.49	0.70	0.68	0.28
Avail Cap(c_a), veh/h	300	1298	678	251	1333	675	270	485	449	858	660	660
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	0.93	0.93	0.93
Uniform Delay (d), s/veh	41.2	31.5	31.8	30.8	27.6	28.0	31.2	37.0	37.9	26.8	34.0	12.1
Incr Delay (d2), s/veh	0.4	3.3	6.3	4.7	1.3	2.7	0.5	0.6	0.6	2.0	2.4	0.2
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(50%),veh/ln	3.8	11.9	13.0	3.3	7.4	7.9	2.7	5.5	5.5	6.3	11.3	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	34.9	38.1	35.5	28.9	30.7	31.7	37.5	38.5	28.8	36.3	12.3
LnGrp LOS	D	C	D	D	C	C	C	D	D	C	D	B
Approach Vol, veh/h		1543			1156			559			1216	
Approach Delay, s/veh		36.5			30.3			36.6			29.0	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	51.0	20.0	35.9	14.4	49.7	11.0	44.9
Change Period (Y+Rc), s	* 6	* 6	5.0	5.9	* 5.2	* 6	5.0	5.9
Max Green Setting (Gmax), s	* 6.8	* 45	15.0	31.1	* 11	* 41	6.0	40.1
Max Q Clear Time (g_c+I1), s	2.0	20.0	16.7	15.4	9.2	29.8	8.2	25.9
Green Ext Time (p_c), s	0.1	5.0	0.0	1.2	0.0	5.3	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection Capacity Worksheets: 2027 Background

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	103	17	6	22	1	2
Future Vol, veh/h	103	17	6	22	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	70	70	75	75
Heavy Vehicles, %	7	7	18	18	1	1
Mvmt Flow	123	20	9	31	1	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	182	133
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	-	-	4.28	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.362	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1347	-	810	919
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1347	-	804	919
Mov Cap-2 Maneuver	-	-	-	-	804	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	969	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	877	-	-	1347	-
HCM Lane V/C Ratio	0.005	-	-	0.006	-
HCM Control Delay (s)	9.1	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	0	30	0	17	614	49	392
Future Volume (vph)	4	0	30	0	17	614	49	392
Lane Group Flow (vph)	8	16	34	14	18	818	52	422
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		8		4		6	5	2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	9.0	29.9
Total Split (s)	27.0	27.0	27.0	27.0	48.0	48.0	15.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	53.3%	53.3%	16.7%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.0	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.08	0.03	0.30	0.03	0.02	0.29	0.09	0.14
Control Delay	37.5	0.1	44.0	0.1	4.5	4.0	4.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	0.1	44.0	0.1	4.5	4.0	4.2	3.4
Queue Length 50th (ft)	4	0	18	0	3	70	9	40
Queue Length 95th (ft)	10	0	45	0	10	115	22	60
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	290	691	318	632	762	2787	637	3083
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.02	0.11	0.02	0.02	0.29	0.08	0.14

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: 55th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	8	30	0	12	17	614	155	49	392	9
Future Volume (veh/h)	4	0	8	30	0	12	17	614	155	49	392	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1693	1693	1693	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	8	0	16	34	0	14	18	653	165	52	413	9
Peak Hour Factor	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	25	25	25	14	14	14	3	3	3	3	3	3
Cap, veh/h	143	0	83	146	0	92	807	2116	534	603	2988	65
Arrive On Green	0.06	0.00	0.05	0.06	0.00	0.05	0.76	0.76	0.74	0.09	1.00	1.00
Sat Flow, veh/h	1145	0	1296	1264	0	1434	957	2788	704	1767	3528	77
Grp Volume(v), veh/h	8	0	16	34	0	14	18	413	405	52	206	216
Grp Sat Flow(s),veh/h/ln	1145	0	1296	1264	0	1434	957	1763	1729	1767	1763	1842
Q Serve(g_s), s	0.6	0.0	1.1	2.4	0.0	0.8	0.4	6.6	6.9	0.5	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	1.1	3.4	0.0	0.8	0.4	6.6	6.9	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.04
Lane Grp Cap(c), veh/h	143	0	83	146	0	92	807	1338	1312	603	1493	1560
V/C Ratio(X)	0.06	0.00	0.19	0.23	0.00	0.15	0.02	0.31	0.31	0.09	0.14	0.14
Avail Cap(c_a), veh/h	362	0	331	388	0	367	807	1338	1312	742	1493	1560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	0.99	0.99	0.99
Uniform Delay (d), s/veh	40.5	0.0	40.5	41.5	0.0	40.4	2.7	3.4	3.6	2.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.3	0.0	0.3	0.0	0.5	0.5	0.0	0.2	0.2
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(50%),veh/ln	0.2	0.0	0.3	0.7	0.0	0.3	0.1	1.6	1.7	0.1	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	40.9	41.8	0.0	40.6	2.7	3.9	4.1	2.0	0.2	0.2
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		24			48			836			474	
Approach Delay, s/veh		40.8			41.5			4.0			0.4	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		80.2		9.8	7.9	72.3		9.8				
Change Period (Y+Rc), s		5.9		* 5.2	5.0	5.9		* 5.2				
Max Green Setting (Gmax), s		57.1		* 22	10.0	42.1		* 22				
Max Q Clear Time (g_c+I1), s		2.0		5.4	2.5	8.9		3.4				
Green Ext Time (p_c), s		1.6		0.1	0.0	3.7		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	4.7	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1	21	30	30	374	210	521
Future Volume (vph)	4	1	21	30	30	374	210	521
Lane Group Flow (vph)	6	5	31	45	33	544	233	619
Turn Type	Perm	NA	Perm	Perm	Perm	NA	pm+pt	NA
Protected Phases		8				6	5	2
Permitted Phases	8		4	4	6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.2	24.2	24.2	24.2	23.8	23.8	9.0	23.8
Total Split (s)	25.0	25.0	25.0	25.0	45.0	45.0	20.0	65.0
Total Split (%)	27.8%	27.8%	27.8%	27.8%	50.0%	50.0%	22.2%	72.2%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.0	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.06	0.04	0.27	0.07	0.06	0.22	0.32	0.21
Control Delay	37.5	25.7	43.4	0.2	4.9	3.9	1.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	25.7	43.4	0.2	4.9	3.9	1.9	0.6
Queue Length 50th (ft)	3	1	17	0	5	30	2	2
Queue Length 95th (ft)	11	8	32	0	13	43	10	11
Internal Link Dist (ft)		68				1445		1323
Turn Bay Length (ft)			430	430	100		130	
Base Capacity (vph)	268	315	303	758	555	2459	831	2991
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.10	0.06	0.06	0.22	0.28	0.21

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: 55th St. & Flatiron Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	3	21	0	30	30	374	115	210	521	36
Future Volume (veh/h)	4	1	3	21	0	30	30	374	115	210	521	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1752	1752	1752	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	6	1	4	31	0	0	33	416	128	233	579	40
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	25	25	10	10	10	3	3	3	2	2	2
Cap, veh/h	133	12	48	135	79		688	2029	618	795	2920	201
Arrive On Green	0.05	0.05	0.03	0.05	0.00	0.00	0.76	0.76	0.74	0.04	0.58	0.57
Sat Flow, veh/h	1159	267	1070	1322	1752	1485	798	2662	811	1781	3373	233
Grp Volume(v), veh/h	6	0	5	31	0	0	33	274	270	233	305	314
Grp Sat Flow(s),veh/h/ln	1159	0	1337	1322	1752	1485	798	1763	1710	1781	1777	1828
Q Serve(g_s), s	0.4	0.0	0.3	2.1	0.0	0.0	0.9	3.9	4.2	2.2	7.3	7.4
Cycle Q Clear(g_c), s	0.4	0.0	0.3	2.4	0.0	0.0	0.9	3.9	4.2	2.2	7.3	7.4
Prop In Lane	1.00		0.80	1.00		1.00	1.00		0.47	1.00		0.13
Lane Grp Cap(c), veh/h	133	0	61	135	79		688	1344	1303	795	1538	1583
V/C Ratio(X)	0.05	0.00	0.08	0.23	0.00		0.05	0.20	0.21	0.29	0.20	0.20
Avail Cap(c_a), veh/h	350	0	312	384	409		688	1344	1303	1006	1538	1583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.97	0.97	0.97	0.91	0.91	0.91
Uniform Delay (d), s/veh	41.2	0.0	41.6	42.3	0.0	0.0	2.7	3.0	3.2	1.7	4.1	4.1
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.3	0.0	0.0	0.1	0.3	0.3	0.1	0.3	0.3
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(50%),veh/ln	0.1	0.0	0.1	0.7	0.0	0.0	0.1	1.0	1.0	0.3	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	0.0	41.8	42.6	0.0	0.0	2.8	3.3	3.5	1.8	4.3	4.4
LnGrp LOS	D	A	D	D	A		A	A	A	A	A	A
Approach Vol, veh/h		11			31			577			852	
Approach Delay, s/veh		41.5			42.6			3.4			3.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		81.9		8.1	9.3	72.6		8.1				
Change Period (Y+Rc), s		* 5.8		* 5.2	5.0	* 5.8		* 5.2				
Max Green Setting (Gmax), s		* 59		* 20	15.0	* 39		* 20				
Max Q Clear Time (g_c+I1), s		9.4		4.4	4.2	6.2		2.4				
Green Ext Time (p_c), s		2.6		0.0	0.2	2.5		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	4.7	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

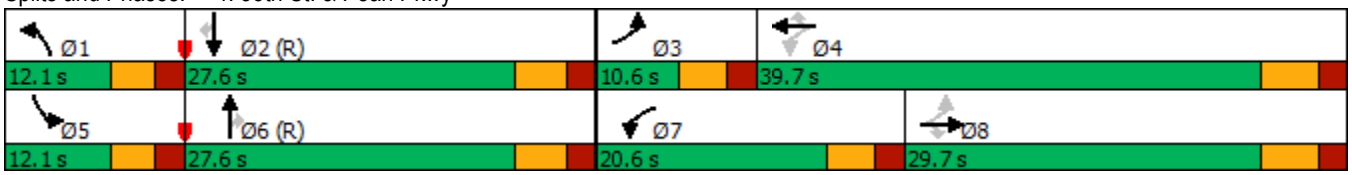
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	88	107	379	446	352	92	217	81	120	284	62
Future Volume (vph)	37	88	107	379	446	352	92	217	81	120	284	62
Lane Group Flow (vph)	42	100	122	408	480	378	102	241	90	145	342	75
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	10.6	29.7	29.7	20.6	39.7	39.7	12.1	27.6	27.6	12.1	27.6	27.6
Total Split (%)	11.8%	33.0%	33.0%	22.9%	44.1%	44.1%	13.4%	30.7%	30.7%	13.4%	30.7%	30.7%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.16	0.18	0.28	0.46	0.50	0.54	0.38	0.31	0.11	0.47	0.41	0.09
Control Delay	19.8	32.0	1.6	22.7	29.3	6.0	52.1	13.9	1.4	43.4	20.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	32.0	1.6	22.7	29.3	6.0	52.1	13.9	1.4	43.4	20.7	0.2
Queue Length 50th (ft)	16	25	0	86	127	0	32	73	0	41	132	0
Queue Length 95th (ft)	33	45	0	110	162	63	54	173	5	62	215	0
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	265	963	586	940	1363	838	312	772	785	334	833	828
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.10	0.21	0.43	0.35	0.45	0.33	0.31	0.11	0.43	0.41	0.09

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	88	107	379	446	352	92	217	81	120	284	62
Future Volume (veh/h)	37	88	107	379	446	352	92	217	81	120	284	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	42	100	0	408	480	0	102	241	0	145	342	0
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.90	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	7	7	7	5	5	5	4	4	4	4	4	4
Cap, veh/h	235	451		860	785		201	885		249	910	
Arrive On Green	0.04	0.13	0.00	0.14	0.23	0.00	0.02	0.16	0.00	0.07	0.49	0.00
Sat Flow, veh/h	1711	3413	1522	3374	3469	1547	3401	1841	1560	3401	1841	1560
Grp Volume(v), veh/h	42	100	0	408	480	0	102	241	0	145	342	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1687	1735	1547	1700	1841	1560	1700	1841	1560
Q Serve(g_s), s	1.9	2.4	0.0	8.9	11.2	0.0	2.7	10.4	0.0	3.7	10.4	0.0
Cycle Q Clear(g_c), s	1.9	2.4	0.0	8.9	11.2	0.0	2.7	10.4	0.0	3.7	10.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	451		860	785		201	885		249	910	
V/C Ratio(X)	0.18	0.22		0.47	0.61		0.51	0.27		0.58	0.38	
Avail Cap(c_a), veh/h	288	975		1023	1376		306	885		306	910	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.99	0.99	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.1	34.9	0.0	26.5	31.3	0.0	42.8	24.0	0.0	40.4	14.1	0.0
Incr Delay (d2), s/veh	0.4	0.2	0.0	0.2	0.8	0.0	0.7	0.8	0.0	0.8	1.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.0	0.0	3.5	4.6	0.0	1.1	5.1	0.0	1.5	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	35.2	0.0	26.6	32.1	0.0	43.5	24.8	0.0	41.2	15.3	0.0
LnGrp LOS	C	D		C	C		D	C		D	B	
Approach Vol, veh/h		142			888			343			487	
Approach Delay, s/veh		34.4			29.5			30.4			23.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	48.5	7.8	24.4	10.6	47.3	16.3	15.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	7.1	22.0	* 5.4	33.8	7.1	22.0	* 15	23.8
Max Q Clear Time (g_c+I1), s	4.7	12.4	3.9	13.2	5.7	12.4	10.9	4.4
Green Ext Time (p_c), s	0.0	0.9	0.0	2.1	0.0	0.6	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	116	431	70	890	157	464	106	111	148
Future Volume (vph)	116	431	70	890	157	464	106	111	148
Lane Group Flow (vph)	140	595	72	1143	171	580	122	128	170
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	20.0	48.0	13.0	41.0	11.0	36.0	11.0	36.0	20.0
Total Split (%)	18.5%	44.4%	12.0%	38.0%	10.2%	33.3%	10.2%	33.3%	18.5%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.41	0.28	0.27	0.67	0.37	0.54	0.26	0.24	0.23
Control Delay	34.7	19.6	27.1	30.9	25.0	32.9	21.9	30.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	19.6	27.1	30.9	25.0	32.9	21.9	30.5	4.0
Queue Length 50th (ft)	61	93	34	233	78	171	26	67	10
Queue Length 95th (ft)	96	112	68	284	128	230	44	112	36
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	345	2114	283	1700	468	1071	501	526	743
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	0.41	0.28	0.25	0.67	0.37	0.54	0.24	0.24	0.23

Intersection Summary

Cycle Length: 108
Actuated Cycle Length: 108
Offset: 98 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: 55th St. & Arapahoe Rd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	431	63	70	890	218	157	464	70	106	111	148
Future Volume (veh/h)	116	431	63	70	890	218	157	464	70	106	111	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1885	1885	1885	1796	1796	1796
Adj Flow Rate, veh/h	140	519	76	72	918	225	171	504	76	122	128	170
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	4	4	4	1	1	1	7	7	7
Cap, veh/h	363	1913	275	295	1381	337	437	962	145	563	531	655
Arrive On Green	0.14	0.44	0.42	0.05	0.34	0.32	0.06	0.31	0.29	0.05	0.30	0.29
Sat Flow, veh/h	1725	4365	629	1753	4030	984	1795	3123	469	3319	1796	1522
Grp Volume(v), veh/h	140	390	205	72	763	380	171	288	292	122	128	170
Grp Sat Flow(s),veh/h/ln	1725	1648	1698	1753	1675	1664	1795	1791	1801	1659	1796	1522
Q Serve(g_s), s	0.1	8.1	8.4	3.2	20.9	21.2	7.0	14.3	14.5	2.7	5.8	1.2
Cycle Q Clear(g_c), s	0.1	8.1	8.4	3.2	20.9	21.2	7.0	14.3	14.5	2.7	5.8	1.2
Prop In Lane	1.00		0.37	1.00		0.59	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	363	1444	744	295	1148	570	437	552	555	563	531	655
V/C Ratio(X)	0.39	0.27	0.28	0.24	0.66	0.67	0.39	0.52	0.53	0.22	0.24	0.26
Avail Cap(c_a), veh/h	374	1444	744	348	1148	570	437	552	555	606	532	657
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	0.99	0.99	0.99
Uniform Delay (d), s/veh	37.6	19.3	19.7	26.8	30.2	30.8	25.5	30.8	31.1	25.4	28.9	8.8
Incr Delay (d2), s/veh	0.2	0.5	0.9	0.2	3.0	6.1	0.2	0.7	0.7	0.1	0.2	0.2
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(50%),veh/ln	3.2	3.2	3.5	1.3	8.8	9.4	3.1	6.2	6.4	1.1	2.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	19.8	20.6	27.0	33.3	36.9	25.7	31.5	31.8	25.4	29.0	8.9
LnGrp LOS	D	B	C	C	C	D	C	C	C	C	C	A
Approach Vol, veh/h		735			1215			751			420	
Approach Delay, s/veh		23.4			34.0			30.3			19.8	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	41.0	9.6	37.3	9.8	51.3	11.0	35.9
Change Period (Y+Rc), s	* 6	* 6	5.0	5.9	* 5.2	* 6	5.0	5.9
Max Green Setting (Gmax), s	* 15	* 35	6.0	30.1	* 7.8	* 42	6.0	30.1
Max Q Clear Time (g_c+I1), s	2.1	23.2	4.7	16.5	5.2	10.4	9.0	7.8
Green Ext Time (p_c), s	0.1	4.5	0.0	1.6	0.0	2.8	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	12	6	88	15	5
Future Vol, veh/h	41	12	6	88	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	83	83	63	63
Heavy Vehicles, %	4	4	8	8	5	5
Mvmt Flow	47	14	7	106	24	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	61	0	174	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	-	-	4.18	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.272	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1505	-	809	1005
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1505	-	805	1005
Mov Cap-2 Maneuver	-	-	-	-	805	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	894	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	847	-	-	1505	-
HCM Lane V/C Ratio	0.037	-	-	0.005	-
HCM Control Delay (s)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	0	134	0	1	573	21	848
Future Volume (vph)	2	0	134	0	1	573	21	848
Lane Group Flow (vph)	2	30	152	56	1	680	23	924
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	29.9	29.9
Total Split (s)	30.0	30.0	30.0	30.0	60.0	60.0	60.0	60.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.9	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.06	0.45	0.09	0.00	0.29	0.05	0.39
Control Delay	26.0	0.2	34.0	0.3	5.0	6.5	3.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	0.2	34.0	0.3	5.0	6.5	3.4	4.0
Queue Length 50th (ft)	1	0	74	0	0	73	2	47
Queue Length 95th (ft)	6	0	129	0	2	96	m7	77
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	391	572	393	654	336	2336	462	2374
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.39	0.09	0.00	0.29	0.05	0.39

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 5 (6%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 55th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	24	134	0	49	1	573	32	21	848	2
Future Volume (veh/h)	2	0	24	134	0	49	1	573	32	21	848	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	2	0	30	152	0	56	1	644	36	23	922	2
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.89	0.89	0.89	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	1	1	1
Cap, veh/h	376	0	393	397	0	387	482	2276	127	530	2438	5
Arrive On Green	0.25	0.00	0.23	0.25	0.00	0.23	0.67	0.67	0.64	1.00	1.00	1.00
Sat Flow, veh/h	1358	0	1598	1369	0	1572	605	3422	191	766	3667	8
Grp Volume(v), veh/h	2	0	30	152	0	56	1	334	346	23	450	474
Grp Sat Flow(s),veh/h/ln	1358	0	1598	1369	0	1572	605	1777	1836	766	1791	1884
Q Serve(g_s), s	0.1	0.0	1.3	8.6	0.0	2.5	0.0	7.0	7.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	1.3	10.0	0.0	2.5	0.0	7.0	7.0	7.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.00
Lane Grp Cap(c), veh/h	376	0	393	397	0	387	482	1182	1221	530	1191	1253
V/C Ratio(X)	0.01	0.00	0.08	0.38	0.00	0.14	0.00	0.28	0.28	0.04	0.38	0.38
Avail Cap(c_a), veh/h	434	0	462	455	0	454	482	1182	1221	530	1191	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.88	0.88	0.88	0.95	0.95	0.95
Uniform Delay (d), s/veh	27.6	0.0	26.5	29.9	0.0	27.0	5.1	6.2	6.3	0.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.5	0.5	0.1	0.9	0.8
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(50%),veh/ln	0.0	0.0	0.5	2.8	0.0	1.0	0.0	2.3	2.3	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	0.0	26.6	30.1	0.0	27.1	5.1	6.7	6.8	0.6	0.9	0.8
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		32			208			681			947	
Approach Delay, s/veh		26.6			29.3			6.8			0.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	63.9	26.1	63.9	26.1
Change Period (Y+Rc), s	5.9	* 5.2	5.9	* 5.2
Max Green Setting (Gmax), s	54.1	* 25	54.1	* 25
Max Q Clear Time (g_c+I1), s	9.4	12.0	9.0	4.6
Green Ext Time (p_c), s	4.3	0.4	2.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	24	0	125	172	2	620	57	661
Future Volume (vph)	24	0	125	172	2	620	57	661
Lane Group Flow (vph)	34	42	142	195	2	709	64	746
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	NA
Protected Phases		8				6		2
Permitted Phases	8		4	4	6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	19.0	19.0	19.0	19.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.2	24.2	24.2	24.2	23.8	23.8	23.8	23.8
Total Split (s)	27.0	27.0	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.11	0.08	0.46	0.33	0.00	0.29	0.14	0.31
Control Delay	28.5	0.3	35.5	2.1	5.0	5.8	2.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	0.3	35.5	2.1	5.0	5.8	2.6	3.2
Queue Length 50th (ft)	15	0	70	0	0	71	4	24
Queue Length 95th (ft)	31	0	123	5	m1	98	m6	23
Internal Link Dist (ft)		68				1445		1323
Turn Bay Length (ft)			430	430	100		130	
Base Capacity (vph)	363	594	350	622	440	2409	460	2421
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.41	0.31	0.00	0.29	0.14	0.31

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 87 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 55th St. & Flatiron Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	0	30	125	0	172	2	620	32	57	661	3
Future Volume (veh/h)	24	0	30	125	0	172	2	620	32	57	661	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	0	42	142	0	0	2	674	35	64	743	3
Peak Hour Factor	0.71	0.71	0.71	0.88	0.88	0.88	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	2	2	2
Cap, veh/h	399	0	357	358	421		571	2363	123	589	2496	10
Arrive On Green	0.22	0.00	0.21	0.22	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1429	0	1598	1376	1885	1598	715	3437	178	740	3630	15
Grp Volume(v), veh/h	34	0	42	142	0	0	2	348	361	64	364	382
Grp Sat Flow(s),veh/h/ln	1429	0	1598	1376	1885	1598	715	1777	1838	740	1777	1868
Q Serve(g_s), s	1.7	0.0	1.9	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	0.0	1.9	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	399	0	357	358	421		571	1222	1264	589	1222	1284
V/C Ratio(X)	0.09	0.00	0.12	0.40	0.00		0.00	0.29	0.29	0.11	0.30	0.30
Avail Cap(c_a), veh/h	445	0	408	402	482		571	1222	1264	589	1222	1284
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.97	0.97	0.97	0.87	0.87	0.87
Uniform Delay (d), s/veh	27.8	0.0	28.4	31.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.6	0.6	0.3	0.5	0.5
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(50%),veh/ln	0.6	0.0	0.7	2.7	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	0.0	28.4	32.2	0.0	0.0	0.0	0.6	0.6	0.3	0.5	0.5
LnGrp LOS	C	A	C	C	A		A	A	A	A	A	A
Approach Vol, veh/h		76			142			711			810	
Approach Delay, s/veh		28.1			32.2			0.6			0.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.9		24.1		65.9		24.1				
Change Period (Y+Rc), s		* 5.8		* 5.2		* 5.8		* 5.2				
Max Green Setting (Gmax), s		* 57		* 22		* 57		* 22				
Max Q Clear Time (g_c+I1), s		2.0		12.2		2.0		3.9				
Green Ext Time (p_c), s		3.9		0.2		2.9		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			4.3									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

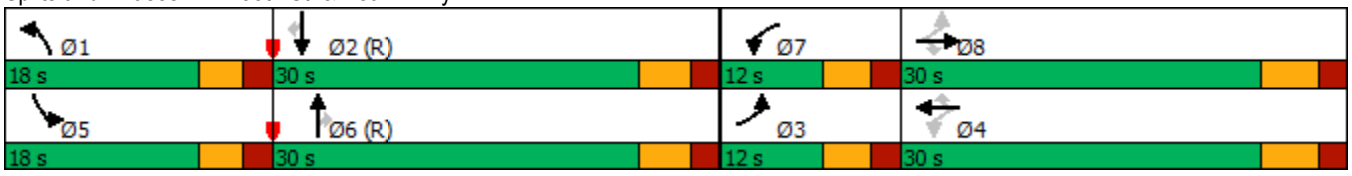
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	490	207	131	165	234	106	318	435	460	391	87
Future Volume (vph)	80	490	207	131	165	234	106	318	435	460	391	87
Lane Group Flow (vph)	88	538	227	168	212	300	120	361	494	500	425	95
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	30.0	30.0	18.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	33.3%	33.3%	20.0%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.18	0.51	0.36	0.28	0.20	0.43	0.42	0.66	0.80	0.93	0.63	0.14
Control Delay	17.1	28.5	5.3	17.4	24.4	5.3	50.8	29.5	23.1	63.4	29.2	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	28.5	5.3	17.4	24.4	5.3	50.8	29.5	23.1	63.4	29.2	1.1
Queue Length 50th (ft)	30	132	0	29	47	0	37	186	160	146	198	0
Queue Length 95th (ft)	59	185	52	41	65	31	63	276	#302	#243	313	6
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	498	1046	627	636	1083	692	534	545	621	539	677	676
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.51	0.36	0.26	0.20	0.43	0.22	0.66	0.80	0.93	0.63	0.14

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	490	207	131	165	234	106	318	435	460	391	87
Future Volume (veh/h)	80	490	207	131	165	234	106	318	435	460	391	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	88	538	0	168	212	0	120	361	0	500	425	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	474	1023		650	1031		227	580		533	743	
Arrive On Green	0.06	0.29	0.00	0.07	0.29	0.00	0.02	0.10	0.00	0.16	0.40	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	88	538	0	168	212	0	120	361	0	500	425	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.1	11.4	0.0	3.0	4.1	0.0	3.1	16.7	0.0	13.0	16.0	0.0
Cycle Q Clear(g_c), s	3.1	11.4	0.0	3.0	4.1	0.0	3.1	16.7	0.0	13.0	16.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	474	1023		650	1031		227	580		533	743	
V/C Ratio(X)	0.19	0.53		0.26	0.21		0.53	0.62		0.94	0.57	
Avail Cap(c_a), veh/h	518	1027		720	1031		538	580		533	743	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.97	0.97	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.5	26.9	0.0	20.9	24.0	0.0	42.6	35.3	0.0	37.6	21.0	0.0
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.1	0.1	0.0	0.7	4.8	0.0	24.1	3.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.7	0.0	1.2	1.7	0.0	1.3	9.0	0.0	7.1	7.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	27.4	0.0	21.0	24.1	0.0	43.3	40.1	0.0	61.7	24.2	0.0
LnGrp LOS	C	C		C	C		D	D		E	C	
Approach Vol, veh/h		626			380			481			925	
Approach Delay, s/veh		26.4			22.7			40.9			44.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	40.0	9.7	30.3	18.0	31.9	10.2	29.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	* 6.8	24.1	13.0	24.4	* 6.8	24.1
Max Q Clear Time (g_c+I1), s	5.1	18.0	5.1	6.1	15.0	18.7	5.0	13.4
Green Ext Time (p_c), s	0.1	1.0	0.0	0.8	0.0	0.7	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

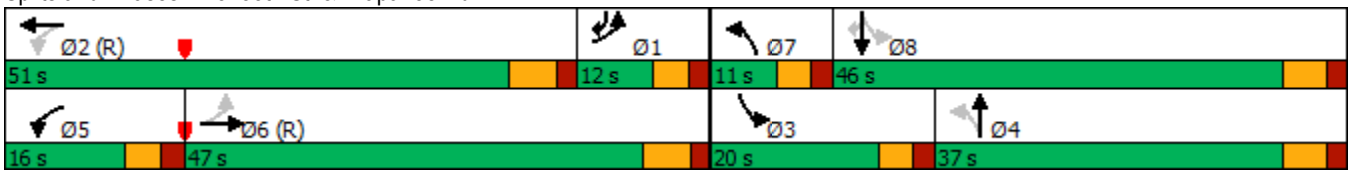
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	130	1210	141	768	98	216	534	391	160
Future Volume (vph)	130	1210	141	768	98	216	534	391	160
Lane Group Flow (vph)	138	1428	157	1016	126	441	607	444	182
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	12.0	47.0	16.0	51.0	11.0	37.0	20.0	46.0	12.0
Total Split (%)	10.0%	39.2%	13.3%	42.5%	9.2%	30.8%	16.7%	38.3%	10.0%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.51	0.76	0.69	0.51	0.51	0.46	0.76	0.69	0.25
Control Delay	42.0	35.9	41.3	27.1	30.3	29.7	30.5	40.7	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	35.9	41.3	27.1	30.3	29.7	30.5	40.7	6.5
Queue Length 50th (ft)	73	351	79	205	59	115	163	295	22
Queue Length 95th (ft)	124	416	#150	252	84	133	202	397	56
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	272	1884	242	2011	246	982	803	658	723
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	0.51	0.76	0.65	0.51	0.51	0.45	0.76	0.67	0.25

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 64 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 55th St. & Arapahoe Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	1210	133	141	768	147	98	216	128	534	391	160
Future Volume (veh/h)	130	1210	133	141	768	147	98	216	128	534	391	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	138	1287	141	157	853	163	126	277	164	607	444	182
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.78	0.78	0.78	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	1	1	1
Cap, veh/h	297	1774	194	226	1687	321	266	573	329	854	643	646
Arrive On Green	0.07	0.38	0.36	0.09	0.39	0.38	0.06	0.27	0.25	0.13	0.34	0.34
Sat Flow, veh/h	1781	4671	512	1781	4308	819	1767	2156	1239	3483	1885	1598
Grp Volume(v), veh/h	138	938	490	157	673	343	126	225	216	607	444	182
Grp Sat Flow(s),veh/h/ln	1781	1702	1778	1781	1702	1723	1767	1763	1633	1742	1885	1598
Q Serve(g_s), s	0.0	28.3	28.4	7.3	18.0	18.3	6.3	12.9	13.6	15.0	24.4	1.3
Cycle Q Clear(g_c), s	0.0	28.3	28.4	7.3	18.0	18.3	6.3	12.9	13.6	15.0	24.4	1.3
Prop In Lane	1.00		0.29	1.00		0.48	1.00		0.76	1.00		1.00
Lane Grp Cap(c), veh/h	297	1293	676	226	1333	675	266	469	434	854	643	646
V/C Ratio(X)	0.46	0.73	0.73	0.69	0.50	0.51	0.47	0.48	0.50	0.71	0.69	0.28
Avail Cap(c_a), veh/h	297	1293	676	248	1333	675	266	485	449	854	660	660
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	0.92	0.92	0.92
Uniform Delay (d), s/veh	41.8	31.8	32.1	30.9	27.7	28.1	31.3	37.1	37.9	26.9	34.1	12.1
Incr Delay (d2), s/veh	0.4	3.6	6.7	5.6	1.4	2.7	0.5	0.6	0.7	2.2	2.6	0.2
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(50%),veh/ln	3.9	12.2	13.4	3.5	7.5	8.1	2.7	5.6	5.5	6.4	11.5	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	35.4	38.8	36.5	29.0	30.9	31.8	37.6	38.6	29.1	36.7	12.3
LnGrp LOS	D	D	D	D	C	C	C	D	D	C	D	B
Approach Vol, veh/h		1566			1173			567			1233	
Approach Delay, s/veh		37.1			30.6			36.7			29.4	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	51.0	20.0	35.9	14.5	49.6	11.0	44.9
Change Period (Y+Rc), s	* 6	* 6	5.0	5.9	* 5.2	* 6	5.0	5.9
Max Green Setting (Gmax), s	* 6.8	* 45	15.0	31.1	* 11	* 41	6.0	40.1
Max Q Clear Time (g_c+I1), s	2.0	20.3	17.0	15.6	9.3	30.4	8.3	26.4
Green Ext Time (p_c), s	0.1	5.1	0.0	1.3	0.0	5.2	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

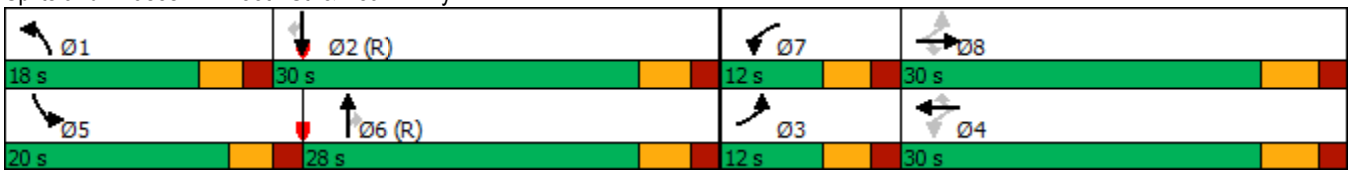
Intersection Capacity Worksheets: 2027 Background With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	490	207	131	165	234	106	318	435	460	391	87
Future Volume (vph)	80	490	207	131	165	234	106	318	435	460	391	87
Lane Group Flow (vph)	88	538	227	168	212	300	120	361	494	500	425	95
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	28.0	28.0	20.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	31.1%	31.1%	22.2%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.18	0.51	0.36	0.28	0.20	0.43	0.42	0.70	0.82	0.85	0.63	0.14
Control Delay	17.1	28.5	5.3	17.4	24.4	5.3	49.5	31.4	24.4	51.4	29.2	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	28.5	5.3	17.4	24.4	5.3	49.5	31.4	24.4	51.4	29.2	1.1
Queue Length 50th (ft)	30	132	0	29	47	0	37	189	159	142	198	0
Queue Length 95th (ft)	59	185	52	41	65	31	63	280	#309	#220	313	6
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	498	1046	627	636	1083	692	534	519	605	606	677	676
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.51	0.36	0.26	0.20	0.43	0.22	0.70	0.82	0.83	0.63	0.14

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	490	207	131	165	234	106	318	435	460	391	87
Future Volume (veh/h)	80	490	207	131	165	234	106	318	435	460	391	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	88	538	0	168	212	0	120	361	0	500	425	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	474	1023		650	1031		227	545		599	743	
Arrive On Green	0.06	0.29	0.00	0.07	0.29	0.00	0.02	0.10	0.00	0.17	0.40	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	88	538	0	168	212	0	120	361	0	500	425	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.1	11.4	0.0	3.0	4.1	0.0	3.1	16.8	0.0	12.7	16.0	0.0
Cycle Q Clear(g_c), s	3.1	11.4	0.0	3.0	4.1	0.0	3.1	16.8	0.0	12.7	16.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	474	1023		650	1031		227	545		599	743	
V/C Ratio(X)	0.19	0.53		0.26	0.21		0.53	0.66		0.83	0.57	
Avail Cap(c_a), veh/h	518	1027		720	1031		538	545		609	743	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.97	0.97	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.5	26.9	0.0	20.9	24.0	0.0	42.6	36.4	0.0	35.9	21.0	0.0
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.1	0.1	0.0	0.7	6.1	0.0	9.1	3.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.7	0.0	1.2	1.7	0.0	1.3	9.2	0.0	5.9	7.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	27.4	0.0	21.0	24.1	0.0	43.3	42.5	0.0	45.0	24.2	0.0
LnGrp LOS	C	C		C	C		D	D		D	C	
Approach Vol, veh/h		626			380			481			925	
Approach Delay, s/veh		26.4			22.7			42.7			35.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	40.0	9.7	30.3	19.7	30.2	10.2	29.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	* 6.8	24.1	15.0	22.4	* 6.8	24.1
Max Q Clear Time (g_c+I1), s	5.1	18.0	5.1	6.1	14.7	18.8	5.0	13.4
Green Ext Time (p_c), s	0.1	1.0	0.0	0.8	0.0	0.5	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection Capacity Worksheets: 2045 Background

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	20	5	25	5	5
Future Vol, veh/h	110	20	5	25	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	70	70	75	75
Heavy Vehicles, %	7	7	18	18	1	1
Mvmt Flow	131	24	7	36	7	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	155	0	193	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.28	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.362	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1333	-	798	907
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	975	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1333	-	794	907
Mov Cap-2 Maneuver	-	-	-	-	794	-
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	970	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	847	-	-	1333	-
HCM Lane V/C Ratio	0.016	-	-	0.005	-
HCM Control Delay (s)	9.3	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	5	35	5	20	670	55	430
Future Volume (vph)	5	5	35	5	20	670	55	430
Lane Group Flow (vph)	10	30	40	23	21	894	58	464
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		8		4		6	5	2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	9.0	29.9
Total Split (s)	27.0	27.0	27.0	27.0	48.0	48.0	15.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	53.3%	53.3%	16.7%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.0	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.10	0.21	0.34	0.15	0.03	0.33	0.11	0.15
Control Delay	37.2	23.1	44.7	21.6	4.8	4.6	4.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	23.1	44.7	21.6	4.8	4.6	4.4	3.5
Queue Length 50th (ft)	5	5	22	3	3	82	10	45
Queue Length 95th (ft)	11	12	50	24	11	135	23	66
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	288	364	314	391	700	2673	596	3066
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.08	0.13	0.06	0.03	0.33	0.10	0.15

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: 55th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	10	35	5	15	20	670	170	55	430	10
Future Volume (veh/h)	5	5	10	35	5	15	20	670	170	55	430	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1693	1693	1693	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	10	10	20	40	6	17	21	713	181	58	453	11
Peak Hour Factor	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	25	25	25	14	14	14	3	3	3	3	3	3
Cap, veh/h	157	38	75	157	32	91	761	2057	522	553	2914	71
Arrive On Green	0.08	0.08	0.07	0.08	0.08	0.07	0.74	0.74	0.72	0.09	1.00	1.00
Sat Flow, veh/h	1135	455	910	1248	390	1104	921	2784	707	1767	3518	85
Grp Volume(v), veh/h	10	0	30	40	0	23	21	451	443	58	227	237
Grp Sat Flow(s),veh/h/ln	1135	0	1366	1248	0	1494	921	1763	1728	1767	1763	1840
Q Serve(g_s), s	0.7	0.0	1.9	2.8	0.0	1.3	0.5	8.1	8.3	0.6	0.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0	1.9	4.7	0.0	1.3	0.5	8.1	8.3	0.6	0.0	0.0
Prop In Lane	1.00		0.67	1.00		0.74	1.00		0.41	1.00		0.05
Lane Grp Cap(c), veh/h	157	0	113	157	0	123	761	1302	1277	553	1460	1525
V/C Ratio(X)	0.06	0.00	0.27	0.25	0.00	0.19	0.03	0.35	0.35	0.10	0.16	0.16
Avail Cap(c_a), veh/h	354	0	349	373	0	382	761	1302	1277	689	1460	1525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.80	0.80	0.80	0.98	0.98	0.98
Uniform Delay (d), s/veh	39.4	0.0	39.1	40.9	0.0	38.9	3.1	4.1	4.3	2.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.3	0.0	0.3	0.1	0.6	0.6	0.0	0.2	0.2
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(50%),veh/ln	0.2	0.0	0.6	0.9	0.0	0.5	0.1	2.1	2.2	0.1	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	39.6	41.2	0.0	39.1	3.2	4.7	4.9	2.5	0.2	0.2
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		40			63			915			522	
Approach Delay, s/veh		39.5			40.5			4.8			0.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		78.6		11.4	8.1	70.5		11.4				
Change Period (Y+Rc), s		5.9		* 5.2	5.0	5.9		* 5.2				
Max Green Setting (Gmax), s		57.1		* 22	10.0	42.1		* 22				
Max Q Clear Time (g_c+I1), s		2.0		6.7	2.6	10.3		4.0				
Green Ext Time (p_c), s		1.8		0.1	0.0	4.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	5.7	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	5	5	25	5	35	35	410	230	570
Future Volume (vph)	5	5	25	5	35	35	410	230	570
Lane Group Flow (vph)	7	14	37	7	52	39	595	256	677
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		8		4			6	5	2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	4	6	6	5	2
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.2	24.2	24.2	24.2	24.2	23.8	23.8	9.0	23.8
Total Split (s)	25.0	25.0	25.0	25.0	25.0	45.0	45.0	20.0	65.0
Total Split (%)	27.8%	27.8%	27.8%	27.8%	27.8%	50.0%	50.0%	22.2%	72.2%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.0	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.07	0.10	0.31	0.04	0.23	0.08	0.24	0.37	0.23
Control Delay	37.0	27.7	44.0	36.0	4.4	5.3	4.2	2.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	27.7	44.0	36.0	4.4	5.3	4.2	2.5	0.6
Queue Length 50th (ft)	4	4	20	4	0	6	34	5	3
Queue Length 95th (ft)	12	15	36	12	0	15	58	13	14
Internal Link Dist (ft)		68		328			1445		1323
Turn Bay Length (ft)			430		430	100		130	
Base Capacity (vph)	267	333	301	402	415	518	2430	796	2975
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	0.03	0.04	0.12	0.02	0.13	0.08	0.24	0.32	0.23

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: 55th St. & Flatiron Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	25	5	35	35	410	125	230	570	40
Future Volume (veh/h)	5	5	5	25	5	35	35	410	125	230	570	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1752	1752	1752	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	7	7	7	37	7	0	39	456	139	256	633	44
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	25	25	10	10	10	3	3	3	2	2	2
Cap, veh/h	146	43	43	148	107		640	1975	597	751	2865	199
Arrive On Green	0.06	0.06	0.05	0.06	0.06	0.00	0.74	0.74	0.72	0.04	0.57	0.56
Sat Flow, veh/h	1152	702	702	1311	1752	1485	756	2667	807	1781	3371	234
Grp Volume(v), veh/h	7	0	14	37	7	0	39	300	295	256	333	344
Grp Sat Flow(s),veh/h/ln	1152	0	1403	1311	1752	1485	756	1763	1710	1781	1777	1828
Q Serve(g_s), s	0.5	0.0	0.9	2.5	0.3	0.0	1.3	4.8	5.0	2.7	8.3	8.4
Cycle Q Clear(g_c), s	0.9	0.0	0.9	3.3	0.3	0.0	1.3	4.8	5.0	2.7	8.3	8.4
Prop In Lane	1.00		0.50	1.00		1.00	1.00		0.47	1.00		0.13
Lane Grp Cap(c), veh/h	146	0	86	148	107		640	1306	1267	751	1510	1554
V/C Ratio(X)	0.05	0.00	0.16	0.25	0.07		0.06	0.23	0.23	0.34	0.22	0.22
Avail Cap(c_a), veh/h	344	0	327	373	409		640	1306	1267	953	1510	1554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.95	0.95	0.95	0.89	0.89	0.89
Uniform Delay (d), s/veh	40.2	0.0	40.3	41.6	39.8	0.0	3.2	3.6	3.8	2.2	4.7	4.7
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.3	0.1	0.0	0.2	0.4	0.4	0.1	0.3	0.3
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(50%),veh/ln	0.1	0.0	0.3	0.8	0.1	0.0	0.2	1.3	1.3	0.4	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	0.0	40.7	42.0	39.9	0.0	3.4	4.0	4.2	2.3	5.0	5.0
LnGrp LOS	D	A	D	D	D		A	A	A	A	A	A
Approach Vol, veh/h		21			44			634			933	
Approach Delay, s/veh		40.5			41.6			4.1			4.3	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		80.5		9.5	9.8	70.7		9.5				
Change Period (Y+Rc), s		* 5.8		* 5.2	5.0	* 5.8		* 5.2				
Max Green Setting (Gmax), s		* 59		* 20	15.0	* 39		* 20				
Max Q Clear Time (g_c+I1), s		10.4		5.3	4.7	7.0		2.9				
Green Ext Time (p_c), s		2.9		0.0	0.2	2.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	5.7	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

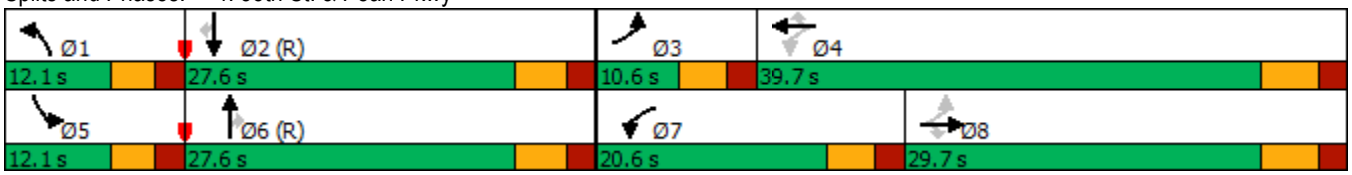
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	95	115	415	485	385	100	240	90	130	310	70
Future Volume (vph)	40	95	115	415	485	385	100	240	90	130	310	70
Lane Group Flow (vph)	45	108	131	446	522	414	111	267	100	157	373	84
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	10.6	29.7	29.7	20.6	39.7	39.7	12.1	27.6	27.6	12.1	27.6	27.6
Total Split (%)	11.8%	33.0%	33.0%	22.9%	44.1%	44.1%	13.4%	30.7%	30.7%	13.4%	30.7%	30.7%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.17	0.18	0.30	0.49	0.51	0.56	0.40	0.36	0.13	0.49	0.47	0.10
Control Delay	19.0	31.3	2.0	22.1	28.5	5.7	50.5	15.6	1.6	43.4	22.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	31.3	2.0	22.1	28.5	5.7	50.5	15.6	1.6	43.4	22.9	0.3
Queue Length 50th (ft)	16	27	0	93	137	0	35	97	0	44	152	0
Queue Length 95th (ft)	33	47	1	116	172	63	56	201	8	66	246	0
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	265	963	586	968	1363	859	316	740	761	342	801	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.11	0.22	0.46	0.38	0.48	0.35	0.36	0.13	0.46	0.47	0.10

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	95	115	415	485	385	100	240	90	130	310	70
Future Volume (veh/h)	40	95	115	415	485	385	100	240	90	130	310	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	45	108	0	446	522	0	111	267	0	157	373	0
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.90	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	7	7	7	5	5	5	4	4	4	4	4	4
Cap, veh/h	231	451		884	812		213	861		262	888	
Arrive On Green	0.04	0.13	0.00	0.15	0.23	0.00	0.02	0.15	0.00	0.08	0.48	0.00
Sat Flow, veh/h	1711	3413	1522	3374	3469	1547	3401	1841	1560	3401	1841	1560
Grp Volume(v), veh/h	45	108	0	446	522	0	111	267	0	157	373	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1687	1735	1547	1700	1841	1560	1700	1841	1560
Q Serve(g_s), s	2.0	2.6	0.0	9.7	12.2	0.0	2.9	11.6	0.0	4.0	11.8	0.0
Cycle Q Clear(g_c), s	2.0	2.6	0.0	9.7	12.2	0.0	2.9	11.6	0.0	4.0	11.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	231	451		884	812		213	861		262	888	
V/C Ratio(X)	0.19	0.24		0.50	0.64		0.52	0.31		0.60	0.42	
Avail Cap(c_a), veh/h	282	975		1016	1376		306	861		306	888	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.98	0.98	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.0	35.0	0.0	26.1	31.1	0.0	42.7	25.2	0.0	40.2	15.1	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.0	0.2	0.9	0.0	0.7	0.9	0.0	1.1	1.5	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(50%),veh/ln	0.8	1.1	0.0	3.8	5.0	0.0	1.2	5.9	0.0	1.7	5.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	35.3	0.0	26.3	31.9	0.0	43.5	26.1	0.0	41.3	16.6	0.0
LnGrp LOS	C	D		C	C		D	C		D	B	
Approach Vol, veh/h		153			968			378			530	
Approach Delay, s/veh		34.4			29.3			31.2			23.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	47.4	7.9	25.1	10.9	46.1	17.1	15.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	7.1	22.0	* 5.4	33.8	7.1	22.0	* 15	23.8
Max Q Clear Time (g_c+I1), s	4.9	13.8	4.0	14.2	6.0	13.6	11.7	4.6
Green Ext Time (p_c), s	0.0	0.9	0.0	2.3	0.0	0.6	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	125	470	75	975	170	505	115	120	160
Future Volume (vph)	125	470	75	975	170	505	115	120	160
Lane Group Flow (vph)	151	650	77	1252	185	631	132	138	184
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	20.0	48.0	13.0	41.0	11.0	36.0	11.0	36.0	20.0
Total Split (%)	18.5%	44.4%	12.0%	38.0%	10.2%	33.3%	10.2%	33.3%	18.5%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.46	0.31	0.30	0.74	0.40	0.59	0.30	0.26	0.25
Control Delay	38.5	20.0	27.7	32.7	25.8	34.0	22.4	30.8	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	20.0	27.7	32.7	25.8	34.0	22.4	30.8	4.6
Queue Length 50th (ft)	66	104	36	264	85	191	29	73	14
Queue Length 95th (ft)	103	123	71	319	138	252	47	121	42
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	325	2111	269	1700	459	1070	464	526	743
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	0.46	0.31	0.29	0.74	0.40	0.59	0.28	0.26	0.25

Intersection Summary

Cycle Length: 108
Actuated Cycle Length: 108
Offset: 98 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: 55th St. & Arapahoe Rd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	470	70	75	975	240	170	505	75	115	120	160
Future Volume (veh/h)	125	470	70	75	975	240	170	505	75	115	120	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1885	1885	1885	1796	1796	1796
Adj Flow Rate, veh/h	151	566	84	77	1005	247	185	549	82	132	138	184
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	4	4	4	1	1	1	7	7	7
Cap, veh/h	348	1897	277	285	1379	338	427	956	142	534	531	655
Arrive On Green	0.14	0.44	0.42	0.06	0.34	0.32	0.06	0.31	0.29	0.05	0.30	0.29
Sat Flow, veh/h	1725	4356	637	1753	4025	988	1795	3127	466	3319	1796	1522
Grp Volume(v), veh/h	151	426	224	77	836	416	185	314	317	132	138	184
Grp Sat Flow(s),veh/h/ln	1725	1648	1696	1753	1675	1663	1795	1791	1801	1659	1796	1522
Q Serve(g_s), s	1.8	9.1	9.4	3.4	23.6	23.8	7.0	15.9	16.1	2.9	6.3	1.3
Cycle Q Clear(g_c), s	1.8	9.1	9.4	3.4	23.6	23.8	7.0	15.9	16.1	2.9	6.3	1.3
Prop In Lane	1.00		0.38	1.00		0.59	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	348	1435	739	285	1148	570	427	548	551	534	531	655
V/C Ratio(X)	0.43	0.30	0.30	0.27	0.73	0.73	0.43	0.57	0.58	0.25	0.26	0.28
Avail Cap(c_a), veh/h	359	1435	739	332	1148	570	427	548	551	569	532	657
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	0.99	0.99	0.99
Uniform Delay (d), s/veh	38.8	19.8	20.1	27.0	31.1	31.7	26.2	31.5	31.8	25.5	29.0	8.8
Incr Delay (d2), s/veh	0.3	0.5	1.1	0.2	4.1	8.0	0.3	1.2	1.3	0.1	0.2	0.2
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(50%),veh/ln	3.5	3.5	3.9	1.4	10.0	10.7	3.4	7.0	7.2	1.2	2.8	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.1	20.3	21.2	27.2	35.2	39.7	26.5	32.8	33.1	25.6	29.2	9.0
LnGrp LOS	D	C	C	C	D	D	C	C	C	C	C	A
Approach Vol, veh/h		801			1329			816			454	
Approach Delay, s/veh		24.1			36.1			31.5			20.0	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	41.0	9.9	37.0	10.1	51.0	11.0	35.9
Change Period (Y+Rc), s	* 6	* 6	5.0	5.9	* 5.2	* 6	5.0	5.9
Max Green Setting (Gmax), s	* 15	* 35	6.0	30.1	* 7.8	* 42	6.0	30.1
Max Q Clear Time (g_c+I1), s	3.8	25.8	4.9	18.1	5.4	11.4	9.0	8.3
Green Ext Time (p_c), s	0.2	4.2	0.0	1.7	0.0	3.1	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	15	5	95	15	5
Future Vol, veh/h	45	15	5	95	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	83	83	63	63
Heavy Vehicles, %	4	4	8	8	5	5
Mvmt Flow	51	17	6	114	24	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	68	0	186	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	-	-	4.18	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.272	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1496	-	796	997
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1496	-	793	997
Mov Cap-2 Maneuver	-	-	-	-	793	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	888	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	836	-	-	1496	-
HCM Lane V/C Ratio	0.038	-	-	0.004	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	5	145	5	5	625	25	925
Future Volume (vph)	5	5	145	5	5	625	25	925
Lane Group Flow (vph)	6	37	165	69	6	741	27	1010
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	29.9	29.9
Total Split (s)	30.0	30.0	30.0	30.0	60.0	60.0	60.0	60.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.9	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.02	0.09	0.49	0.16	0.02	0.32	0.06	0.43
Control Delay	25.6	11.7	34.6	9.3	5.6	6.9	3.5	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	11.7	34.6	9.3	5.6	6.9	3.5	4.2
Queue Length 50th (ft)	3	3	81	3	1	81	2	55
Queue Length 95th (ft)	11	22	138	32	5	112	m8	97
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	386	496	390	504	298	2328	426	2364
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.07	0.42	0.14	0.02	0.32	0.06	0.43

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 5 (6%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 55th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	25	145	5	55	5	625	35	25	925	5
Future Volume (veh/h)	5	5	25	145	5	55	5	625	35	25	925	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	6	6	31	165	6	62	6	702	39	27	1005	5
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.89	0.89	0.89	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	1	1	1
Cap, veh/h	365	65	338	391	35	358	451	2275	126	498	2429	12
Arrive On Green	0.25	0.25	0.23	0.25	0.25	0.23	0.66	0.66	0.64	1.00	1.00	1.00
Sat Flow, veh/h	1344	266	1372	1360	141	1453	558	3423	190	724	3655	18
Grp Volume(v), veh/h	6	0	37	165	0	68	6	364	377	27	492	518
Grp Sat Flow(s),veh/h/ln	1344	0	1638	1360	0	1594	558	1777	1836	724	1791	1882
Q Serve(g_s), s	0.3	0.0	1.6	9.6	0.0	3.1	0.3	7.8	7.8	0.5	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	1.6	11.2	0.0	3.1	0.3	7.8	7.8	8.3	0.0	0.0
Prop In Lane	1.00		0.84	1.00		0.91	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	365	0	404	391	0	393	451	1181	1220	498	1190	1251
V/C Ratio(X)	0.02	0.00	0.09	0.42	0.00	0.17	0.01	0.31	0.31	0.05	0.41	0.41
Avail Cap(c_a), veh/h	422	0	473	449	0	460	451	1181	1220	498	1190	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.84	0.94	0.94	0.94
Uniform Delay (d), s/veh	28.0	0.0	26.5	30.5	0.0	27.1	5.1	6.4	6.4	0.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.6	0.6	0.2	1.0	1.0
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(50%),veh/ln	0.1	0.0	0.6	3.1	0.0	1.2	0.0	2.5	2.6	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	0.0	26.6	30.7	0.0	27.2	5.2	6.9	7.0	0.7	1.0	1.0
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		43			233			747			1037	
Approach Delay, s/veh		26.8			29.7			6.9			1.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	63.8	26.2	63.8	26.2
Change Period (Y+Rc), s	5.9	* 5.2	5.9	* 5.2
Max Green Setting (Gmax), s	54.1	* 25	54.1	* 25
Max Q Clear Time (g_c+I1), s	10.3	13.2	9.8	5.4
Green Ext Time (p_c), s	4.9	0.4	3.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

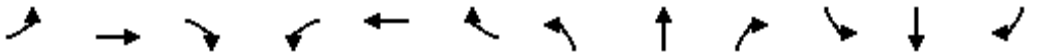
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	25	5	135	5	190	5	680	60	725
Future Volume (vph)	25	5	135	5	190	5	680	60	725
Lane Group Flow (vph)	35	56	153	6	216	5	777	67	821
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		8		4			6		2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	4	6	6	2	2
Switch Phase									
Minimum Initial (s)	19.0	19.0	19.0	19.0	19.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.2	24.2	24.2	24.2	24.2	23.8	23.8	23.8	23.8
Total Split (s)	27.0	27.0	27.0	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.11	0.14	0.50	0.01	0.41	0.01	0.32	0.16	0.34
Control Delay	28.2	10.8	36.4	26.6	6.7	5.0	5.9	2.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.8	36.4	26.6	6.7	5.0	5.9	2.8	3.3
Queue Length 50th (ft)	16	3	76	3	0	1	78	4	25
Queue Length 95th (ft)	31	20	131	12	50	m3	103	m6	26
Internal Link Dist (ft)		68		328			1445		1323
Turn Bay Length (ft)			430		430	100		130	
Base Capacity (vph)	362	454	346	480	569	399	2401	421	2413
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	0.10	0.12	0.44	0.01	0.38	0.01	0.32	0.16	0.34

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 87 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 55th St. & Flatiron Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	35	135	5	190	5	680	35	60	725	5
Future Volume (veh/h)	25	5	35	135	5	190	5	680	35	60	725	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	7	49	153	6	0	5	739	38	67	815	6
Peak Hour Factor	0.71	0.71	0.71	0.88	0.88	0.88	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	2	2	2
Cap, veh/h	395	46	319	346	422		538	2363	121	557	2484	18
Arrive On Green	0.22	0.22	0.21	0.22	0.22	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1421	204	1425	1358	1885	1598	666	3439	177	694	3616	27
Grp Volume(v), veh/h	35	0	56	153	6	0	5	382	395	67	400	421
Grp Sat Flow(s),veh/h/ln	1421	0	1629	1358	1885	1598	666	1777	1839	694	1777	1866
Q Serve(g_s), s	1.8	0.0	2.5	9.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0	2.5	11.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.88	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	395	0	365	346	422		538	1221	1263	557	1221	1282
V/C Ratio(X)	0.09	0.00	0.15	0.44	0.01		0.01	0.31	0.31	0.12	0.33	0.33
Avail Cap(c_a), veh/h	440	0	416	389	482		538	1221	1263	557	1221	1282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.96	0.96	0.96	0.83	0.83	0.83
Uniform Delay (d), s/veh	28.0	0.0	28.5	32.8	27.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.6	0.6	0.4	0.6	0.6
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(50%),veh/ln	0.6	0.0	1.0	3.0	0.1	0.0	0.0	0.2	0.2	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	0.0	28.6	33.1	27.2	0.0	0.0	0.6	0.6	0.4	0.6	0.6
LnGrp LOS	C	A	C	C	C		A	A	A	A	A	A
Approach Vol, veh/h		91			159			782			888	
Approach Delay, s/veh		28.3			32.9			0.6			0.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.8		24.2		65.8		24.2				
Change Period (Y+Rc), s		* 5.8		* 5.2		* 5.8		* 5.2				
Max Green Setting (Gmax), s		* 57		* 22		* 57		* 22				
Max Q Clear Time (g_c+I1), s		2.0		13.7		2.0		4.5				
Green Ext Time (p_c), s		4.4		0.2		3.3		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

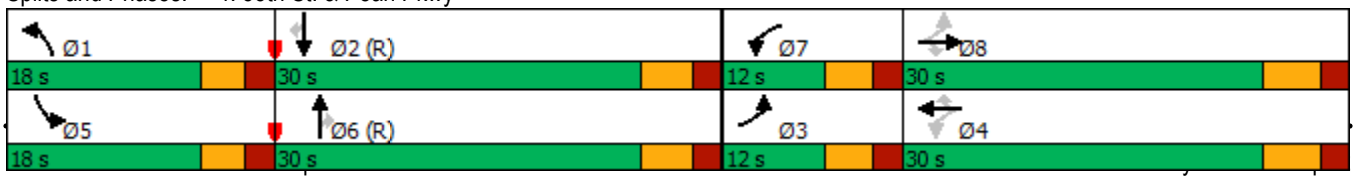
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	535	225	145	180	255	115	345	475	505	425	95
Future Volume (vph)	90	535	225	145	180	255	115	345	475	505	425	95
Lane Group Flow (vph)	99	588	247	186	231	327	131	392	540	549	462	103
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	30.0	30.0	18.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	33.3%	33.3%	20.0%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.20	0.57	0.39	0.33	0.21	0.46	0.44	0.73	0.89	1.00	0.69	0.15
Control Delay	17.3	29.5	5.3	17.9	24.5	5.3	50.3	33.4	33.7	77.3	31.6	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	29.5	5.3	17.9	24.5	5.3	50.3	33.4	33.7	77.3	31.6	1.5
Queue Length 50th (ft)	34	147	0	32	52	0	40	206	199	~174	222	0
Queue Length 95th (ft)	65	203	54	45	70	32	68	306	#377	#276	#357	11
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	487	1039	639	594	1084	711	534	538	607	551	671	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.57	0.39	0.31	0.21	0.46	0.25	0.73	0.89	1.00	0.69	0.15

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
~ 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.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	535	225	145	180	255	115	345	475	505	425	95
Future Volume (veh/h)	90	535	225	145	180	255	115	345	475	505	425	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	99	588	0	186	231	0	131	392	0	549	462	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	472	1023		629	1026		240	573		533	729	
Arrive On Green	0.07	0.29	0.00	0.07	0.29	0.00	0.02	0.10	0.00	0.16	0.39	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	99	588	0	186	231	0	131	392	0	549	462	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.4	12.7	0.0	3.3	4.5	0.0	3.4	18.2	0.0	14.0	18.1	0.0
Cycle Q Clear(g_c), s	3.4	12.7	0.0	3.3	4.5	0.0	3.4	18.2	0.0	14.0	18.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	472	1023		629	1026		240	573		533	729	
V/C Ratio(X)	0.21	0.57		0.30	0.23		0.55	0.68		1.03	0.63	
Avail Cap(c_a), veh/h	507	1027		686	1026		538	573		533	729	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	27.4	0.0	21.0	24.2	0.0	42.6	36.2	0.0	38.0	22.1	0.0
Incr Delay (d2), s/veh	0.2	0.8	0.0	0.1	0.1	0.0	0.7	6.2	0.0	46.7	4.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.3	0.0	1.3	1.8	0.0	1.5	10.0	0.0	9.1	8.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	28.1	0.0	21.1	24.3	0.0	43.2	42.4	0.0	84.7	26.3	0.0
LnGrp LOS	C	C		C	C		D	D		F	C	
Approach Vol, veh/h		687			417			523			1011	
Approach Delay, s/veh		27.0			22.9			42.6			58.0	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	39.3	10.2	30.2	18.0	31.6	10.5	29.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	* 6.8	24.1	13.0	24.4	* 6.8	24.1
Max Q Clear Time (g_c+I1), s	5.4	20.1	5.4	6.5	16.0	20.2	5.3	14.7
Green Ext Time (p_c), s	0.1	0.8	0.0	0.9	0.0	0.6	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	41.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

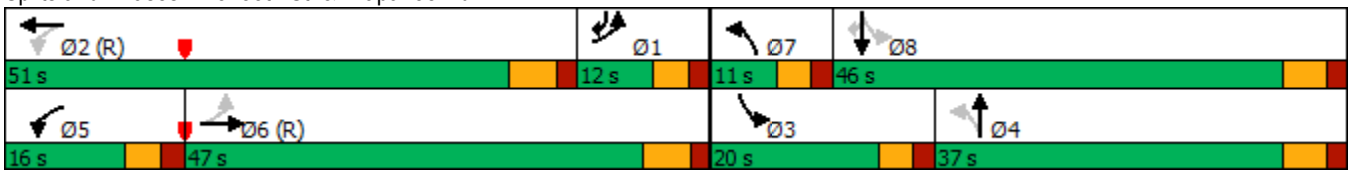
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	140	1325	155	840	110	235	585	425	175
Future Volume (vph)	140	1325	155	840	110	235	585	425	175
Lane Group Flow (vph)	149	1564	172	1111	141	480	665	483	199
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	12.0	47.0	16.0	51.0	11.0	37.0	20.0	46.0	12.0
Total Split (%)	10.0%	39.2%	13.3%	42.5%	9.2%	30.8%	16.7%	38.3%	10.0%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.60	0.84	0.73	0.55	0.64	0.50	0.86	0.75	0.27
Control Delay	48.6	39.8	44.3	28.1	37.8	31.0	37.1	43.3	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	39.8	44.3	28.1	37.8	31.0	37.1	43.3	7.3
Queue Length 50th (ft)	80	405	87	231	66	131	182	330	29
Queue Length 95th (ft)	132	471	#178	281	92	148	#227	439	64
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	249	1853	245	2002	220	982	773	658	725
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	0.60	0.84	0.70	0.55	0.64	0.49	0.86	0.73	0.27

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 64 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 55th St. & Arapahoe Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	1325	145	155	840	160	110	235	140	585	425	175
Future Volume (veh/h)	140	1325	145	155	840	160	110	235	140	585	425	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	149	1410	154	172	933	178	141	301	179	665	483	199
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.78	0.78	0.78	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	1	1	1
Cap, veh/h	279	1745	191	228	1687	321	243	571	331	824	643	646
Arrive On Green	0.07	0.37	0.36	0.09	0.39	0.38	0.06	0.27	0.25	0.13	0.34	0.34
Sat Flow, veh/h	1781	4672	510	1781	4308	819	1767	2149	1245	3483	1885	1598
Grp Volume(v), veh/h	149	1027	537	172	737	374	141	246	234	665	483	199
Grp Sat Flow(s),veh/h/ln	1781	1702	1779	1781	1702	1723	1767	1763	1631	1742	1885	1598
Q Serve(g_s), s	0.0	32.5	32.6	8.1	20.2	20.4	7.0	14.3	14.9	16.0	27.2	1.4
Cycle Q Clear(g_c), s	0.0	32.5	32.6	8.1	20.2	20.4	7.0	14.3	14.9	16.0	27.2	1.4
Prop In Lane	1.00		0.29	1.00		0.48	1.00		0.76	1.00		1.00
Lane Grp Cap(c), veh/h	279	1271	664	228	1333	675	243	469	434	824	643	646
V/C Ratio(X)	0.53	0.81	0.81	0.76	0.55	0.55	0.58	0.52	0.54	0.81	0.75	0.31
Avail Cap(c_a), veh/h	279	1271	664	238	1333	675	243	485	449	824	660	660
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	0.90	0.90	0.90
Uniform Delay (d), s/veh	44.8	33.7	34.0	31.0	28.3	28.8	32.4	37.6	38.4	28.6	35.1	12.3
Incr Delay (d2), s/veh	1.1	5.6	10.2	10.9	1.7	3.3	2.3	0.7	1.0	5.0	4.1	0.2
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(50%),veh/ln	4.3	14.2	15.8	4.1	8.5	9.0	3.2	6.2	6.1	7.5	13.1	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	39.3	44.2	41.9	30.0	32.1	34.7	38.3	39.4	33.6	39.1	12.4
LnGrp LOS	D	D	D	D	C	C	C	D	D	C	D	B
Approach Vol, veh/h		1713			1283			621			1347	
Approach Delay, s/veh		41.4			32.2			37.9			32.4	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	51.0	20.0	35.9	15.3	48.8	11.0	44.9
Change Period (Y+Rc), s	* 6	* 6	5.0	5.9	* 5.2	* 6	5.0	5.9
Max Green Setting (Gmax), s	* 6.8	* 45	15.0	31.1	* 11	* 41	6.0	40.1
Max Q Clear Time (g_c+I1), s	2.0	22.4	18.0	16.9	10.1	34.6	9.0	29.2
Green Ext Time (p_c), s	0.1	5.6	0.0	1.4	0.0	4.0	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

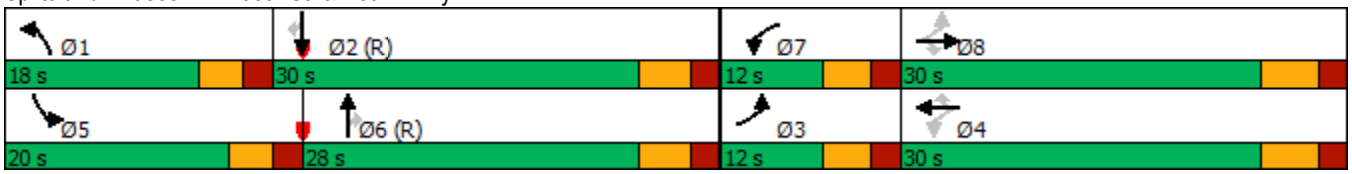
Intersection Capacity Worksheets: 2045 Background With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	535	225	145	180	255	115	345	475	505	425	95
Future Volume (vph)	90	535	225	145	180	255	115	345	475	505	425	95
Lane Group Flow (vph)	99	588	247	186	231	327	131	392	540	549	462	103
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	28.0	28.0	20.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	31.1%	31.1%	22.2%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.20	0.57	0.39	0.33	0.21	0.46	0.44	0.77	0.92	0.91	0.69	0.15
Control Delay	17.3	29.5	5.3	17.9	24.5	5.3	48.9	36.3	37.7	58.1	31.6	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	29.5	5.3	17.9	24.5	5.3	48.9	36.3	37.7	58.1	31.6	1.5
Queue Length 50th (ft)	34	147	0	32	52	0	40	209	198	159	222	0
Queue Length 95th (ft)	65	203	54	45	70	32	68	#335	#386	#253	#357	11
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	487	1039	639	594	1084	711	534	510	588	606	671	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.57	0.39	0.31	0.21	0.46	0.25	0.77	0.92	0.91	0.69	0.15

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	535	225	145	180	255	115	345	475	505	425	95
Future Volume (veh/h)	90	535	225	145	180	255	115	345	475	505	425	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	99	588	0	186	231	0	131	392	0	549	462	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	472	1023		629	1026		240	532		609	729	
Arrive On Green	0.07	0.29	0.00	0.07	0.29	0.00	0.02	0.09	0.00	0.18	0.39	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	99	588	0	186	231	0	131	392	0	549	462	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.4	12.7	0.0	3.3	4.5	0.0	3.4	18.4	0.0	14.1	18.1	0.0
Cycle Q Clear(g_c), s	3.4	12.7	0.0	3.3	4.5	0.0	3.4	18.4	0.0	14.1	18.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	472	1023		629	1026		240	532		609	729	
V/C Ratio(X)	0.21	0.57		0.30	0.23		0.55	0.74		0.90	0.63	
Avail Cap(c_a), veh/h	507	1027		686	1026		538	532		609	729	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	27.4	0.0	21.0	24.2	0.0	42.6	37.5	0.0	36.2	22.1	0.0
Incr Delay (d2), s/veh	0.2	0.8	0.0	0.1	0.1	0.0	0.7	8.4	0.0	16.1	4.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.3	0.0	1.3	1.8	0.0	1.5	10.4	0.0	7.1	8.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	28.1	0.0	21.1	24.3	0.0	43.2	45.9	0.0	52.3	26.3	0.0
LnGrp LOS	C	C		C	C		D	D		D	C	
Approach Vol, veh/h		687			417			523			1011	
Approach Delay, s/veh		27.0			22.9			45.3			40.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	39.3	10.2	30.2	20.0	29.6	10.5	29.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	* 6.8	24.1	15.0	22.4	* 6.8	24.1
Max Q Clear Time (g_c+I1), s	5.4	20.1	5.4	6.5	16.1	20.4	5.3	14.7
Green Ext Time (p_c), s	0.1	0.8	0.0	0.9	0.0	0.3	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection Capacity Worksheets: 2027 Background + Project

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	103	131	67	22	26	15
Future Vol, veh/h	103	131	67	22	26	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	70	70	75	75
Heavy Vehicles, %	7	7	18	18	1	1
Mvmt Flow	123	156	96	31	35	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	279	0	424	201
Stage 1	-	-	-	-	201	-
Stage 2	-	-	-	-	223	-
Critical Hdwy	-	-	4.28	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.362	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1197	-	589	842
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	816	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1197	-	541	842
Mov Cap-2 Maneuver	-	-	-	-	541	-
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	6.2	11.3
HCM LOS			B

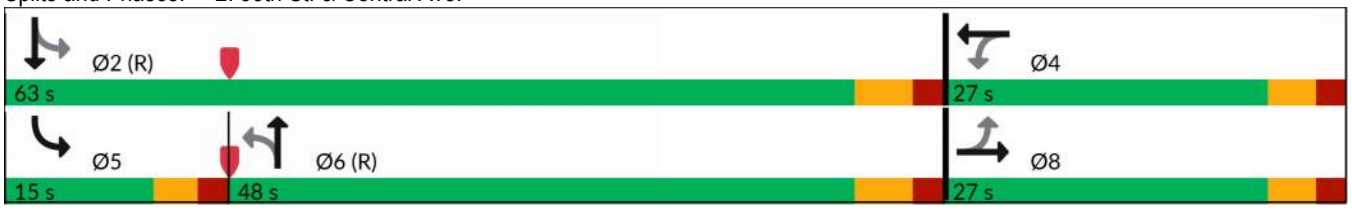
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	622	-	-	1197	-
HCM Lane V/C Ratio	0.088	-	-	0.08	-
HCM Control Delay (s/veh)	11.3	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.3	-	-	0.3	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	0	51	0	17	619	67	393
Future Volume (vph)	4	0	51	0	17	619	67	393
Lane Group Flow (vph)	8	16	58	18	18	926	71	423
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		8		4		6	5	2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	9.0	29.9
Total Split (s)	27.0	27.0	27.0	27.0	48.0	48.0	15.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	53.3%	53.3%	16.7%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.0	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.06	0.03	0.43	0.04	0.03	0.37	0.15	0.15
Control Delay (s/veh)	34.8	0.1	46.0	0.1	5.6	5.6	5.5	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.8	0.1	46.0	0.1	5.6	5.6	5.5	4.7
Queue Length 50th (ft)	4	0	31	0	3	87	13	42
Queue Length 95th (ft)	9	0	65	0	11	148	29	70
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	289	690	318	630	692	2516	555	2907
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.02	0.18	0.03	0.03	0.37	0.13	0.15

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: 55th St. & Central Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	8	51	0	16	17	619	251	67	393	9
Future Volume (veh/h)	4	0	8	51	0	16	17	619	251	67	393	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1693	1693	1693	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	8	0	16	58	0	18	18	659	267	71	414	9
Peak Hour Factor	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	25	25	25	14	14	14	3	3	3	3	3	3
Cap, veh/h	165	0	112	175	0	124	780	1793	726	536	2910	63
Arrive On Green	0.09	0.00	0.07	0.09	0.00	0.07	0.73	0.73	0.71	0.10	1.00	1.00
Sat Flow, veh/h	1141	0	1296	1264	0	1434	956	2448	992	1767	3528	77
Grp Volume(v), veh/h	8	0	16	58	0	18	18	474	452	71	207	216
Grp Sat Flow(s),veh/h/ln	1141	0	1296	1264	0	1434	956	1763	1677	1767	1763	1842
Q Serve(g_s), s	0.6	0.0	1.0	4.0	0.0	1.1	0.5	8.9	9.2	0.8	0.0	0.0
Cycle Q Clear(g_c), s	1.6	0.0	1.0	5.0	0.0	1.1	0.5	8.9	9.2	0.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.59	1.00		0.04
Lane Grp Cap(c), veh/h	165	0	112	175	0	124	780	1291	1228	536	1454	1519
V/C Ratio(X)	0.05	0.00	0.14	0.33	0.00	0.15	0.02	0.37	0.37	0.13	0.14	0.14
Avail Cap(c_a), veh/h	358	0	331	388	0	367	780	1291	1228	667	1454	1519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.80	0.80	0.80	0.98	0.98	0.98
Uniform Delay (d), s/veh	38.8	0.0	38.6	40.4	0.0	38.6	3.3	4.4	4.7	2.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.4	0.0	0.2	0.0	0.6	0.7	0.0	0.2	0.2
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(50%),veh/ln	0.2	0.0	0.3	1.3	0.0	0.4	0.1	2.4	2.4	0.1	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	38.9	0.0	38.8	40.8	0.0	38.8	3.3	5.1	5.3	2.7	0.2	0.2
LnGrp LOS	D		D	D		D	A	A	A	A	A	A
Approach Vol, veh/h		24			76			944			494	
Approach Delay, s/veh		38.8			40.3			5.2			0.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		78.2		11.8	8.3	69.9		11.8				
Change Period (Y+Rc), s		5.9		5.2	5.0	5.9		5.2				
Max Green Setting (Gmax), s		57.1		21.8	10.0	42.1		21.8				
Max Q Clear Time (g_c+I1), s		2.0		7.0	2.8	11.2		3.6				
Green Ext Time (p_c), s		1.6		0.1	0.0	4.4		0.0				

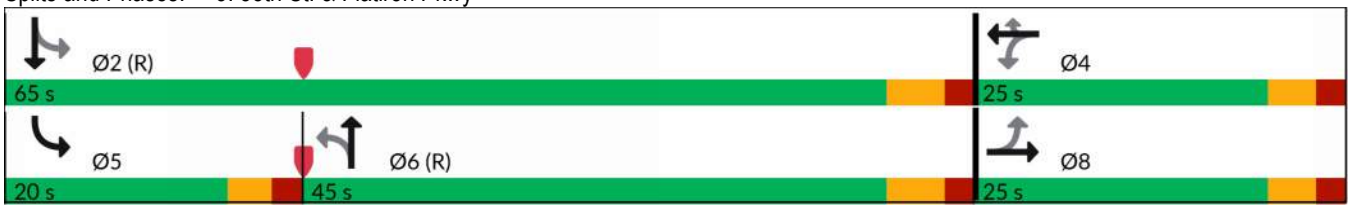
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			5.9									
HCM 6th LOS			A									

Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1	22	43	30	378	266	539
Future Volume (vph)	4	1	22	43	30	378	266	539
Lane Group Flow (vph)	6	5	33	64	33	553	296	639
Turn Type	Perm	NA	Perm	Perm	Perm	NA	pm+pt	NA
Protected Phases		8				6	5	2
Permitted Phases	8		4	4	6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.2	24.2	24.2	24.2	23.8	23.8	9.0	23.8
Total Split (s)	25.0	25.0	25.0	25.0	45.0	45.0	20.0	65.0
Total Split (%)	27.8%	27.8%	27.8%	27.8%	50.0%	50.0%	22.2%	72.2%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.0	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.06	0.04	0.28	0.10	0.06	0.23	0.41	0.21
Control Delay (s/veh)	37.3	25.3	43.5	0.3	5.3	4.2	2.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	25.3	43.5	0.3	5.3	4.2	2.9	0.6
Queue Length 50th (ft)	3	1	18	0	5	37	7	3
Queue Length 95th (ft)	11	8	33	0	13	53	18	11
Internal Link Dist (ft)		68				1445		1323
Turn Bay Length (ft)			430	430	100		130	
Base Capacity (vph)	268	315	303	757	537	2424	822	2989
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.11	0.08	0.06	0.23	0.36	0.21

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: 55th St. & Flatiron Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	3	22	0	43	30	378	120	266	539	36
Future Volume (veh/h)	4	1	3	22	0	43	30	378	120	266	539	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1752	1752	1752	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	6	1	4	33	0	0	33	420	133	296	599	40
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	25	25	10	10	10	3	3	3	2	2	2
Cap, veh/h	135	13	50	138	83		669	1986	623	794	2921	195
Arrive On Green	0.05	0.05	0.03	0.05	0.00	0.00	0.75	0.75	0.73	0.05	0.58	0.57
Sat Flow, veh/h	1159	267	1070	1322	1752	1485	783	2641	828	1781	3381	225
Grp Volume(v), veh/h	6	0	5	33	0	0	33	279	274	296	314	325
Grp Sat Flow(s),veh/h/ln	1159	0	1337	1322	1752	1485	783	1763	1706	1781	1777	1830
Q Serve(g_s), s	0.4	0.0	0.3	2.2	0.0	0.0	1.0	4.2	4.4	2.9	7.6	7.7
Cycle Q Clear(g_c), s	0.4	0.0	0.3	2.5	0.0	0.0	1.0	4.2	4.4	2.9	7.6	7.7
Prop In Lane	1.00		0.80	1.00		1.00	1.00		0.49	1.00		0.12
Lane Grp Cap(c), veh/h	135	0	63	138	83		669	1325	1283	794	1535	1581
V/C Ratio(X)	0.04	0.00	0.08	0.24	0.00		0.05	0.21	0.21	0.37	0.20	0.21
Avail Cap(c_a), veh/h	350	0	312	384	409		669	1325	1283	990	1535	1581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.94	0.94	0.94	0.89	0.89	0.89
Uniform Delay (d), s/veh	41.1	0.0	41.5	42.2	0.0	0.0	2.9	3.3	3.4	1.9	4.2	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.3	0.0	0.0	0.1	0.3	0.4	0.1	0.3	0.3
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(50%),veh/ln	0.1	0.0	0.1	0.7	0.0	0.0	0.1	1.1	1.1	0.4	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.1	0.0	41.7	42.6	0.0	0.0	3.0	3.6	3.8	2.0	4.4	4.5
LnGrp LOS	D		D	D			A	A	A	A	A	A
Approach Vol, veh/h		11			33			586			935	
Approach Delay, s/veh		41.4			42.6			3.7			3.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		81.8		8.2	10.1	71.7		8.2				
Change Period (Y+Rc), s		5.8		5.2	5.0	5.8		5.2				
Max Green Setting (Gmax), s		59.2		19.8	15.0	39.2		19.8				
Max Q Clear Time (g_c+I1), s		9.7		4.5	4.9	6.4		2.4				
Green Ext Time (p_c), s		2.7		0.0	0.2	2.5		0.0				

Intersection Summary		
HCM 6th Ctrl Delay, s/veh	4.8	
HCM 6th LOS	A	

Notes

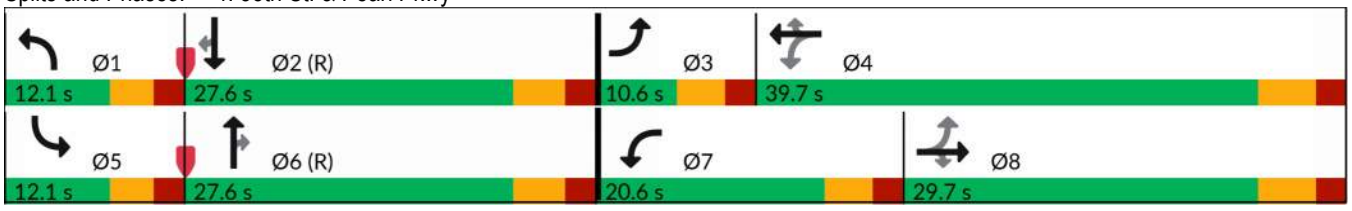
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	88	159	397	446	352	103	218	85	120	288	62
Future Volume (vph)	37	88	159	397	446	352	103	218	85	120	288	62
Lane Group Flow (vph)	42	100	181	427	480	378	114	242	94	145	347	75
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	10.6	29.7	29.7	20.6	39.7	39.7	12.1	27.6	27.6	12.1	27.6	27.6
Total Split (%)	11.8%	33.0%	33.0%	22.9%	44.1%	44.1%	13.4%	30.7%	30.7%	13.4%	30.7%	30.7%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.16	0.18	0.42	0.48	0.49	0.54	0.41	0.31	0.12	0.47	0.42	0.09
Control Delay (s/veh)	19.8	32.3	5.7	22.9	29.1	5.9	54.3	12.8	1.1	43.4	21.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.8	32.3	5.7	22.9	29.1	5.9	54.3	12.8	1.1	43.4	21.2	0.2
Queue Length 50th (ft)	16	25	0	90	127	0	36	56	0	41	136	0
Queue Length 95th (ft)	33	45	31	115	162	63	63	144	0	62	221	0
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	262	963	586	942	1363	838	318	769	782	334	822	821
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.10	0.31	0.45	0.35	0.45	0.36	0.31	0.12	0.43	0.42	0.09

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	88	159	397	446	352	103	218	85	120	288	62
Future Volume (veh/h)	37	88	159	397	446	352	103	218	85	120	288	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	42	100	0	427	480	0	114	242	0	145	347	0
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.90	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	7	7	7	5	5	5	4	4	4	4	4	4
Cap, veh/h	240	451		876	801		216	876		249	894	
Arrive On Green	0.04	0.13	0.00	0.14	0.23	0.00	0.02	0.16	0.00	0.07	0.49	0.00
Sat Flow, veh/h	1711	3413	1522	3374	3469	1547	3401	1841	1560	3401	1841	1560
Grp Volume(v), veh/h	42	100	0	427	480	0	114	242	0	145	347	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1687	1735	1547	1700	1841	1560	1700	1841	1560
Q Serve(g_s), s	1.9	2.4	0.0	9.3	11.1	0.0	3.0	10.4	0.0	3.7	10.8	0.0
Cycle Q Clear(g_c), s	1.9	2.4	0.0	9.3	11.1	0.0	3.0	10.4	0.0	3.7	10.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	451		876	801		216	876		249	894	
V/C Ratio(X)	0.18	0.22		0.49	0.60		0.53	0.28		0.58	0.39	
Avail Cap(c_a), veh/h	293	975		1023	1376		306	876		306	894	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.99	0.99	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.1	34.9	0.0	26.3	30.9	0.0	42.7	24.3	0.0	40.4	14.7	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.2	0.7	0.0	0.7	0.8	0.0	0.8	1.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.0	0.0	3.6	4.6	0.0	1.3	5.1	0.0	1.5	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.4	35.2	0.0	26.4	31.6	0.0	43.5	25.0	0.0	41.2	15.9	0.0
LnGrp LOS	C	D		C	C		D	C		D	B	
Approach Vol, veh/h		142			907			356			492	
Approach Delay, s/veh		34.3			29.2			30.9			23.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	47.7	7.8	24.8	10.6	46.8	16.7	15.9
Change Period (Y+Rc), s	5.0	5.6	5.2	5.9	5.0	5.6	5.2	5.9
Max Green Setting (Gmax), s	7.1	22.0	5.4	33.8	7.1	22.0	15.4	23.8
Max Q Clear Time (g_c+I1), s	5.0	12.8	3.9	13.1	5.7	12.4	11.3	4.4
Green Ext Time (p_c), s	0.0	0.9	0.0	2.1	0.0	0.6	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	28.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

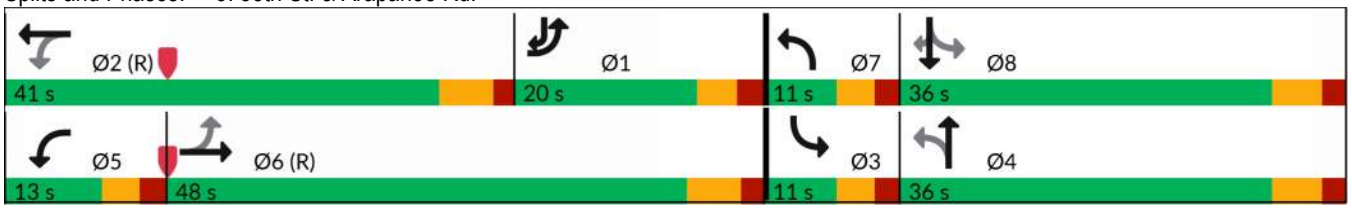
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	168	431	70	890	157	478	114	114	159
Future Volume (vph)	168	431	70	890	157	478	114	114	159
Lane Group Flow (vph)	202	595	72	1179	171	596	131	131	183
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	20.0	48.0	13.0	41.0	11.0	36.0	11.0	36.0	20.0
Total Split (%)	18.5%	44.4%	12.0%	38.0%	10.2%	33.3%	10.2%	33.3%	18.5%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.60	0.28	0.27	0.69	0.37	0.56	0.28	0.25	0.25
Control Delay (s/veh)	42.5	19.6	27.1	31.1	25.0	33.4	22.2	30.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.5	19.6	27.1	31.1	25.0	33.4	22.2	30.6	4.5
Queue Length 50th (ft)	91	93	34	240	78	178	28	69	14
Queue Length 95th (ft)	135	112	68	293	128	237	47	115	41
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	338	2114	283	1704	465	1069	488	526	743
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	0.60	0.28	0.25	0.69	0.37	0.56	0.27	0.25	0.25

Intersection Summary

Cycle Length: 108
Actuated Cycle Length: 108
Offset: 98 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: 55th St. & Arapahoe Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	431	63	70	890	253	157	478	70	114	114	159
Future Volume (veh/h)	168	431	63	70	890	253	157	478	70	114	114	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1885	1885	1885	1796	1796	1796
Adj Flow Rate, veh/h	202	519	76	72	918	261	171	520	76	131	131	183
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	4	4	4	1	1	1	7	7	7
Cap, veh/h	357	1913	275	295	1333	378	432	960	140	556	531	655
Arrive On Green	0.14	0.44	0.42	0.05	0.34	0.32	0.06	0.31	0.29	0.05	0.30	0.29
Sat Flow, veh/h	1725	4365	629	1753	3890	1102	1795	3137	457	3319	1796	1522
Grp Volume(v), veh/h	202	390	205	72	790	389	171	296	300	131	131	183
Grp Sat Flow(s),veh/h/ln	1725	1648	1698	1753	1675	1642	1795	1791	1803	1659	1796	1522
Q Serve(g_s), s	4.3	8.1	8.4	3.2	21.9	22.2	7.0	14.8	15.0	2.9	6.0	1.3
Cycle Q Clear(g_c), s	4.3	8.1	8.4	3.2	21.9	22.2	7.0	14.8	15.0	2.9	6.0	1.3
Prop In Lane	1.00		0.37	1.00		0.67	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	357	1444	744	295	1148	563	432	548	552	556	531	655
V/C Ratio(X)	0.57	0.27	0.28	0.24	0.69	0.69	0.40	0.54	0.54	0.24	0.25	0.28
Avail Cap(c_a), veh/h	368	1444	744	348	1148	563	432	548	552	592	532	657
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	0.99	0.99	0.99
Uniform Delay (d), s/veh	39.2	19.3	19.7	26.8	30.5	31.2	25.5	31.1	31.4	25.4	28.9	8.8
Incr Delay (d2), s/veh	1.1	0.5	0.9	0.2	3.4	6.8	0.2	0.9	0.9	0.1	0.2	0.2
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(50%),veh/ln	4.9	3.2	3.5	1.3	9.2	9.8	3.1	6.5	6.6	1.2	2.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.3	19.8	20.6	27.0	33.9	38.0	25.7	32.0	32.3	25.5	29.1	9.0
LnGrp LOS	D	B	C	C	C	D	C	C	C	C	C	A
Approach Vol, veh/h		797			1251			767			445	
Approach Delay, s/veh		25.2			34.8			30.7			19.8	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	41.0	9.8	37.1	9.8	51.3	11.0	35.9
Change Period (Y+Rc), s	6.0	* 6	5.0	5.9	5.2	6.0	5.0	5.9
Max Green Setting (Gmax), s	14.8	* 35	6.0	30.1	7.8	42.0	6.0	30.1
Max Q Clear Time (g_c+I1), s	6.3	24.2	4.9	17.0	5.2	10.4	9.0	8.0
Green Ext Time (p_c), s	0.2	4.4	0.0	1.6	0.0	2.8	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	29.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	7.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	33	17	88	126	65
Future Vol, veh/h	41	33	17	88	126	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	83	83	63	63
Heavy Vehicles, %	4	4	8	8	5	5
Mvmt Flow	47	38	20	106	200	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	85	0	212	66
Stage 1	-	-	-	-	66	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	-	-	4.18	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.272	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1474	-	770	989
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1474	-	759	989
Mov Cap-2 Maneuver	-	-	-	-	759	-
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	862	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.2	11.9
HCM LOS			B

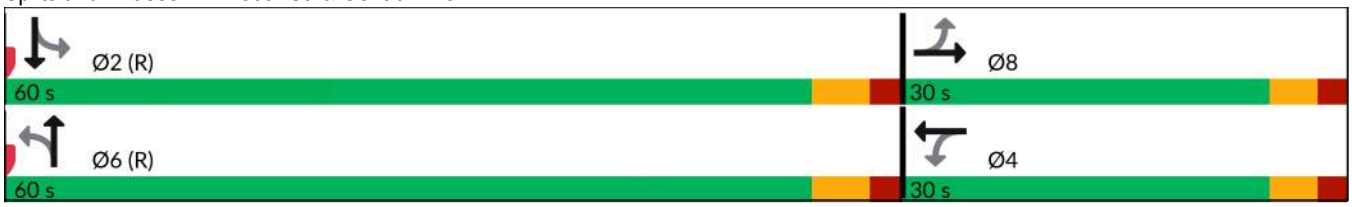
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	824	-	-	1474	-
HCM Lane V/C Ratio	0.368	-	-	0.014	-
HCM Control Delay (s/veh)	11.9	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	1.7	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	0	228	0	1	574	24	853
Future Volume (vph)	2	0	228	0	1	574	24	853
Lane Group Flow (vph)	2	30	259	75	1	701	26	929
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	29.9	29.9
Total Split (s)	30.0	30.0	30.0	30.0	60.0	60.0	60.0	60.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.9	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.06	0.72	0.12	0.00	0.31	0.06	0.40
Control Delay (s/veh)	23.5	0.2	42.5	0.4	6.0	7.4	4.2	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.5	0.2	42.5	0.4	6.0	7.4	4.2	4.6
Queue Length 50th (ft)	1	0	137	0	0	75	2	51
Queue Length 95th (ft)	6	0	209	0	2	115	m9	98
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	384	571	393	654	320	2270	435	2313
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.66	0.11	0.00	0.31	0.06	0.40

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 5 (6%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 55th St. & Central Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	24	228	0	66	1	574	50	24	853	2
Future Volume (veh/h)	2	0	24	228	0	66	1	574	50	24	853	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	2	0	30	259	0	75	1	645	56	26	927	2
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.89	0.89	0.89	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	1	1	1
Cap, veh/h	358	0	394	398	0	388	480	2198	191	518	2436	5
Arrive On Green	0.25	0.00	0.23	0.25	0.00	0.23	0.66	0.66	0.64	1.00	1.00	1.00
Sat Flow, veh/h	1335	0	1598	1369	0	1572	602	3309	287	751	3667	8
Grp Volume(v), veh/h	2	0	30	259	0	75	1	346	355	26	453	476
Grp Sat Flow(s),veh/h/ln	1335	0	1598	1369	0	1572	602	1777	1819	751	1791	1884
Q Serve(g_s), s	0.1	0.0	1.3	16.1	0.0	3.4	0.1	7.3	7.4	0.4	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.0	1.3	17.5	0.0	3.4	0.1	7.3	7.4	7.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.00
Lane Grp Cap(c), veh/h	358	0	394	398	0	388	480	1181	1208	518	1190	1252
V/C Ratio(X)	0.01	0.00	0.08	0.65	0.00	0.19	0.00	0.29	0.29	0.05	0.38	0.38
Avail Cap(c_a), veh/h	415	0	462	455	0	454	480	1181	1208	518	1190	1252
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.87	0.87	0.87	0.95	0.95	0.95
Uniform Delay (d), s/veh	28.2	0.0	26.5	32.7	0.0	27.3	5.1	6.3	6.4	0.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.1	0.0	0.5	0.5	0.2	0.9	0.8
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(50%),veh/ln	0.0	0.0	0.5	5.4	0.0	1.3	0.0	2.3	2.4	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.2	0.0	26.5	34.5	0.0	27.4	5.1	6.8	6.9	0.7	0.9	0.8
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		32			334			702			955	
Approach Delay, s/veh		26.6			32.9			6.9			0.9	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	63.8	26.2	63.8	26.2
Change Period (Y+Rc), s	5.9	5.2	5.9	5.2
Max Green Setting (Gmax), s	54.1	24.8	54.1	24.8
Max Q Clear Time (g_c+I1), s	9.8	19.5	9.4	5.6
Green Ext Time (p_c), s	4.3	0.4	2.9	0.0

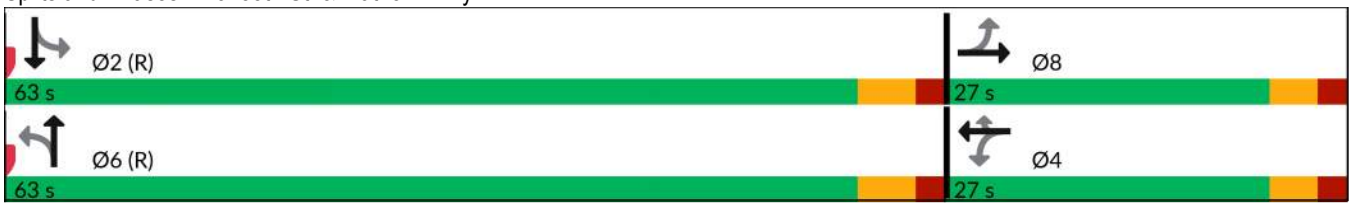
Intersection Summary	
HCM 6th Ctrl Delay, s/veh	8.6
HCM 6th LOS	A

Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	24	0	130	227	2	637	67	664
Future Volume (vph)	24	0	130	227	2	637	67	664
Lane Group Flow (vph)	34	42	148	258	2	728	75	749
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	NA
Protected Phases		8				6		2
Permitted Phases	8		4	4	6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	19.0	19.0	19.0	19.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.2	24.2	24.2	24.2	23.8	23.8	23.8	23.8
Total Split (s)	27.0	27.0	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.11	0.08	0.47	0.45	0.00	0.30	0.17	0.31
Control Delay (s/veh)	28.4	0.3	35.8	5.7	5.0	5.9	2.6	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.4	0.3	35.8	5.7	5.0	5.9	2.6	2.9
Queue Length 50th (ft)	15	0	74	0	0	73	4	23
Queue Length 95th (ft)	31	0	127	45	m1	101	m6	24
Internal Link Dist (ft)		68				1445		1323
Turn Bay Length (ft)			430	430	100		130	
Base Capacity (vph)	363	593	350	614	438	2405	448	2417
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.42	0.42	0.00	0.30	0.17	0.31

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 87 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 55th St. & Flatiron Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	0	30	130	0	227	2	637	33	67	664	3
Future Volume (veh/h)	24	0	30	130	0	227	2	637	33	67	664	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	0	42	148	0	0	2	692	36	75	746	3
Peak Hour Factor	0.71	0.71	0.71	0.88	0.88	0.88	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	2	2	2
Cap, veh/h	400	0	357	358	422		570	2362	123	580	2495	10
Arrive On Green	0.22	0.00	0.21	0.22	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1429	0	1598	1376	1885	1598	713	3436	179	727	3630	15
Grp Volume(v), veh/h	34	0	42	148	0	0	2	358	370	75	365	384
Grp Sat Flow(s),veh/h/ln	1429	0	1598	1376	1885	1598	713	1777	1838	727	1777	1868
Q Serve(g_s), s	1.7	0.0	1.9	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	0.0	1.9	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	400	0	357	358	422		570	1221	1264	580	1221	1284
V/C Ratio(X)	0.09	0.00	0.12	0.41	0.00		0.00	0.29	0.29	0.13	0.30	0.30
Avail Cap(c_a), veh/h	445	0	408	402	482		570	1221	1264	580	1221	1284
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.96	0.96	0.96	0.86	0.86	0.86
Uniform Delay (d), s/veh	27.8	0.0	28.3	32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.6	0.6	0.4	0.5	0.5
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(50%),veh/ln	0.6	0.0	0.7	2.9	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.8	0.0	28.4	32.4	0.0	0.0	0.0	0.6	0.6	0.4	0.5	0.5
LnGrp LOS	C		C	C			A	A	A	A	A	A
Approach Vol, veh/h		76			148			730			824	
Approach Delay, s/veh		28.1			32.4			0.6			0.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.9		24.1		65.9		24.1				
Change Period (Y+Rc), s		5.8		5.2		5.8		5.2				
Max Green Setting (Gmax), s		57.2		21.8		57.2		21.8				
Max Q Clear Time (g_c+I1), s		2.0		12.6		2.0		3.9				
Green Ext Time (p_c), s		4.0		0.2		3.0		0.1				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			4.4									
HCM 6th LOS			A									

Notes

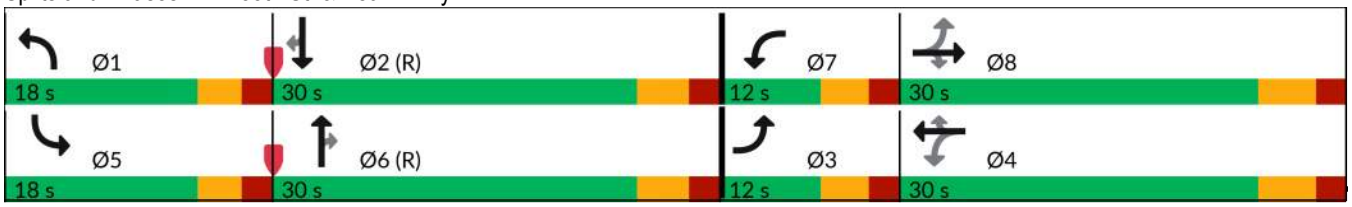
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	490	216	134	165	234	158	321	452	460	392	87
Future Volume (vph)	80	490	216	134	165	234	158	321	452	460	392	87
Lane Group Flow (vph)	88	538	237	172	212	300	180	365	514	500	426	95
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	30.0	30.0	18.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	33.3%	33.3%	20.0%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.18	0.52	0.37	0.29	0.20	0.43	0.52	0.67	0.83	0.93	0.66	0.15
Control Delay (s/veh)	17.1	28.5	5.3	17.5	24.4	5.3	50.5	30.4	26.0	63.4	31.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.1	28.5	5.3	17.5	24.4	5.3	50.5	30.4	26.0	63.4	31.6	1.1
Queue Length 50th (ft)	30	132	0	29	47	0	55	189	170	146	204	0
Queue Length 95th (ft)	59	185	52	42	65	31	87	282	#331	#243	#329	7
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	497	1045	634	636	1083	692	534	545	621	539	645	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.51	0.37	0.27	0.20	0.43	0.34	0.67	0.83	0.93	0.66	0.15

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	490	216	134	165	234	158	321	452	460	392	87
Future Volume (veh/h)	80	490	216	134	165	234	158	321	452	460	392	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	88	538	0	172	212	0	180	365	0	500	426	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	475	1023		653	1034		295	579		533	705	
Arrive On Green	0.06	0.29	0.00	0.07	0.29	0.00	0.03	0.10	0.00	0.16	0.38	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	88	538	0	172	212	0	180	365	0	500	426	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.1	11.4	0.0	3.1	4.1	0.0	4.6	16.9	0.0	13.0	16.6	0.0
Cycle Q Clear(g_c), s	3.1	11.4	0.0	3.1	4.1	0.0	4.6	16.9	0.0	13.0	16.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	475	1023		653	1034		295	579		533	705	
V/C Ratio(X)	0.19	0.53		0.26	0.20		0.61	0.63		0.94	0.60	
Avail Cap(c_a), veh/h	520	1027		720	1034		538	579		533	705	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.5	26.9	0.0	20.9	23.9	0.0	42.3	35.5	0.0	37.6	22.5	0.0
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.1	0.1	0.0	0.7	4.9	0.0	24.1	3.8	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.7	0.0	1.2	1.7	0.0	2.0	9.1	0.0	7.1	7.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.6	27.4	0.0	20.9	24.0	0.0	43.0	40.4	0.0	61.7	26.3	0.0
LnGrp LOS	C	C		C	C		D	D		E	C	
Approach Vol, veh/h		626			384			545			926	
Approach Delay, s/veh		26.4			22.6			41.2			45.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	38.2	9.7	30.4	18.0	31.9	10.2	29.9
Change Period (Y+Rc), s	5.0	5.6	5.2	5.9	5.0	5.6	5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	6.8	24.1	13.0	24.4	6.8	24.1
Max Q Clear Time (g_c+I1), s	6.6	18.6	5.1	6.1	15.0	18.9	5.1	13.4
Green Ext Time (p_c), s	0.1	0.9	0.0	0.8	0.0	0.7	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	36.2
HCM 6th LOS	D

Notes

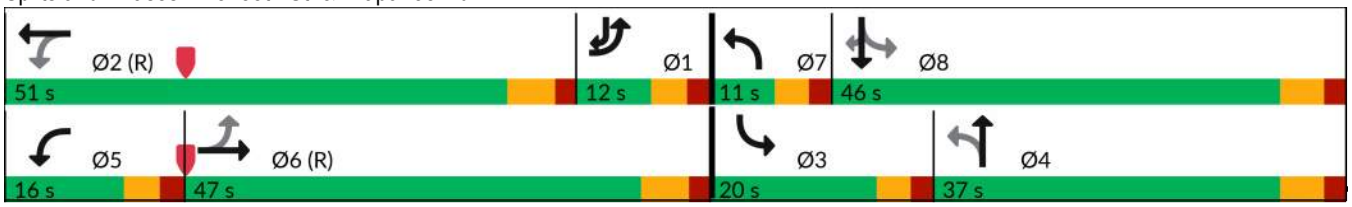
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	139	1210	141	768	98	219	568	405	211
Future Volume (vph)	139	1210	141	768	98	219	568	405	211
Lane Group Flow (vph)	148	1428	157	1024	126	445	645	460	240
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	12.0	47.0	16.0	51.0	11.0	37.0	20.0	46.0	12.0
Total Split (%)	10.0%	39.2%	13.3%	42.5%	9.2%	30.8%	16.7%	38.3%	10.0%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.55	0.76	0.69	0.51	0.53	0.46	0.80	0.71	0.33
Control Delay (s/veh)	44.1	36.1	41.4	27.2	31.3	30.1	32.8	41.6	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	44.1	36.1	41.4	27.2	31.3	30.1	32.8	41.6	9.4
Queue Length 50th (ft)	79	351	79	206	59	118	176	309	45
Queue Length 95th (ft)	132	416	#150	254	84	136	215	414	86
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	270	1875	242	2002	237	981	802	658	725
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	0.55	0.76	0.65	0.51	0.53	0.45	0.80	0.70	0.33

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 64 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 55th St. & Arapahoe Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1210	133	141	768	154	98	219	128	568	405	211
Future Volume (veh/h)	139	1210	133	141	768	154	98	219	128	568	405	211
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	148	1287	141	157	853	171	126	281	164	645	460	240
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.78	0.78	0.78	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	1	1	1
Cap, veh/h	296	1774	194	226	1672	333	252	576	327	851	643	646
Arrive On Green	0.07	0.38	0.36	0.09	0.39	0.38	0.06	0.27	0.25	0.13	0.34	0.34
Sat Flow, veh/h	1781	4671	512	1781	4270	851	1767	2168	1229	3483	1885	1598
Grp Volume(v), veh/h	148	938	490	157	679	345	126	227	218	645	460	240
Grp Sat Flow(s),veh/h/ln	1781	1702	1778	1781	1702	1717	1767	1763	1634	1742	1885	1598
Q Serve(g_s), s	0.0	28.3	28.4	7.3	18.2	18.5	6.3	13.0	13.7	16.0	25.5	2.2
Cycle Q Clear(g_c), s	0.0	28.3	28.4	7.3	18.2	18.5	6.3	13.0	13.7	16.0	25.5	2.2
Prop In Lane	1.00		0.29	1.00		0.50	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	296	1293	676	226	1333	673	252	469	434	851	643	646
V/C Ratio(X)	0.50	0.73	0.73	0.69	0.51	0.51	0.50	0.48	0.50	0.76	0.72	0.37
Avail Cap(c_a), veh/h	296	1293	676	248	1333	673	252	485	449	851	660	660
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	42.7	31.8	32.1	30.9	27.7	28.2	31.5	37.1	38.0	27.5	34.5	12.9
Incr Delay (d2), s/veh	0.5	3.6	6.7	5.6	1.4	2.8	0.6	0.6	0.7	3.1	3.0	0.2
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(50%),veh/ln	4.2	12.2	13.4	3.5	7.6	8.1	2.7	5.7	5.6	7.0	12.1	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.2	35.4	38.8	36.5	29.1	31.0	32.1	37.7	38.6	30.6	37.5	13.1
LnGrp LOS	D	D	D	D	C	C	C	D	D	C	D	B
Approach Vol, veh/h		1576			1181			571			1345	
Approach Delay, s/veh		37.2			30.6			36.8			29.8	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	51.0	20.0	35.9	14.5	49.6	11.0	44.9
Change Period (Y+Rc), s	6.0	* 6	5.0	5.9	5.2	6.0	5.0	5.9
Max Green Setting (Gmax), s	6.8	* 45	15.0	31.1	10.8	41.0	6.0	40.1
Max Q Clear Time (g_c+I1), s	2.0	20.5	18.0	15.7	9.3	30.4	8.3	27.5
Green Ext Time (p_c), s	0.1	5.1	0.0	1.3	0.0	5.2	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	33.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

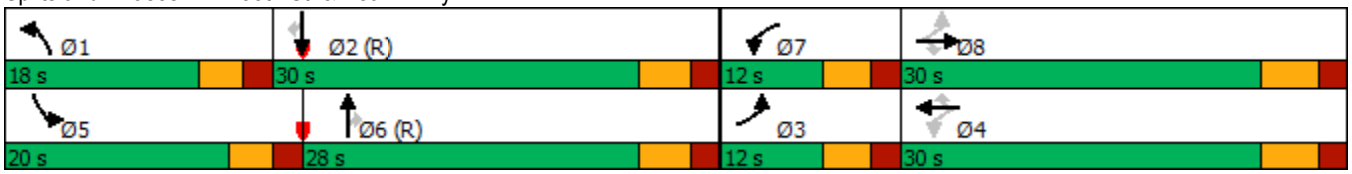
Intersection Capacity Worksheets: 2027 Background + Project With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	490	217	134	165	234	158	321	452	460	392	87
Future Volume (vph)	80	490	217	134	165	234	158	321	452	460	392	87
Lane Group Flow (vph)	88	538	238	172	212	300	180	365	514	500	426	95
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	28.0	28.0	20.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	31.1%	31.1%	22.2%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.18	0.52	0.38	0.29	0.20	0.43	0.52	0.70	0.85	0.85	0.66	0.15
Control Delay	17.1	28.5	5.3	17.5	24.4	5.3	49.2	32.3	27.7	51.4	31.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	28.5	5.3	17.5	24.4	5.3	49.2	32.3	27.7	51.4	31.6	1.1
Queue Length 50th (ft)	30	132	0	29	47	0	55	191	167	142	204	0
Queue Length 95th (ft)	59	185	53	42	65	31	87	286	#338	#220	#329	7
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	497	1045	635	636	1083	692	534	519	605	606	645	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.51	0.37	0.27	0.20	0.43	0.34	0.70	0.85	0.83	0.66	0.15

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	490	217	134	165	234	158	321	452	460	392	87
Future Volume (veh/h)	80	490	217	134	165	234	158	321	452	460	392	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	88	538	0	172	212	0	180	365	0	500	426	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	475	1023		653	1034		295	543		599	705	
Arrive On Green	0.06	0.29	0.00	0.07	0.29	0.00	0.03	0.10	0.00	0.17	0.38	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	88	538	0	172	212	0	180	365	0	500	426	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.1	11.4	0.0	3.1	4.1	0.0	4.6	17.0	0.0	12.7	16.6	0.0
Cycle Q Clear(g_c), s	3.1	11.4	0.0	3.1	4.1	0.0	4.6	17.0	0.0	12.7	16.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	475	1023		653	1034		295	543		599	705	
V/C Ratio(X)	0.19	0.53		0.26	0.20		0.61	0.67		0.83	0.60	
Avail Cap(c_a), veh/h	520	1027		720	1034		538	543		609	705	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.5	26.9	0.0	20.9	23.9	0.0	42.3	36.5	0.0	35.9	22.5	0.0
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.1	0.1	0.0	0.7	6.2	0.0	9.1	3.8	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.7	0.0	1.2	1.7	0.0	2.0	9.4	0.0	5.9	7.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	27.4	0.0	20.9	24.0	0.0	43.0	42.7	0.0	45.0	26.3	0.0
LnGrp LOS	C	C		C	C		D	D		D	C	
Approach Vol, veh/h		626			384			545			926	
Approach Delay, s/veh		26.4			22.6			42.8			36.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	38.2	9.7	30.4	19.7	30.1	10.2	29.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	* 6.8	24.1	15.0	22.4	* 6.8	24.1
Max Q Clear Time (g_c+I1), s	6.6	18.6	5.1	6.1	14.7	19.0	5.1	13.4
Green Ext Time (p_c), s	0.1	0.9	0.0	0.8	0.0	0.5	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection Capacity Worksheets: 2045 Background + Project

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	134	66	25	30	18
Future Vol, veh/h	110	134	66	25	30	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	70	70	75	75
Heavy Vehicles, %	7	7	18	18	1	1
Mvmt Flow	131	160	94	36	40	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	291	0	435	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	224	-
Critical Hdwy	-	-	4.28	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.362	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1185	-	580	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	816	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1185	-	533	832
Mov Cap-2 Maneuver	-	-	-	-	533	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	750	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	6	11.5
HCM LOS			B

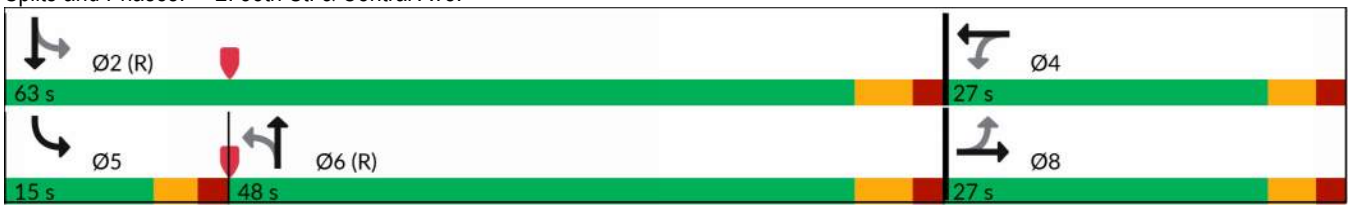
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	616	-	-	1185	-
HCM Lane V/C Ratio	0.104	-	-	0.08	-
HCM Control Delay (s/veh)	11.5	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.3	-	-	0.3	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	5	56	5	20	675	73	431
Future Volume (vph)	5	5	56	5	20	675	73	431
Lane Group Flow (vph)	10	30	64	28	21	1001	77	465
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		8		4		6	5	2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	9.0	29.9
Total Split (s)	27.0	27.0	27.0	27.0	48.0	48.0	15.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	53.3%	53.3%	16.7%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.0	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.08	0.17	0.46	0.15	0.03	0.40	0.17	0.16
Control Delay (s/veh)	34.6	20.9	46.5	18.6	6.0	6.2	5.8	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.6	20.9	46.5	18.6	6.0	6.2	5.8	4.9
Queue Length 50th (ft)	5	5	35	3	3	102	14	47
Queue Length 95th (ft)	11	12	69	25	13	173	31	76
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	286	364	314	392	659	2498	521	2888
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.08	0.20	0.07	0.03	0.40	0.15	0.16

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: 55th St. & Central Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	10	56	5	19	20	675	266	73	431	10
Future Volume (veh/h)	5	5	10	56	5	19	20	675	266	73	431	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1693	1693	1693	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	10	10	20	64	6	22	21	718	283	77	454	11
Peak Hour Factor	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	25	25	25	14	14	14	3	3	3	3	3	3
Cap, veh/h	177	47	94	184	33	121	737	1764	695	492	2841	69
Arrive On Green	0.10	0.10	0.09	0.10	0.10	0.09	0.71	0.71	0.69	0.10	1.00	1.00
Sat Flow, veh/h	1130	455	910	1248	318	1165	920	2470	973	1767	3518	85
Grp Volume(v), veh/h	10	0	30	64	0	28	21	512	489	77	227	238
Grp Sat Flow(s),veh/h/ln	1130	0	1366	1248	0	1483	920	1763	1680	1767	1763	1840
Q Serve(g_s), s	0.7	0.0	1.8	4.5	0.0	1.6	0.6	10.5	10.9	0.9	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	1.8	6.3	0.0	1.6	0.6	10.5	10.9	0.9	0.0	0.0
Prop In Lane	1.00		0.67	1.00		0.79	1.00		0.58	1.00		0.05
Lane Grp Cap(c), veh/h	177	0	141	184	0	154	737	1259	1200	492	1424	1486
V/C Ratio(X)	0.06	0.00	0.21	0.35	0.00	0.18	0.03	0.41	0.41	0.16	0.16	0.16
Avail Cap(c_a), veh/h	349	0	349	374	0	379	737	1259	1200	621	1424	1486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.75	0.75	0.75	0.98	0.98	0.98
Uniform Delay (d), s/veh	37.9	0.0	37.3	39.9	0.0	37.3	3.8	5.2	5.5	3.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.4	0.0	0.2	0.1	0.7	0.8	0.1	0.2	0.2
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(50%),veh/ln	0.2	0.0	0.6	1.4	0.0	0.6	0.1	3.0	3.1	0.2	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	38.0	0.0	37.6	40.3	0.0	37.5	3.8	5.9	6.2	3.3	0.2	0.2
LnGrp LOS	D		D	D		D	A	A	A	A	A	A
Approach Vol, veh/h		40			92			1022			542	
Approach Delay, s/veh		37.7			39.4			6.0			0.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		76.7		13.3	8.4	68.3		13.3				
Change Period (Y+Rc), s		5.9		5.2	5.0	5.9		5.2				
Max Green Setting (Gmax), s		57.1		21.8	10.0	42.1		21.8				
Max Q Clear Time (g_c+I1), s		2.0		8.3	2.9	12.9		4.3				
Green Ext Time (p_c), s		1.8		0.1	0.0	4.8		0.1				

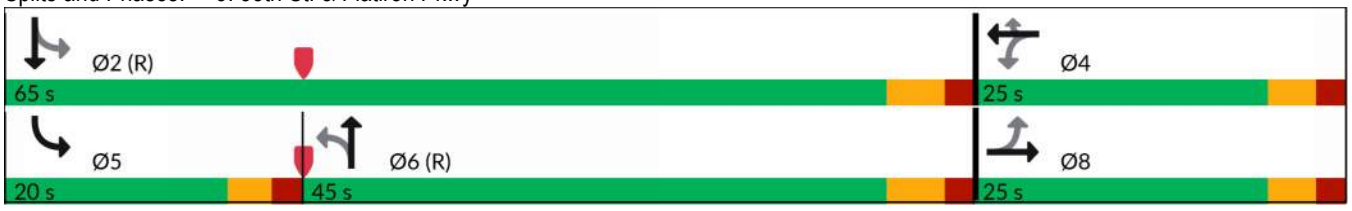
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			6.9									
HCM 6th LOS			A									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	5	5	26	5	47	35	414	286	588
Future Volume (vph)	5	5	26	5	47	35	414	286	588
Lane Group Flow (vph)	7	14	39	7	70	39	604	318	697
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		8		4			6	5	2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	4	6	6	5	2
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.2	24.2	24.2	24.2	24.2	23.8	23.8	9.0	23.8
Total Split (s)	25.0	25.0	25.0	25.0	25.0	45.0	45.0	20.0	65.0
Total Split (%)	27.8%	27.8%	27.8%	27.8%	27.8%	50.0%	50.0%	22.2%	72.2%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.9	3.9	3.0	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.0	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.06	0.10	0.32	0.04	0.31	0.08	0.25	0.46	0.23
Control Delay (s/veh)	36.8	27.4	44.2	35.8	8.2	5.7	4.5	3.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.8	27.4	44.2	35.8	8.2	5.7	4.5	3.6	0.7
Queue Length 50th (ft)	4	4	21	4	0	6	44	10	4
Queue Length 95th (ft)	12	15	37	12	5	16	61	22	15
Internal Link Dist (ft)		68		328			1445		1323
Turn Bay Length (ft)			430		430	100		130	
Base Capacity (vph)	267	333	301	402	415	501	2393	788	2973
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	0.03	0.04	0.13	0.02	0.17	0.08	0.25	0.40	0.23

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: 55th St. & Flatiron Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	26	5	47	35	414	130	286	588	40
Future Volume (veh/h)	5	5	5	26	5	47	35	414	130	286	588	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1530	1530	1530	1752	1752	1752	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	7	7	7	39	7	0	39	460	144	318	653	44
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	25	25	10	10	10	3	3	3	2	2	2
Cap, veh/h	148	44	44	150	111		622	1932	600	751	2865	193
Arrive On Green	0.06	0.06	0.05	0.06	0.06	0.00	0.73	0.73	0.71	0.05	0.57	0.55
Sat Flow, veh/h	1152	702	702	1311	1752	1485	742	2648	823	1781	3379	227
Grp Volume(v), veh/h	7	0	14	39	7	0	39	305	299	318	343	354
Grp Sat Flow(s),veh/h/ln	1152	0	1403	1311	1752	1485	742	1763	1707	1781	1777	1829
Q Serve(g_s), s	0.5	0.0	0.9	2.6	0.3	0.0	1.3	5.1	5.3	3.4	8.6	8.7
Cycle Q Clear(g_c), s	0.9	0.0	0.9	3.5	0.3	0.0	1.3	5.1	5.3	3.4	8.6	8.7
Prop In Lane	1.00		0.50	1.00		1.00	1.00		0.48	1.00		0.12
Lane Grp Cap(c), veh/h	148	0	89	150	111		622	1286	1246	751	1507	1551
V/C Ratio(X)	0.05	0.00	0.16	0.26	0.06		0.06	0.24	0.24	0.42	0.23	0.23
Avail Cap(c_a), veh/h	344	0	327	373	409		622	1286	1246	936	1507	1551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.92	0.92	0.92	0.87	0.87	0.87
Uniform Delay (d), s/veh	40.1	0.0	40.2	41.5	39.7	0.0	3.5	4.0	4.2	2.4	4.8	4.8
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.3	0.1	0.0	0.2	0.4	0.4	0.1	0.3	0.3
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(50%),veh/ln	0.1	0.0	0.3	0.8	0.1	0.0	0.2	1.4	1.4	0.6	1.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.1	0.0	40.5	41.9	39.7	0.0	3.6	4.4	4.6	2.5	5.1	5.1
LnGrp LOS	D		D	D	D		A	A	A	A	A	A
Approach Vol, veh/h		21			46			643			1015	
Approach Delay, s/veh		40.4			41.5			4.4			4.3	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		80.3		9.7	10.6	69.7		9.7				
Change Period (Y+Rc), s		5.8		5.2	5.0	5.8		5.2				
Max Green Setting (Gmax), s		59.2		19.8	15.0	39.2		19.8				
Max Q Clear Time (g_c+I1), s		10.7		5.5	5.4	7.3		2.9				
Green Ext Time (p_c), s		3.0		0.1	0.2	2.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay, s/veh	5.8	
HCM 6th LOS	A	

Notes

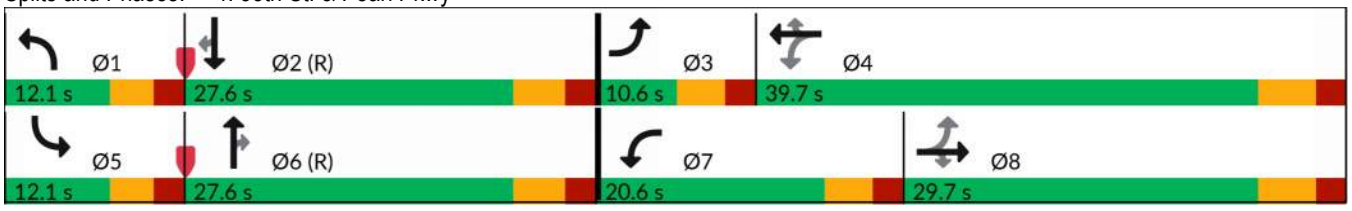
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	95	167	433	485	385	111	241	94	130	314	70
Future Volume (vph)	40	95	167	433	485	385	111	241	94	130	314	70
Lane Group Flow (vph)	45	108	190	466	522	414	123	268	104	157	378	84
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	10.6	29.7	29.7	20.6	39.7	39.7	12.1	27.6	27.6	12.1	27.6	27.6
Total Split (%)	11.8%	33.0%	33.0%	22.9%	44.1%	44.1%	13.4%	30.7%	30.7%	13.4%	30.7%	30.7%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.17	0.19	0.43	0.50	0.51	0.55	0.43	0.36	0.14	0.49	0.50	0.11
Control Delay (s/veh)	19.1	31.8	6.3	22.3	28.4	5.7	54.2	14.8	1.4	43.4	24.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.1	31.8	6.3	22.3	28.4	5.7	54.2	14.8	1.4	43.4	24.3	0.3
Queue Length 50th (ft)	16	27	0	98	137	0	38	75	0	44	156	0
Queue Length 95th (ft)	33	47	35	121	172	63	66	183	0	66	252	0
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	262	963	586	970	1363	859	322	736	758	342	754	771
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.11	0.32	0.48	0.38	0.48	0.38	0.36	0.14	0.46	0.50	0.11

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	95	167	433	485	385	111	241	94	130	314	70
Future Volume (veh/h)	40	95	167	433	485	385	111	241	94	130	314	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	45	108	0	466	522	0	123	268	0	157	378	0
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.90	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	7	7	7	5	5	5	4	4	4	4	4	4
Cap, veh/h	236	451		901	828		227	852		262	871	
Arrive On Green	0.04	0.13	0.00	0.15	0.24	0.00	0.02	0.15	0.00	0.08	0.47	0.00
Sat Flow, veh/h	1711	3413	1522	3374	3469	1547	3401	1841	1560	3401	1841	1560
Grp Volume(v), veh/h	45	108	0	466	522	0	123	268	0	157	378	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1687	1735	1547	1700	1841	1560	1700	1841	1560
Q Serve(g_s), s	2.0	2.6	0.0	10.1	12.1	0.0	3.2	11.7	0.0	4.0	12.3	0.0
Cycle Q Clear(g_c), s	2.0	2.6	0.0	10.1	12.1	0.0	3.2	11.7	0.0	4.0	12.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	236	451		901	828		227	852		262	871	
V/C Ratio(X)	0.19	0.24		0.52	0.63		0.54	0.31		0.60	0.43	
Avail Cap(c_a), veh/h	287	975		1016	1376		306	852		306	871	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.98	0.98	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.0	35.0	0.0	26.0	30.7	0.0	42.6	25.4	0.0	40.2	15.7	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.0	0.2	0.8	0.0	0.7	0.9	0.0	1.1	1.6	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(50%),veh/ln	0.8	1.1	0.0	3.9	5.0	0.0	1.4	5.9	0.0	1.7	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.4	35.3	0.0	26.1	31.5	0.0	43.4	26.4	0.0	41.3	17.3	0.0
LnGrp LOS	C	D		C	C		D	C		D	B	
Approach Vol, veh/h		153			988			391			535	
Approach Delay, s/veh		34.4			29.0			31.7			24.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	46.6	7.9	25.5	10.9	45.7	17.5	15.9
Change Period (Y+Rc), s	5.0	5.6	5.2	5.9	5.0	5.6	5.2	5.9
Max Green Setting (Gmax), s	7.1	22.0	5.4	33.8	7.1	22.0	15.4	23.8
Max Q Clear Time (g_c+I1), s	5.2	14.3	4.0	14.1	6.0	13.7	12.1	4.6
Green Ext Time (p_c), s	0.0	0.9	0.0	2.3	0.0	0.6	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	28.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

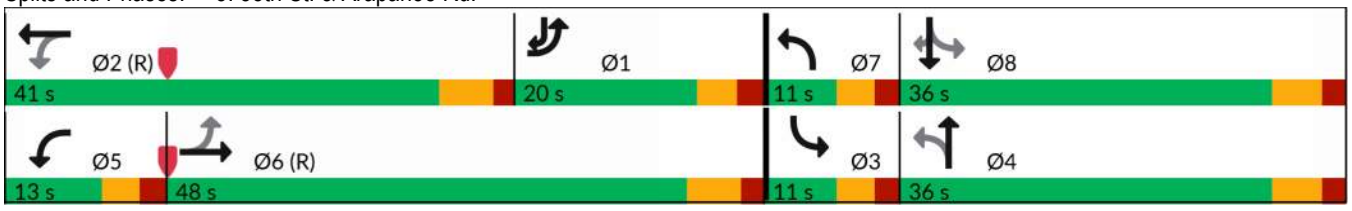
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	177	470	75	975	170	519	123	123	171
Future Volume (vph)	177	470	75	975	170	519	123	123	171
Lane Group Flow (vph)	213	650	77	1289	185	646	141	141	197
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	20.0	48.0	13.0	41.0	11.0	36.0	11.0	36.0	20.0
Total Split (%)	18.5%	44.4%	12.0%	38.0%	10.2%	33.3%	10.2%	33.3%	18.5%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.66	0.31	0.30	0.76	0.41	0.61	0.32	0.27	0.27
Control Delay (s/veh)	47.1	20.0	27.8	33.1	25.9	34.5	22.7	30.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.1	20.0	27.8	33.1	25.9	34.5	22.7	30.8	5.1
Queue Length 50th (ft)	97	104	36	272	85	197	30	75	18
Queue Length 95th (ft)	153	123	71	330	138	258	50	123	47
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	323	2111	269	1703	456	1066	452	526	743
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	0.66	0.31	0.29	0.76	0.41	0.61	0.31	0.27	0.27

Intersection Summary

Cycle Length: 108
Actuated Cycle Length: 108
Offset: 98 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: 55th St. & Arapahoe Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	470	70	75	975	275	170	519	75	123	123	171
Future Volume (veh/h)	177	470	70	75	975	275	170	519	75	123	123	171
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1885	1885	1885	1796	1796	1796
Adj Flow Rate, veh/h	213	566	84	77	1005	284	185	564	82	141	141	197
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	4	4	4	1	1	1	7	7	7
Cap, veh/h	342	1897	277	285	1334	377	422	954	138	528	531	655
Arrive On Green	0.14	0.44	0.42	0.06	0.34	0.32	0.06	0.30	0.29	0.06	0.30	0.29
Sat Flow, veh/h	1725	4356	637	1753	3894	1099	1795	3139	455	3319	1796	1522
Grp Volume(v), veh/h	213	426	224	77	864	425	185	321	325	141	141	197
Grp Sat Flow(s),veh/h/ln	1725	1648	1696	1753	1675	1643	1795	1791	1803	1659	1796	1522
Q Serve(g_s), s	6.1	9.1	9.4	3.4	24.7	24.9	7.0	16.4	16.6	3.1	6.5	1.5
Cycle Q Clear(g_c), s	6.1	9.1	9.4	3.4	24.7	24.9	7.0	16.4	16.6	3.1	6.5	1.5
Prop In Lane	1.00		0.38	1.00		0.67	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	342	1435	739	285	1148	563	422	544	548	528	531	655
V/C Ratio(X)	0.62	0.30	0.30	0.27	0.75	0.75	0.44	0.59	0.59	0.27	0.27	0.30
Avail Cap(c_a), veh/h	353	1435	739	332	1148	563	422	544	548	556	532	657
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	0.99	0.99	0.99
Uniform Delay (d), s/veh	40.4	19.8	20.1	27.0	31.5	32.1	26.2	31.9	32.1	25.6	29.1	8.9
Incr Delay (d2), s/veh	2.3	0.5	1.1	0.2	4.6	9.1	0.3	1.5	1.5	0.1	0.2	0.2
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(50%),veh/ln	5.4	3.5	3.9	1.4	10.5	11.2	3.4	7.3	7.4	1.2	2.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.7	20.3	21.2	27.2	36.1	41.2	26.5	33.4	33.6	25.7	29.3	9.1
LnGrp LOS	D	C	C	C	D	D	C	C	C	C	C	A
Approach Vol, veh/h		863			1366			831			479	
Approach Delay, s/veh		26.0			37.1			31.9			19.9	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	41.0	10.1	36.8	10.1	51.0	11.0	35.9
Change Period (Y+Rc), s	6.0	* 6	5.0	5.9	5.2	6.0	5.0	5.9
Max Green Setting (Gmax), s	14.8	* 35	6.0	30.1	7.8	42.0	6.0	30.1
Max Q Clear Time (g_c+I1), s	8.1	26.9	5.1	18.6	5.4	11.4	9.0	8.5
Green Ext Time (p_c), s	0.2	4.0	0.0	1.7	0.0	3.1	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	30.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	36	16	95	126	65
Future Vol, veh/h	45	36	16	95	126	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	83	83	63	63
Heavy Vehicles, %	4	4	8	8	5	5
Mvmt Flow	51	41	19	114	200	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	92	0	224	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	152	-
Critical Hdwy	-	-	4.18	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.272	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1466	-	758	982
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	869	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1466	-	747	982
Mov Cap-2 Maneuver	-	-	-	-	747	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	857	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.1	12
HCM LOS			B

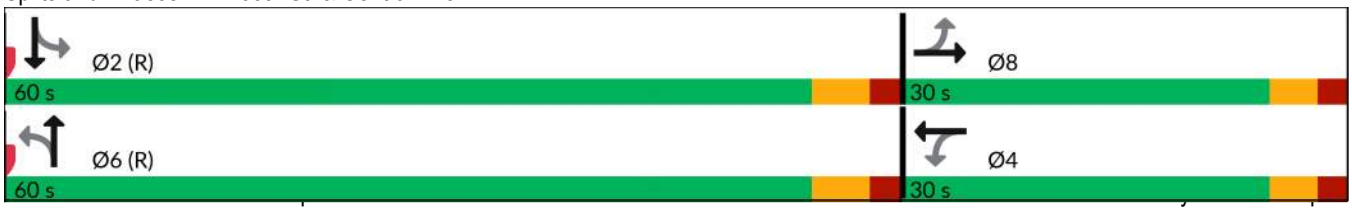
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	813	-	-	1466	-
HCM Lane V/C Ratio	0.373	-	-	0.013	-
HCM Control Delay (s/veh)	12	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	1.7	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	5	239	5	5	626	28	930
Future Volume (vph)	5	5	239	5	5	626	28	930
Lane Group Flow (vph)	6	37	272	88	6	763	30	1016
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0
Minimum Split (s)	26.2	26.2	26.2	26.2	29.9	29.9	29.9	29.9
Total Split (s)	30.0	30.0	30.0	30.0	60.0	60.0	60.0	60.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.9	-1.9	-1.9	-1.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.02	0.08	0.75	0.18	0.02	0.34	0.08	0.44
Control Delay (s/veh)	23.4	10.7	44.6	7.6	6.8	7.8	4.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.4	10.7	44.6	7.6	6.8	7.8	4.4	4.9
Queue Length 50th (ft)	3	3	142	3	1	88	3	69
Queue Length 95th (ft)	10	21	#222	35	6	127	m11	113
Internal Link Dist (ft)		393		1819		1730		1445
Turn Bay Length (ft)	50		50		180		75	
Base Capacity (vph)	380	496	390	516	283	2258	399	2300
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.07	0.70	0.17	0.02	0.34	0.08	0.44

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 5 (6%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 55th St. & Central Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	25	239	5	72	5	626	53	28	930	5
Future Volume (veh/h)	5	5	25	239	5	72	5	626	53	28	930	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	6	6	31	272	6	82	6	703	60	30	1011	5
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.89	0.89	0.89	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	1	1	1
Cap, veh/h	350	66	342	395	27	369	447	2193	187	484	2419	12
Arrive On Green	0.25	0.25	0.24	0.25	0.25	0.24	0.66	0.66	0.64	1.00	1.00	1.00
Sat Flow, veh/h	1319	266	1372	1360	108	1481	555	3314	283	709	3655	18
Grp Volume(v), veh/h	6	0	37	272	0	88	6	377	386	30	495	521
Grp Sat Flow(s),veh/h/ln	1319	0	1638	1360	0	1589	555	1777	1819	709	1791	1882
Q Serve(g_s), s	0.3	0.0	1.6	17.3	0.0	4.0	0.3	8.2	8.3	0.6	0.0	0.0
Cycle Q Clear(g_c), s	4.3	0.0	1.6	18.9	0.0	4.0	0.3	8.2	8.3	8.8	0.0	0.0
Prop In Lane	1.00		0.84	1.00		0.93	1.00		0.16	1.00		0.01
Lane Grp Cap(c), veh/h	350	0	408	395	0	396	447	1176	1204	484	1185	1246
V/C Ratio(X)	0.02	0.00	0.09	0.69	0.00	0.22	0.01	0.32	0.32	0.06	0.42	0.42
Avail Cap(c_a), veh/h	402	0	473	449	0	459	447	1176	1204	484	1185	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.83	0.83	0.94	0.94	0.94
Uniform Delay (d), s/veh	28.6	0.0	26.3	33.2	0.0	27.3	5.2	6.5	6.6	0.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.7	0.0	0.1	0.0	0.6	0.6	0.2	1.0	1.0
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(50%),veh/ln	0.1	0.0	0.6	5.8	0.0	1.5	0.0	2.6	2.7	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.6	0.0	26.4	35.9	0.0	27.4	5.2	7.1	7.2	0.8	1.0	1.0
LnGrp LOS	C		C	D		C	A	A	A	A	A	A
Approach Vol, veh/h		43			360			769			1046	
Approach Delay, s/veh		26.7			33.8			7.1			1.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.6		26.4		63.6		26.4				
Change Period (Y+Rc), s		5.9		5.2		5.9		5.2				
Max Green Setting (Gmax), s		54.1		24.8		54.1		24.8				
Max Q Clear Time (g_c+I1), s		10.8		20.9		10.3		6.3				
Green Ext Time (p_c), s		4.9		0.4		3.3		0.1				

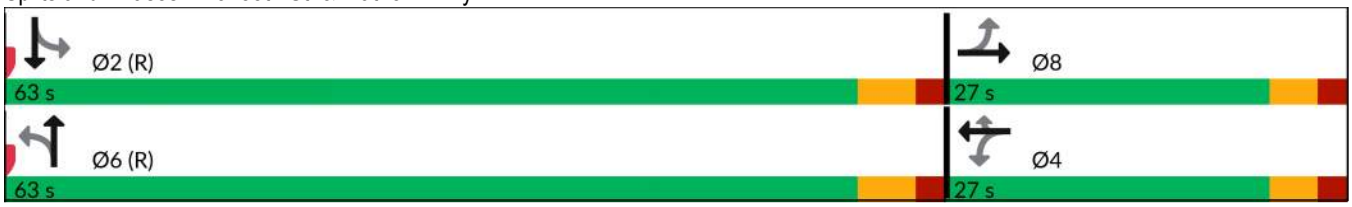
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			9.0									
HCM 6th LOS			A									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	25	5	140	5	245	5	697	70	728
Future Volume (vph)	25	5	140	5	245	5	697	70	728
Lane Group Flow (vph)	35	56	159	6	278	5	797	79	824
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		8		4			6		2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	4	6	6	2	2
Switch Phase									
Minimum Initial (s)	19.0	19.0	19.0	19.0	19.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.2	24.2	24.2	24.2	24.2	23.8	23.8	23.8	23.8
Total Split (s)	27.0	27.0	27.0	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.2	-1.2	-1.2	-1.2	-1.2	-1.8	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.11	0.14	0.51	0.01	0.50	0.01	0.33	0.19	0.34
Control Delay (s/veh)	28.0	10.7	36.7	26.4	9.5	5.0	6.0	2.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.0	10.7	36.7	26.4	9.5	5.0	6.0	2.9	3.0
Queue Length 50th (ft)	16	3	80	3	17	1	81	5	25
Queue Length 95th (ft)	31	20	134	12	75	m3	105	m7	27
Internal Link Dist (ft)		68		328			1445		1323
Turn Bay Length (ft)			430		430	100		130	
Base Capacity (vph)	362	454	346	480	588	397	2397	410	2408
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	0.10	0.12	0.46	0.01	0.47	0.01	0.33	0.19	0.34

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 87 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 55th St. & Flatiron Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	35	140	5	245	5	697	36	70	728	5
Future Volume (veh/h)	25	5	35	140	5	245	5	697	36	70	728	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	7	49	159	6	0	5	758	39	79	818	6
Peak Hour Factor	0.71	0.71	0.71	0.88	0.88	0.88	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	2	2	2
Cap, veh/h	395	46	319	346	422		537	2362	122	548	2484	18
Arrive On Green	0.22	0.22	0.21	0.22	0.22	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1421	204	1425	1358	1885	1598	665	3439	177	682	3616	27
Grp Volume(v), veh/h	35	0	56	159	6	0	5	392	405	79	402	422
Grp Sat Flow(s),veh/h/ln	1421	0	1629	1358	1885	1598	665	1777	1839	682	1777	1866
Q Serve(g_s), s	1.8	0.0	2.5	9.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0	2.5	12.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.88	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	395	0	365	346	422		537	1221	1263	548	1221	1282
V/C Ratio(X)	0.09	0.00	0.15	0.46	0.01		0.01	0.32	0.32	0.14	0.33	0.33
Avail Cap(c_a), veh/h	440	0	416	389	482		537	1221	1263	548	1221	1282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.95	0.95	0.95	0.82	0.82	0.82
Uniform Delay (d), s/veh	28.0	0.0	28.5	32.9	27.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.7	0.6	0.5	0.6	0.6
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(50%),veh/ln	0.6	0.0	1.0	3.1	0.1	0.0	0.0	0.2	0.2	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.0	0.0	28.6	33.3	27.2	0.0	0.0	0.7	0.6	0.5	0.6	0.6
LnGrp LOS	C		C	C	C		A	A	A	A	A	A
Approach Vol, veh/h		91			165			802			903	
Approach Delay, s/veh		28.3			33.1			0.6			0.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.8		24.2		65.8		24.2				
Change Period (Y+Rc), s		5.8		5.2		5.8		5.2				
Max Green Setting (Gmax), s		57.2		21.8		57.2		21.8				
Max Q Clear Time (g_c+I1), s		2.0		14.1		2.0		4.5				
Green Ext Time (p_c), s		4.6		0.2		3.4		0.1				

Intersection Summary		
HCM 6th Ctrl Delay, s/veh	4.6	
HCM 6th LOS	A	

Notes

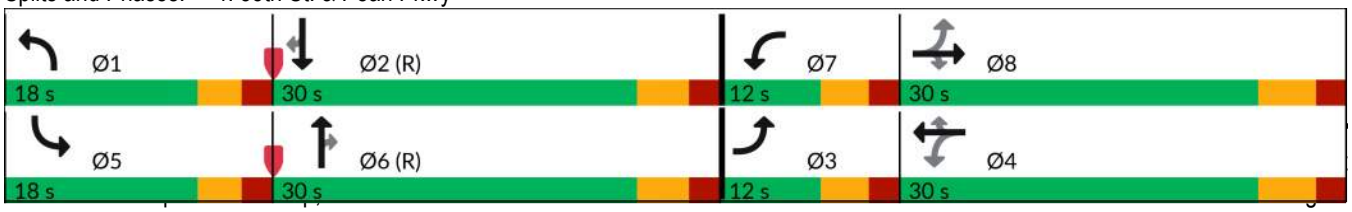
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	535	234	148	180	255	167	348	492	505	426	95
Future Volume (vph)	90	535	234	148	180	255	167	348	492	505	426	95
Lane Group Flow (vph)	99	588	257	190	231	327	190	395	559	549	463	103
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	30.0	30.0	18.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	33.3%	33.3%	20.0%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.20	0.57	0.40	0.34	0.21	0.46	0.53	0.73	0.92	1.00	0.72	0.16
Control Delay (s/veh)	17.3	29.6	5.4	18.0	24.5	5.3	50.0	34.0	38.5	77.3	34.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.3	29.6	5.4	18.0	24.5	5.3	50.0	34.0	38.5	77.3	34.7	1.6
Queue Length 50th (ft)	34	147	0	33	52	0	58	210	217	~174	229	0
Queue Length 95th (ft)	65	203	55	46	70	32	91	311	#408	#276	#399	12
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	487	1038	646	594	1084	711	534	538	607	551	639	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.57	0.40	0.32	0.21	0.46	0.36	0.73	0.92	1.00	0.72	0.16

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
~ 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.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	535	234	148	180	255	167	348	492	505	426	95
Future Volume (veh/h)	90	535	234	148	180	255	167	348	492	505	426	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	99	588	0	190	231	0	190	395	0	549	463	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	473	1023		632	1029		305	572		533	692	
Arrive On Green	0.07	0.29	0.00	0.07	0.29	0.00	0.03	0.10	0.00	0.16	0.37	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	99	588	0	190	231	0	190	395	0	549	463	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.4	12.7	0.0	3.4	4.5	0.0	4.9	18.4	0.0	14.0	18.8	0.0
Cycle Q Clear(g_c), s	3.4	12.7	0.0	3.4	4.5	0.0	4.9	18.4	0.0	14.0	18.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	473	1023		632	1029		305	572		533	692	
V/C Ratio(X)	0.21	0.57		0.30	0.22		0.62	0.69		1.03	0.67	
Avail Cap(c_a), veh/h	508	1027		686	1029		538	572		533	692	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.94	0.94	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	27.4	0.0	20.9	24.1	0.0	42.2	36.4	0.0	38.0	23.6	0.0
Incr Delay (d2), s/veh	0.2	0.8	0.0	0.1	0.1	0.0	0.7	6.3	0.0	46.7	5.1	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(50%),veh/ln	1.4	5.3	0.0	1.3	1.8	0.0	2.1	10.1	0.0	9.1	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.5	28.1	0.0	21.0	24.3	0.0	42.9	42.7	0.0	84.7	28.7	0.0
LnGrp LOS	C	C		C	C		D	D		F	C	
Approach Vol, veh/h		687			421			585			1012	
Approach Delay, s/veh		27.0			22.8			42.8			59.1	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	37.6	10.2	30.3	18.0	31.5	10.6	29.9
Change Period (Y+Rc), s	5.0	5.6	5.2	5.9	5.0	5.6	5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	6.8	24.1	13.0	24.4	6.8	24.1
Max Q Clear Time (g_c+I1), s	6.9	20.8	5.4	6.5	16.0	20.4	5.4	14.7
Green Ext Time (p_c), s	0.1	0.7	0.0	0.9	0.0	0.6	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	41.8
HCM 6th LOS	D

Notes

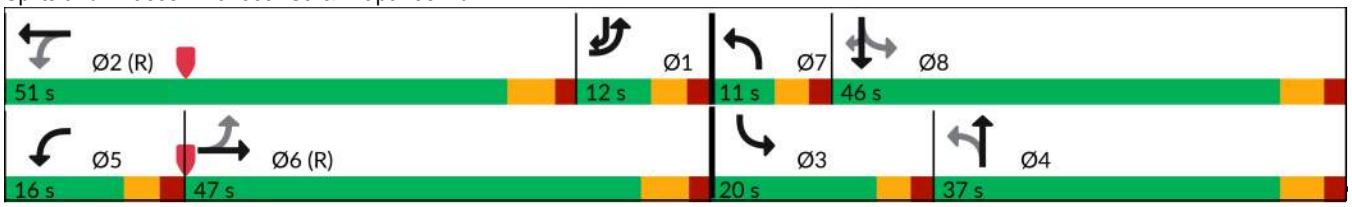
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	149	1325	155	840	110	238	619	439	226
Future Volume (vph)	149	1325	155	840	110	238	619	439	226
Lane Group Flow (vph)	159	1564	172	1119	141	484	703	499	257
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	3	8	1
Permitted Phases	6		2		4		8		8
Detector Phase	1	6	5	2	7	4	3	8	1
Switch Phase									
Minimum Initial (s)	4.0	19.0	4.0	25.0	4.0	30.0	4.0	30.0	4.0
Minimum Split (s)	9.2	25.0	9.2	31.0	9.0	35.9	9.0	35.9	9.2
Total Split (s)	12.0	47.0	16.0	51.0	11.0	37.0	20.0	46.0	12.0
Total Split (%)	10.0%	39.2%	13.3%	42.5%	9.2%	30.8%	16.7%	38.3%	10.0%
Yellow Time (s)	3.2	4.3	3.2	4.3	3.0	3.9	3.0	3.9	3.2
All-Red Time (s)	2.0	1.7	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-2.0	-1.2	-2.0	-1.0	-1.9	-1.0	-1.9	-1.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	None	Min	None
v/c Ratio	0.65	0.84	0.74	0.56	0.67	0.50	0.91	0.77	0.35
Control Delay (s/veh)	51.9	39.8	45.4	28.3	40.1	31.2	42.3	44.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.9	39.8	45.4	28.3	40.1	31.2	42.3	44.4	10.1
Queue Length 50th (ft)	86	405	87	232	66	133	196	345	52
Queue Length 95th (ft)	#144	471	#178	283	92	151	#263	458	96
Internal Link Dist (ft)		692		667		5199		1730	
Turn Bay Length (ft)	110		100		220		170		175
Base Capacity (vph)	246	1853	242	1993	210	981	774	658	728
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	0.65	0.84	0.71	0.56	0.67	0.49	0.91	0.76	0.35

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 64 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 55th St. & Arapahoe Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	1325	145	155	840	167	110	238	140	619	439	226
Future Volume (veh/h)	149	1325	145	155	840	167	110	238	140	619	439	226
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	159	1410	154	172	933	186	141	305	179	703	499	257
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.78	0.78	0.78	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	1	1	1
Cap, veh/h	277	1745	191	228	1674	332	231	574	329	821	643	646
Arrive On Green	0.07	0.37	0.36	0.09	0.39	0.38	0.06	0.27	0.25	0.13	0.34	0.34
Sat Flow, veh/h	1781	4672	510	1781	4273	849	1767	2160	1236	3483	1885	1598
Grp Volume(v), veh/h	159	1027	537	172	743	376	141	248	236	703	499	257
Grp Sat Flow(s),veh/h/ln	1781	1702	1779	1781	1702	1718	1767	1763	1633	1742	1885	1598
Q Serve(g_s), s	0.0	32.5	32.6	8.1	20.4	20.6	7.0	14.4	15.0	16.0	28.5	3.1
Cycle Q Clear(g_c), s	0.0	32.5	32.6	8.1	20.4	20.6	7.0	14.4	15.0	16.0	28.5	3.1
Prop In Lane	1.00		0.29	1.00		0.49	1.00		0.76	1.00		1.00
Lane Grp Cap(c), veh/h	277	1271	664	228	1333	673	231	469	434	821	643	646
V/C Ratio(X)	0.57	0.81	0.81	0.76	0.56	0.56	0.61	0.53	0.54	0.86	0.78	0.40
Avail Cap(c_a), veh/h	277	1271	664	238	1333	673	231	485	449	821	660	660
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	0.85	0.85	0.85
Uniform Delay (d), s/veh	45.4	33.7	34.0	31.0	28.4	28.9	32.7	37.6	38.5	30.2	35.5	13.4
Incr Delay (d2), s/veh	1.9	5.6	10.2	10.9	1.7	3.3	3.4	0.8	1.0	7.3	4.7	0.3
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(50%),veh/ln	4.6	14.2	15.8	4.1	8.6	9.1	3.3	6.3	6.2	8.2	13.8	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	47.3	39.3	44.2	41.9	30.1	32.2	36.1	38.4	39.5	37.5	40.1	13.7
LnGrp LOS	D	D	D	D	C	C	D	D	D	D	D	B
Approach Vol, veh/h		1723			1291			625			1459	
Approach Delay, s/veh		41.6			32.3			38.3			34.2	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	51.0	20.0	35.9	15.3	48.8	11.0	44.9
Change Period (Y+Rc), s	6.0	* 6	5.0	5.9	5.2	6.0	5.0	5.9
Max Green Setting (Gmax), s	6.8	* 45	15.0	31.1	10.8	41.0	6.0	40.1
Max Q Clear Time (g_c+I1), s	2.0	22.6	18.0	17.0	10.1	34.6	9.0	30.5
Green Ext Time (p_c), s	0.1	5.6	0.0	1.4	0.0	4.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	36.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

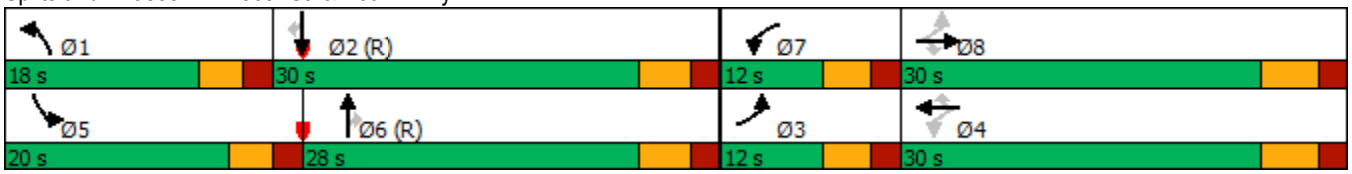
Intersection Capacity Worksheets: 2045 Background + Project With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	535	235	148	180	255	167	348	492	505	426	95
Future Volume (vph)	90	535	235	148	180	255	167	348	492	505	426	95
Lane Group Flow (vph)	99	588	258	190	231	327	190	395	559	549	463	103
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	24.0	24.0	4.0	24.0	24.0	4.0	21.0	21.0	4.0	21.0	21.0
Minimum Split (s)	9.2	29.9	29.9	9.2	29.9	29.9	9.0	26.6	26.6	9.0	26.6	26.6
Total Split (s)	12.0	30.0	30.0	12.0	30.0	30.0	18.0	28.0	28.0	20.0	30.0	30.0
Total Split (%)	13.3%	33.3%	33.3%	13.3%	33.3%	33.3%	20.0%	31.1%	31.1%	22.2%	33.3%	33.3%
Yellow Time (s)	3.2	3.9	3.9	3.2	3.9	3.9	3.0	3.6	3.6	3.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.2	-1.9	-1.9	-1.2	-1.9	-1.9	-1.0	-1.6	-1.6	-1.0	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.20	0.57	0.40	0.34	0.21	0.46	0.53	0.77	0.95	0.91	0.72	0.16
Control Delay	17.3	29.6	5.4	18.0	24.5	5.3	48.7	37.0	43.7	58.1	34.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	29.6	5.4	18.0	24.5	5.3	48.7	37.0	43.7	58.1	34.7	1.6
Queue Length 50th (ft)	34	147	0	33	52	0	58	212	215	159	229	0
Queue Length 95th (ft)	65	203	55	46	70	32	91	#340	#410	#253	#399	12
Internal Link Dist (ft)		4282			493			1323			327	
Turn Bay Length (ft)	215		135	100		100	90		80	180		50
Base Capacity (vph)	487	1038	646	594	1084	711	534	510	588	606	639	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.57	0.40	0.32	0.21	0.46	0.36	0.77	0.95	0.91	0.72	0.16

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 59 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 55th St. & Pearl Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	535	235	148	180	255	167	348	492	505	426	95
Future Volume (veh/h)	90	535	235	148	180	255	167	348	492	505	426	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	99	588	0	190	231	0	190	395	0	549	463	0
Peak Hour Factor	0.91	0.91	0.91	0.78	0.78	0.78	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	473	1023		632	1029		305	530		609	692	
Arrive On Green	0.07	0.29	0.00	0.07	0.29	0.00	0.03	0.09	0.00	0.18	0.37	0.00
Sat Flow, veh/h	1781	3554	1585	3428	3526	1572	3456	1870	1585	3428	1856	1572
Grp Volume(v), veh/h	99	588	0	190	231	0	190	395	0	549	463	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1714	1763	1572	1728	1870	1585	1714	1856	1572
Q Serve(g_s), s	3.4	12.7	0.0	3.4	4.5	0.0	4.9	18.5	0.0	14.1	18.8	0.0
Cycle Q Clear(g_c), s	3.4	12.7	0.0	3.4	4.5	0.0	4.9	18.5	0.0	14.1	18.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	473	1023		632	1029		305	530		609	692	
V/C Ratio(X)	0.21	0.57		0.30	0.22		0.62	0.75		0.90	0.67	
Avail Cap(c_a), veh/h	508	1027		686	1029		538	530		609	692	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.94	0.94	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	27.4	0.0	20.9	24.1	0.0	42.2	37.6	0.0	36.2	23.6	0.0
Incr Delay (d2), s/veh	0.2	0.8	0.0	0.1	0.1	0.0	0.7	8.7	0.0	16.1	5.1	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(50%),veh/ln	1.4	5.3	0.0	1.3	1.8	0.0	2.1	10.5	0.0	7.1	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	28.1	0.0	21.0	24.3	0.0	42.9	46.3	0.0	52.3	28.7	0.0
LnGrp LOS	C	C		C	C		D	D		D	C	
Approach Vol, veh/h		687			421			585			1012	
Approach Delay, s/veh		27.0			22.8			45.2			41.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	37.6	10.2	30.3	20.0	29.5	10.6	29.9
Change Period (Y+Rc), s	5.0	5.6	* 5.2	5.9	5.0	5.6	* 5.2	5.9
Max Green Setting (Gmax), s	13.0	24.4	* 6.8	24.1	15.0	22.4	* 6.8	24.1
Max Q Clear Time (g_c+I1), s	6.9	20.8	5.4	6.5	16.1	20.5	5.4	14.7
Green Ext Time (p_c), s	0.1	0.7	0.0	0.9	0.0	0.3	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

ORDINANCE 8685

AN ORDINANCE GRANTING A NINE YEAR VESTING PERIOD FOR THE APPROVED SITE-SPECIFIC DEVELOPMENT PLAN, AND SETTING FORTH RELATED DETAILS.

THE CITY COUNCIL OF THE CITY OF BOULDER, COLORADO, FINDS:

A. This ordinance shall be effective only as to the parcels of land generally known as Flatiron Business Park located at 1855 S. Flatiron Court, which together are approximately 9.59 acres in size, and more particularly described as Lots 3 and 4, Flatiron Industrial Park Filing No. 2, County of Boulder, State of Colorado (the "Property").

B. BRE-BMR 1855 Flatiron LLC, a Delaware limited liability company, is the owner of the Property ("Owner") and has filed Site Review application #LUR2024-00036 for redevelopment of the 1855 S. Flatiron Court site (the "Project").

C. The Owner plans a phased expansion and redevelopment of the Property over a period of approximately nine years. In association therewith, the Owner is seeking a vesting period of nine years for the site-specific development plan.

D. On January 21, 2025, the planning board held a public hearing and approved with conditions Site Review # LUR2024-00036 and recommended approval of this ordinance.

E. In addition, the city council finds that the site review for the Project constitutes a site-specific development plan within the meaning of Subsection 9-2-20(a), B.R.C. 1981, and Section 24-68-102, C.R.S.

F. The Boulder Revised Code and Section 24-68-104, C.R.S. require city council approval of any vesting period of a site-specific development plan approval that exceeds three years.

G. The city council having reviewed the Project, finds that a nine year vesting period is appropriate.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BOULDER, COLORADO:

Section 1. The city council finds that an extended vesting period for the Project is in the interest of the public health, safety, and general welfare of the City of Boulder and consistent with the goals and policies of the Boulder Valley Comprehensive Plan.

Section 2. The city council hereby grants and approves a nine-year vesting period for a site-specific development plan submitted under Site Review #LUR2024-00036 ("Development Plan"). Such nine-year vesting period supersedes any other vesting period referenced in the Vested Rights Option Form and/or Waiver executed by Owner, or otherwise. The following elements of the Development Plan shall be vested for nine years: The number of buildings, the footprints of such buildings, the location of such building footprints, total square footage for each building, the above grade floor area for each building, below grade floor area for each building, the height of each building, building architecture, number of car and bike parking spaces, and the phasing plan all as approved in the Site Review Case No. LUR2024-00036. Applicant further requests vested rights in accordance with the approved Phasing Plan. The city manager is authorized to enter into a development agreement for the Project including the vesting period granted in this ordinance.

Section 4. This ordinance shall only be applicable to BioMed Realty, its subsidiaries, or its successors, or affiliates.

Section 5. This ordinance shall not be construed to limit the ability of an approving authority of the site review for the Project to modify other development standards through the site review process. If the site review application is called up for review by the city council, the city council retains the authority granted by this ordinance to permit the modifications stated

herein. This ordinance shall expire immediately if the owner of the Property allows the site plan approval to expire under the requirements of Chapter 9-2, "Review Processes," B.R.C. 1981.

Section 6. The city council adopts the findings and recitals above into this ordinance by this reference. This ordinance shall be considered an amendment to Title 9, "Land Use Code," B.R.C. 1981. To the extent that this ordinance conflicts with any other ordinance of the city, such other ordinance shall be suspended for the limited purpose of implementing this ordinance. Nothing in this ordinance shall be construed as a waiver of the city's police power.

Section 7. This ordinance is necessary to protect the public health, safety, and welfare of the residents of the city, and covers matters of local concern.

Section 8. The city council deems it appropriate that this ordinance be published by title only and orders that copies of this ordinance be made available in the office of the city clerk for public inspection and acquisition.

INTRODUCED, READ ON FIRST READING, AND ORDERED PUBLISHED BY TITLE ONLY this 20th day of February 2025.

_____
Aaron Brockett, Mayor

Attest:

_____
Elesha Johnson, City Clerk

READ ON SECOND READING, AMENDED, PASSED AND ADOPTED this 6th day of March 2025.

_____
Aaron Brockett, Mayor

Attest:

_____
Elesha Johnson, City Clerk