

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 303-441-3930 • www.BoulderCounty.gov

Claire Levy County Commissioner

Marta Loachamin County Commissioner

Ashley Stolzmann County Commissioner

7/23/2025

Tucker Huey Po Box 1024 Niwot, CO 80544-1024

John Richard Fischer 6825 Cheney Court Niwot, CO 80504

Dear Applicant(s):

This letter certifies that in accordance with section 4-800 of the Boulder County Land Use Code, the Boulder County CPP Director has Approved with Conditions the site plan for the following, effective July 23, 2025.

Docket: SPR-25-0054 291 2nd Ave LLC Mixed Use Development

Request: APPROVED: Site Plan Review for construction of a new 9,426-square-foot Mixed Use

development at 291 2nd Avenue.

Location: 291 2ND AVENUE

Zoning: Niwot Rural Community District I

Applicant: Tucker Huey

This is a Conditional Approval made by the CPP Director, and is not final until a 14-day referral period has transpired. During the next 14 days, the Board of County Commissioners (BOCC) may choose to call this docket up for a public hearing. If no hearing is required, this letter will serve as the final determination. Building, grading and access permits will be subject to any and all conditions of approval.

If the BOCC should decide to modify the CPP Director's approval, or determines that further review is necessary, a public hearing will be held. Upon completion of the public hearing and approval by the BOCC, if a building, grading or access permit has been applied for, it will continue in the process and permits may be issued subject to any and all conditions of approval.

In the event that you wish to appeal any conditions of the CPP Director's determination, you are entitled to appeal the determination to the BOCC. You must file an appeal for this purpose with the CPP Department in writing no later than 14 days after the date of this letter. If an appeal is requested, the BOCC will review the CPP Director's determination at a public meeting.

Please be aware that the attached Conditions of Approval become final if the docket is not called up by the BOCC at the end of the 14-day review period. There are no other administrative means to appeal. If you wish to resubmit information with regards to complying with any of the attached Conditions of Approval, and have this information reviewed for approval by staff prior to the end of the 14-day review period, your submissions must be received by the office no later than 10 days from the date of this letter.

Site Plan Review approval is valid for three years from the date of this letter although any changes in County regulations could affect the proposal prior to application for a building permit. In order to be issued a building permit, the project must comply with all policies and regulations in effect at the time of permit application.

A Building Permit cannot be issued for this project until the applicable conditions above have been met. Furthermore, a Certificate of Occupancy cannot be issued for this project until the applicable conditions above have been met. A SPR inspection will need to be scheduled with this department prior to the issuance of a Certificate of Occupancy. None of the conditions of approval will be waived or a Certificate of Occupancy issued for this project based upon the applicant's need to meet financial obligations (i.e., construction cost overruns or loan closing dates). Any future additions to the approved structure, regardless of size, will require SPR approval to amend this SPR.

The Public Notice sign must remain posted for 14 days after the date of this letter and then returned to the CPP Department in a timely manner after this date. Or, if your Site Plan Review application requires a public hearing, please return the sign after the final public hearing. We will begin processing a refund for the \$25 sign deposit when your sign is returned, and a check will be mailed to you within approximately 2 weeks.

Please carefully review the attached conditions of approval. Compliance with these conditions will be confirmed as is necessary throughout the process.

Sincerely,

Pete L'Orange

Senior Planner

291 2nd Avenue Page 1 of 15 July 14, 2025

APPLICATION #: SPR-25-0054

APPLICANT: John Richard Fischer c/o 291 2nd Avenue LLC

AGENT: Tucker Huey c/o Osmosis Architecture

PROJECT LOCATION: 291 2nd Avenue

PROJECT SUMMARY: Site Plan Review for construction of a new 9,426-

square-foot Mixed Use development at 291 2nd Avenue

in the Niwot Rural Community District I (NRCD I).

CONDITIONS OF APPROVAL

Per Article 4-802.A.2 of the Boulder County Land Use Code (the Code), Site Plan Review is required for any cumulative increase in Floor Area of more than 1,000 square feet on a parcel over that existing as of September 8, 1998. In this case, the applicant has proposed to deconstruct 2,236 square feet of existing commercial floor area and to construct a new 9,426-square-foot Mixed Use development on the subject parcel.

Article 4-806 of the Land Use Code states that no Site Plan Review can be approved without compliance with the following standards. All site plan review applications shall be reviewed in accordance with the following standards which the Director has determined to be applicable based on the nature and extent of the proposed development. *Only those standards applicable to this project are included in this list.*

 The location of existing or proposed buildings, structures, equipment, grading, or uses shall not impose an undue burden on public services and infrastructure.

ACCESS REQUIREMENTS

Access to the property is via 2nd Avenue, a paved Boulder County owned and maintained right-of-way (ROW), with a Functional Classification of Collector. Legal access has been demonstrated via adjacency to this public ROW.

To ensure that the access to and around the subject property is maintained during construction, the applicant must comply with the following conditions:

a. **During construction,** the sidewalk along 2nd Avenue adjacent to the subject parcel may not be blocked.

291 2nd Avenue Page 2 of 15 July 14, 2025

- b. No staging of materials or debris may occur in the 2nd Avenue right-ofway.
- c. **Prior to any work,** the contractor must provide a traffic control plan, from a certified traffic supervisor, to the Traffic Operations Engineer in the Public Works Department for review and approval if any equipment staging in 2nd Avenue is required during construction.
- 3. The site plan shall satisfactorily mitigate the risk of wildfire both to the subject property and those posed to neighboring properties in the surrounding area by the proposed development. In assessing the applicable wildfire risk and appropriate mitigation measures, the Director shall consider the referral comments of the County Wildfire Mitigation Coordinator and the applicable fire district, and may also consult accepted national standards as amended, such as the Urban-Wildland Interface Code; National Fire Protection Association (NFPA); International Fire Code; and the International Building Code.

The proposed project is in Wildfire Zone 2 (eastern area of unincorporated Boulder County). In response to catastrophic wildfire events of the recent past and continued hazards of a changing climate, on May 12, 2022, the Board of County Commissioners adopted revisions to the Boulder County Building Code to ensure a minimum level of ignition resistance for all structures in Wildfire Zone 2. The approved updates to the Building Code took effect on June 6, 2022, and require the use of ignition-resistant materials for construction and a minimum three-foot non-combustible perimeter around the home. Please contact the Building Division to learn more about the updated ignition-resistant construction requirements included in the Building Code Amendments.

4. The proposed development shall not alter historic drainage patterns and/or flow rates or shall include acceptable mitigation measures to compensate for anticipated drainage impacts. The best available information should be used to evaluate these impacts, including but not limited to hydrologic evaluations to determine peak flows, floodplain mapping studies, updated topographic data, Colorado Geologic Survey landslide, earth/debris flow data, and creek planning studies.

DRAINAGE REPORT AND PLAN

New development and redevelopment must adhere to Boulder County Storm Drainage Criteria Manual (SDCM), Section 1200, which requires new development and redevelopment to minimize directly connected impervious

291 2nd Avenue Page 3 of 15 July 14, 2025

areas using low impact development principles. One method of minimizing directly connected impervious areas is to have at least 20 percent of the total impervious area drain to a pervious area equal to at least 10 percent of the total impervious surface area of the development prior to discharging from the site.

Permanent water quality may be met by using low impact development outlined above or it may be met using other means (e.g., underground proprietary system, permeable pavers, et cetera).

Due to existing capacity in the local storm sewer system, on site detention is not required for the project as determined by the County Engineer.

At building permit, plans submitted for permitting must demonstrate compliance with Boulder County Storm Drainage Criteria Manual, Section 1200, for review and approval by Community Planning & Permitting staff.

At final inspection, Boulder County staff must verify that the site improvements have been constructed according to the approved plans.

7. The development shall avoid significant historic or archaeological resources as identified in the Comprehensive Plan or the Historic Sites Survey of Boulder County, or through the site plan review process. Development within or affecting such resources may be approved, subject to acceptable mitigation measures and in the discretion of the Director, only if no other sites on the subject property can be reasonably developed, or only if reasonably necessary to avoid significant adverse impacts based upon other applicable site plan review criteria.

HISTORIC SIGNIFICANCE

Community Planning & Permitting staff have determined that the existing structure on the subject parcel does not appear to be of historic significance and is not eligible for historic designation.

8. The development shall not have a significant negative visual impact on the natural features or neighborhood character of surrounding area. Development shall avoid prominent, steeply sloped, or visually exposed portions of the property. Particular consideration shall be given to protecting views from public lands and rights-of-way, although impacts on views of or from private properties shall also be considered. Development within or affecting features or areas of visual significance

291 2nd Avenue Page 4 of 15 July 14, 2025

may be approved, subject to acceptable mitigation measures and in the discretion of the Director, only if no other sites on the subject property can be reasonably developed, or only if reasonably necessary to avoid significant adverse impacts based upon other applicable site plan review criteria.

b. For development anywhere in the unincorporated areas of the county, mitigation of visual impact may include changing structure location, reducing or relocating windows and glazing to minimize visibility, reducing structure height, changing structure orientation, requiring exterior color and materials that blend into the natural environment, and/or lighting requirements to reduce visibility at night.

	APPROVED
Location:	As shown on the site plan dated June 2, 2025
Elevations:	As shown in the elevations dated June 2, 2025
Height:	Maximum 30 feet from existing grade
Exterior Materials:	As shown in the elevations dated June 2, 2025
Exterior Colors:	As shown in the elevations dated June 2, 2025
Exterior Lighting:	Fixtures: Kirkham 8101-A138 as proposed
	Locations: As shown in the elevations dated June
	2, 2025

A. HEIGHT VERIFICATION

Because the proposed height of the structure is within two feet of the maximum allowed 30 feet above existing grade, a licensed Surveyor must complete a Height Survey Verification Form.

Please note that the height verification is a two-part process that requires a licensed Surveyor to establish existing grade (the grade before any site work) prior to construction, in addition to a follow-up survey once all roof framing is in place. The two-part form must sufficiently establish existing grade in accordance with standard surveying practice.

Prior to issuance of building permits, the first part of the Height Survey Verification form is included as an attachment to this letter and must be completed and submitted to the Community Planning & Permitting Department.

291 2nd Avenue Page 5 of 15 July 14, 2025

Prior to rough frame inspection, the <u>second part of the form</u> will be provided upon building permit application and must be submitted to the Community Planning & Permitting Department.

B. EXTERIOR COLORS AND MATERIALS

The application materials indicate white lap siding and trim, granite peak (medium blue/gray) accents, red brick, and tan sandstone will be used for the siding and onyx composite shingles will be used for the roofing, although, material samples were provided. Per the Niwot Design Review Committee review, the brick must be a darker, more historically compatible brick color; they cited the brick used at 198 2nd Avenue, 263 2nd Avenue, and 290 2nd Avenue as appropriate examples.

Prior to issuance of building permits, submit to the Community Planning & Permitting Department for review and approval, one digital set of exterior color samples (color chips, brochure, or catalog page) and material samples to be used including roof, siding, and trim. Samples should be included as part of the building plan set required at the time of permit application. The color of the brick must be consistent with the examples given by the Niwot Design Review Committee.

At the time of final inspection, the Community Planning & Permitting Department must inspect and verify that the approved color samples are used on the new structure.

9. The location of the development shall be compatible with the natural topography and existing vegetation and the development shall not cause unnecessary or excessive site disturbance. Such disturbance may include but is not limited to long driveways, over-sized parking areas, or severe alteration of a site's topography. Driveways or grading shall have a demonstrated associated principal use.

A. LOCATION

The location shown on the site plan dated June 2, 2025, is approved as proposed.

B. EARTHWORK AND GRADING

The following earthwork and grading requirements are approved.

291 2nd Avenue Page 6 of 15 July 14, 2025

Parking Area Earthwork:	34.33 cubic yards cut and 95.88 cubic
	yards fill
Foundational Earthwork:	645.57 cubic yards cut and 1.44 cubic
(exempt from 500 cubic	yards backfill
yards threshold)	582.55 cubic yards excess cut to be
	transported to an undetermined location

C. GRADING NARRATIVE

The application materials indicate that construction of the structure will require approximately 646 cubic yards of foundation cut and 1.5 cubic yards of backfill, and approximately 34 cubic yards of non-foundational cut and 96 cubic yards of non-foundational fill related to the parking area; the application materials do not indicate where the excess foundation cut is to be used.

Prior to issuance of building or grading permits, submit to this office a narrative describing where excess foundation cut (other than that used for backfill within the foundation) will be transported. As only certain locations in Boulder County are approved as receiving locations, the location for dumping of any excess fill must be approved by the Community Planning & Permitting Department.

All reasonable efforts shall be made to minimize the site disturbance associated with this development proposal. Total earthwork (excluding normal excavation contained within structure footings and foundations) approaching the 500 cubic yard trigger for Limited Impact Special Use Review will require grading plans certified by a registered Professional Engineer.

Prior to issuance of a Certificate of Occupancy, the location and receipt for transport and dumping must be submitted to the Community Planning & Permitting Department so that receipt of fill materials may be verified.

D. UTILITIES

To minimize disturbances to the site, all utility service lines shall be routed underground (see <u>Article 7-1200</u> of the Land Use Code) and should be located in areas already disturbed or proposed to be disturbed (e.g., along driveway).

SPR-25-0054: 291 2nd Avenue LLC Mixed Use Development 291 2nd Avenue

Page 7 of 15 July 14, 2025

Prior to issuance of building and grading permits, submit to the Community Planning & Permitting Department for review and approval a plan depicting the routing of all utility services. The utility routing plan shall be included as part of the building plan set required at the time of permit application.

At the time of building inspections, full installation of the utilities per the approved plan must be inspected and confirmed by the Community Planning & Permitting Department.

10. Access, including non-county maintained roads and driveways, shall meet the Boulder County Multimodal Transportation Standards, from the improvements on the subject property to a maintained public road. All driveways shall have a demonstrated associated Principal Use.

A. ACCESS REQUIREMENTS

The driveway design as proposed complies with the Multimodal Transportation Standards (the Standards) for residential development.

At final inspection, the Community Planning & Permitting Department must verify that the access and driveway has been constructed to comply with the Standards.

B. PARKING

The parking area must meet the requirements in the <u>Boulder County</u> <u>Multimodal Transportation Standards</u> (hereafter referred to as "the Standards"), including, but not limited to:

- a. MMTS Section 5.6.2 Parking Lot Design Standards & Standard Drawing 1
 - i. Compliance with the Standards, including parking stall dimensions, must be demonstrated at building permit.
- b. MMTS Section 5.6.4 Accessible Parking
 - i. The number of one van-accessible space complies with the <u>2010</u> ADA Standards for Accessible Design.
 - ii. Compliance with all relevant requirements in the 2010 ADA Standards for Accessible Design, including parking space and access aisle dimensions and signage, must be demonstrated at building permit.
- c. MMTS Section 5.6.5 Bicycle Parking

SPR-25-0054: 291 2nd Avenue LLC Mixed Use Development 291 2nd Avenue Page 8 of 15 July 14, 2025

The applicant should consult with Alexandra Phillips
 (aphillips@bouldercounty.org), the County's Bicycle Planner, on
 the appropriate location and rack style for this site.

The proposed 17 parking spaces complies with Section 4-116A.D.1 of the Code for the Niwot Rural Community District.

At building permit, a site plan must be submitted that demonstrates compliance with all relevant parking requirements.

11. Runoff, erosion, and/or sedimentation from the development shall not have a significant adverse impact on the surrounding area.

A. REVEGETATION REQUIREMENT

Prior to issuance of a Certificate of Occupancy, all areas of exposed soil must be revegetated. If weather is not conducive to seeding or if adequate revegetation efforts have not occurred and vegetation is not adequately established at the time of final inspection request, an irrevocable letter of credit or monies deposited into a County Treasurer account must be provided to assure completion of revegetation. What is considered "adequate revegetation" is influenced by the amount of site disturbance, potential for significant erosion (steep slopes), and visibility. In all cases some level of germination and growth is required. Note that areas of disturbance not included on the revegetation plan are still subject to reseeding and matting. Please note that no species on List A, B or C in the county's Noxious Weed Management Plan may be used to meet Revegetation requirements.

Site disturbance must be minimized and final grading and seeding must be conducted prior to the issuance of a Certificate of Occupancy. Incomplete revegetation is the leading cause for delays in obtaining Occupancy.

B. EROSION CONTROL MEASURES

Erosion control measures must be installed down slope of all disturbed areas prior to construction and maintained throughout the construction process until revegetation has been established. Erosion control measures construction shall be in accordance with the Colorado Storm Water regulations. If any surface water is channeled around or through the disturbed areas, anchored straw bale barriers shall also be installed to filter and slow channeled flow.

Prior to issuance of building or grading permits, details regarding the placement and construction of the silt fence must be submitted to and approved by the Community Planning & Permitting Department. The placement and profile of the silt fence may be shown on the Revegetation Plan. The silt fence must be installed before construction commences and remain in place until vegetation is sufficiently established on the disturbed soil.

Prior to any grading or site disturbance, the silt barrier location and materials must be installed as required per the approved plans.

At the time of the footing foundation inspection and all subsequent inspections, the Community Planning & Permitting Department must confirm the silt barrier location and materials have been installed as required per the approved plans. Any other areas on site are subject to installation of silt fences, if needed.

13. The proposal shall be consistent with the Comprehensive Plan, any applicable intergovernmental agreement affecting land use or development, and this Code.

COMPLIANCE WITH ARTICLE 4-116A NIWOT RURAL COMMUNITY DISTRICT I (NRCD I) STANDARDS

In addition to the criteria set forth in Article 4-806 of the Code, projects located within the Niwot Rural Community District I (NRCD I) Zoning District must comply with the standards set forth in Article 4-116A. Only those standards applicable to this project are included in this list.

B. Principal Uses Permitted

The defined use proposed for this property is Mixed Use. This use is permitted in the NRCD I Zoning District. For Mixed Use development, the maximum allowed number of residential units is based on parcel size. The subject parcel is approximately 13,575 square feet; as such, a maximum of four residential units are allowed. The applicants have proposed four units. Therefore, the use and number of residential units are approved as proposed.

C. Lot, Building, and Structure Requirements

2. Maximum Building Height

291 2nd Avenue Page 10 of 15 July 14, 2025

a. 30 feet

As discussed in Standard 8 above, the approved height of the structure is a maximum of 30 feet above existing grade.

3. Minimum Setbacks

- a. Front Yard
 - (ii) Blocks 5, 6
 - (A) 20 feet along 2nd Avenue with the ability to reduce the front setback to 10 feet as long as the front and rear combined setbacks are not less than 20 feet.

The subject parcel is located in Block 6 of the NRCD I. As shown in the site plan dated June 2, 2025, the proposed structure is located 16 feet from the front property line, which is less than the standard 20-foot setback required for Block 6 in the NRCD I. However, the combined front and rear setbacks as shown in site plan dated June 2, 2025, are 58 feet. As such, per Article 4-416A.C.3.a(ii)(A), the proposed structure may reduce the minimum front setback of 10 feet from the front property line; the structure is proposed at 16 feet. As such, staff the structure as proposed meets the setback requirements for Block 6 of the NRCD I.

5. Lot Coverage

- a. Definition: The percentage of total parcel area that can be covered by structures.
- b. Provisions (iii) Blocks 5, 6: 50%

As shown in the site plan dated June 2, 2025, the proposed structure has a total footprint of 5,172 square feet. The subject parcel is 13,575 square feet in size. The resulting lot coverage as proposed is approximately 38.1%. As such, staff find the structure as proposed meets the Lot Coverage requirement.

6. Floor Area Ratio

- a. Definition: The ratio of the total above grade building floor area to total lot area.
- b. Provisions
 - (i) Blocks 1, 2, 5, 6: 0.6
 - (iii) Blocks 5, 6 can propose an increase in FAR from 0.6 to a maximum of 0.7 if all residential square footage, with the exception of garages and carports, is located above non-

291 2nd Avenue Page 11 of 15 July 14, 2025

residential uses. The additional FAR can be approved through the review process if it is determined that:
(A) The proposal does not negatively impact historic resources.

As shown in the site plan and floor plans dated June 2, 2025, the proposed structure has a total above grade floor area of 9,406 square feet, with all of the residential floor area, with the exception of the residential garages, located above the non-residential floor area. As such, staff find the proposal meets the criteria to have an increased floor area ratio of 0.7. The resulting floor area ratio as proposed and approved is 0.69. As such, staff find the structure as proposed meets the Floor Area Ratio requirement.

d. Parking Requirements:

1. 1 parking space per 500 square feet of non-residential floor area, and residential parking at:

Number of dwelling units	Parking Requirement
1	2
2	3
3	5
4	6
5	8
6	9

- 3. Non-residential parking may be provided on the lot or on another lot within the NRCD I, or in an approved community lot.
- 4. Residential parking must be provided on site and on the same lot as the residential units.
- 6. Credit will be given for on-street parking at a ratio of 1 space per 15 feet of street frontage in the area west of Franklin; 1 space per 25 feet of frontage for parcels with curb-cuts on 2nd Avenue; and, 1 space per 15 feet of street frontage for parcels without curb-cuts on 2nd Avenue in the area east of Franklin Street.
- 9. Parking must be located in rear or side of the lot. There must be no parking within the front building line of the property.

As shown in the site plan as submitted, the applicant is proposing to provide 14 parking spaces on-site: 10 surface parking spaces and four garages for the residential units. Additionally, the subject parcel has a frontage of 90 feet along 2nd Avenue. As such, the proposed project is

291 2nd Avenue Page 12 of 15 July 14, 2025

given credit for a total of three on-street parking spaces, resulting in a total of 17 parking spaces being provided. Per Colorado House Bill 24-1304, which was adopted and became effective June 30, 2025, within certain identified transit areas, local governments may not enforce local laws requiring minimum vehicle parking spaces for multifamily residential, adaptive reuse for residential, or adaptive reuse for mixed use that includes at least 50% of use for residential. The subject parcel is located within one of these transit areas; as such, the county cannot enforce the minimum vehicle parking requirements that are in the Land Use Code for the residential units. However, given the applicant has proposed dedicated parking on-site for the residential units, their proposed parking is approved.

- E. NRCD I Design Requirements. The following requirements apply to the entire NRCD I, including the Historic District.
 - 3. Landscaping
 - c. In Blocks 5 and 6, a minimum of 20% of the area within each parcel must consist of landscaping, which may include hardscaped plazas, outdoor seating/serving areas, walkways within on-site open space areas, and other similar hardscaped on-site amenities. Hardscaped elements shall account for no more than two thirds of the minimum landscaped area requirement.

As discussed above, the subject parcel is 13,575 square feet; as such, the proposed project must include a minimum of 2,715 square feet of landscaping, of which a minimum of 904 square feet must be softscape. As shown in the site plans dated June 2, 2025, the applicant has proposed to install a total of 2,794 square feet of landscaped area: 1,170 square feet of planted landscaped area and 1,624 square feet of hardscaped area). The proposed 1,624-square-foot hardscaped area is approximately 58.1% of the total proposed landscaped area – less than the maximum 66.667% allowed under this criterion. Therefore, staff finds that the landscaping as shown in the submitted site plan meets the minimum amount of landscaping required.

However, to ensure that the species of plantings used for landscaping are appropriate and consistent with Comprehensive Plan, staff find that a landscaping plan, including the specific species of plantings, must be provided for review and approval.

291 2nd Avenue Page 13 of 15 July 14, 2025

At building permit, submit a full Landscaping Plan identifying the locations and species of plantings to be used on-site for review and approval by Community Planning & Permitting staff. The Landscaping Plan shall be included as part of the building plan set required at the time of permit application. The use of native and/or low-water-usage species is strongly encouraged.

At the time of final inspection, the full installation of the approved Landscape Plan must be inspected and approved by the Community Planning & Permitting Department.

6. Building Form

a. Roofs should conform with the existing roof styles on 2nd Avenue within the same block.

As shown in the elevations dated June 2, 2025, the proposed structure has a roof with multiple pitches. Based on staff observations of other buildings on Block 6, there is a mix of pitched- and flat-roofed structures on the block. Therefore, staff find the Building Form requirement is met.

As conditioned this proposal will be consistent with the Comprehensive Plan, intergovernmental agreements, and this Code.

ADDITIONAL REQUIREMENTS AND INFORMATION:

BUILDING PERMITS: A building permit, plan review, inspection approvals, and a Certificate of Occupancy ("C.O.") are required for the new mixed use commercial building. A separate building permit is required to deconstruct the existing building.

Boulder County Building Code Amendments

The Commercial Plan Submittal Checklist: B70 Commercial Plan Checklist

From the submitted application documents: It is the goal to limit the proposed use by listing the first-floor occupancy as only "B."

MINIMUM PLUMBING FIXTURES: The plumbing fixtures count needs to meet or exceed the requirements of IBC Chapter 29, including the need for accessible restrooms and fixtures.

ACCESSIBILITY: Chapter 11 of the IBC and referenced standard ICC A117.1-17 provide for accessibility for persons with disabilities. Any building permit submittals

291 2nd Avenue Page 14 of 15 July 14, 2025

are to include any applicable accessibility requirements, including accessible parking, signage, accessible routes and accessible fixtures and features.

DESIGN WIND AND SNOW LOADS: The design wind and ground snow loads for the property are 150 mph (Vult) and 40 psf, respectively.

IGNITION-RESISTANT CONSTRUCTION AND DEFENSIBLE SPACE: Please refer to Section R390 of the Boulder County Building Code for wildfire hazard mitigation requirements, including ignition-resistant construction and defensible space.

PLAN REVIEW: The items listed above are a general summary of some of the county's building code requirements. A much more detailed plan review will be performed at the time of building permit application, when full details are available for review, to assure that all applicable minimum building codes requirements are to be met. Our Residential Plan Check List and other <u>Building Publications</u>, <u>Applications and Forms - Boulder County</u>

NIWOT SANITATION DISTRICT: This property current has one sewer tap. Due to this request consisting of four residential and four commercial properties, an additional <u>seven</u> sewer tap purchases will be required. As per Section 4.3.1 of the Ni wot Sanitation District Rules and Regulations, all rates for sanitary sewer service shall be based on the single-family equivalent (SFE) where all private dwellings and small businesses are one SFE (one sewer tap). The Niwot Sanitation District conducts an annual commercial water audit using the water usage from November through March. Commercial properties that are found to be discharging more water than the number of taps purchased for that property (7800 gallons per month per tap) will be required to purchase additional sewer taps.

LEFT HAND WATER DISTRICT: The applicant at 291 2nd Avenue currently has an existing commercial account associated with the property. Based on the information provided in the application the district requires that the applicant must submit a new Tap Availability Review Request Form and Commercial Supplemental Form to Left Hand Water District prior to the start of any new construction. The forms are available online at http://lefthandwater.gov. Improvements to existing infrastructure may be necessary to support the proposed facility.

MOUNTAIN VIEW FIRE RESCUE: The building will require fire sprinklers, fire alarm and will be subject to the currently adopted IFC at time of permit submission. Access for FDC and aerial access must be maintained.

XCEL ENERGY: Please be aware PSCo owns and operates existing overhead electric distribution facilities along 2nd Avenue and near the west corner at the rear

SPR-25-0054: 291 2nd Avenue LLC Mixed Use Development 291 2nd Avenue Page 15 of 15 July 14, 2025

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

If additional easements need to be acquired by separate PSCo document, a Rightof-Way Agent will need to be contacted by the Designer.

As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.



Boulder County Land Use Department

Courthouse Annex Building • 2045 13th Street • PO Box 471 Boulder, Colorado 80302

Phone: 303-441-3925 • Fax: 303-441-4856 Email: building_official@bouldercounty.org http://www.bouldercounty.org/lu/

Office Hours: Monday — Friday 8:00 AM to 4:30 PM

Intake Stamp		
BP -		

Existing Grade Verification Form

This verification form is to be completed by a Professional Land Surveyor licensed in the State of Colorado.

Surve	vor	Con	tact	Inf	forn	nation
2011	, ~:				~	

<u> </u>		
Surveyor Name		
Company Name		
Address	Email Address	
	Phone	Fax
City	State	Zip Code

Field Survey Information

Site Location Site Location		Date of Survey
City	State	Zip Code

Surveyor Verification

I (surveyor named above) am a Professional Land Surveyor licensed in the State of Colorado. I have conducted a field survey on the site named above of the existing grade (grade before any site work, including grading or excavation has occurred).

Surveyor Signature	Date

Surveyor's Seal



Boulder County Land Use Department

Courthouse Annex Building 2045 13th Street • PO Box 471 • Boulder, Colorado 80302

Phone: 303-441-3930

Email: planner@bouldercounty.org Web: www.bouldercounty.org/lu

Office Hours: Mon., Wed., Thurs., Fri. 8 a.m. to 4:30 p.m.

Tuesday 10 a.m. to 4:30 p.m.

Shaded Areas for Staff Use Only		
Intake Stamp		

Planning Application Form

The Land Use Department maintains a submittal schedule for accepting applications. Planning applications are accepted on Mondays, by appointment only. Please call 303-441-3930 to schedule a submittal appointment.

Project Number			Project Name	
☐ Appeal ☐ Correction Plat ☐ Exemption Plat ☐ Final Plat ☐ Limited Impact Special U ☐ Limited Impact Special U ☐ Location and Extent	Jse Ise Waiver	Modification of Site Plan Review Modification of Special Use Preliminary Plan Resubdivision (Replat)	□ Road Name Change □ Road/Easement Vacation □ Site Plan Review □ Site Plan Review Waiver □ Sketch Plan □ Special Use/SSDP	☐ Special Use (Oil & Gas development) ☐ State Interest Review (1041) ☐ Subdivision Exemption ☐ Variance ☐ Other:
Location(s)/Street Address(es) 29/ Second	Ave.			
Subdivision Name				
Lot(s) /1, 12	Block(s) 20	Section(s) S.F. 1/4 OF	Sect. 25 Township(s) 72N	Range(s) R70 W
Area in Acres , 3/2	Existing Zoning	Existing Use of Pr	operty former feed sta	Number of Proposed Lots
Proposed Water Supply Leff	Hand Wa	Feir Proposed Sewage	e Disposal Method Niubt San	itation
Applicants:				
Applicant/Property Owner 29/	2nd Av	e, LLC	Email Johnrich and	fischer@gmail.com
Mailing Address	Pu Ct.	,		
City Niwot	State	Zip Code 80504	Phone 303 775-9	1863
Applicant/Property Owner/Agent/C	ansultant Archited		Fmail	isarchi tecture, com
Mailing Address	024	70.0		
City Niwot	State	Zip Code 80544	Phone 303 652-2	668
Agent/Consultant			Email	
Mailing Address				
City	State	Zip Code	Phone	
Certification (Please refe	r to the Regul	ations and Application Sul	omittal Package for complete a	pplication requirements.)

I certify that I am signing this Application Form as an owner of record of the property included in the Application. I certify that the information and exhibits I have submitted are true and correct to the best of my knowledge. I understand that all materials required by Boulder County must be submitted prior to having this matter processed. I understand that public hearings or meetings may be required. I understand that I must sign an Agreement of Payment for Application processing fees, and that additional fees or materials may be required as a result of considerations which may arise in the processing of this docket. I understand that the road, school, and park dedications may be required as a condition of approval.

I understand that I am consenting to allow the County Staff involved in this application or their designees to enter onto and inspect the subject

property at any reasonable time, without obtaining any prior consent.

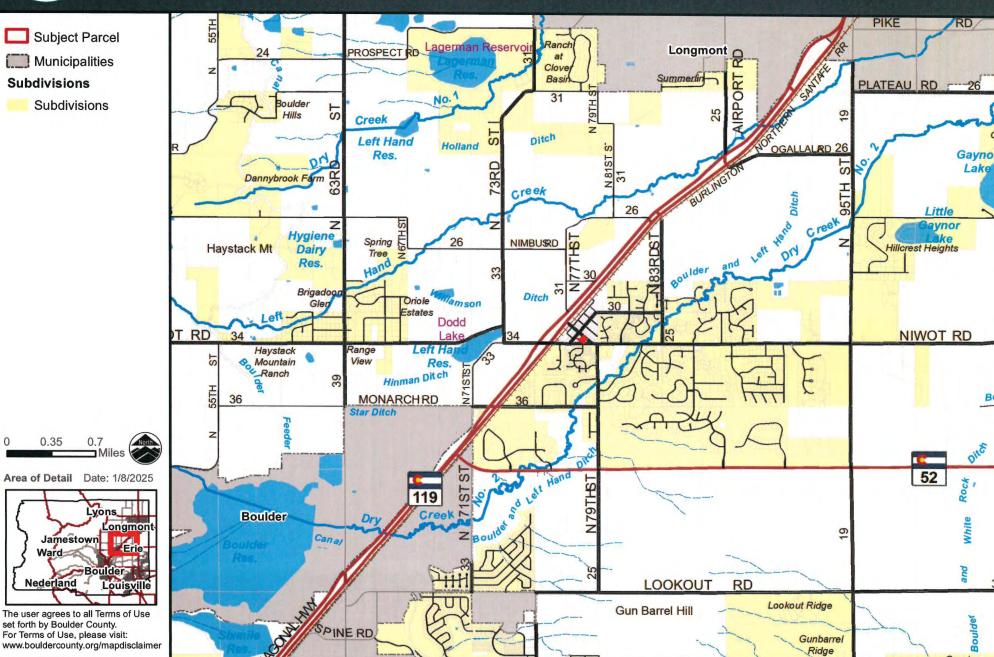
All landowners are required to sign application. If additional space is needed, attach additional sheet signed and dated.

Signature of Property Owner	Printed Name JOHNR-FISCHER	Date 5/26/25
Signature of Property Owner	Printed Name	Date

The Land Use Director may waive the landowner signature requirement for good cause, under the applicable provisions of the Land Use Code.

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Vicinity
291 2ND AVE



2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Location 291 2ND AVE



2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Aerial 291 2ND AVE

Subject Parcel



0 0.0025 0.005 Miles

Area of Detail Date: 1/8/2025

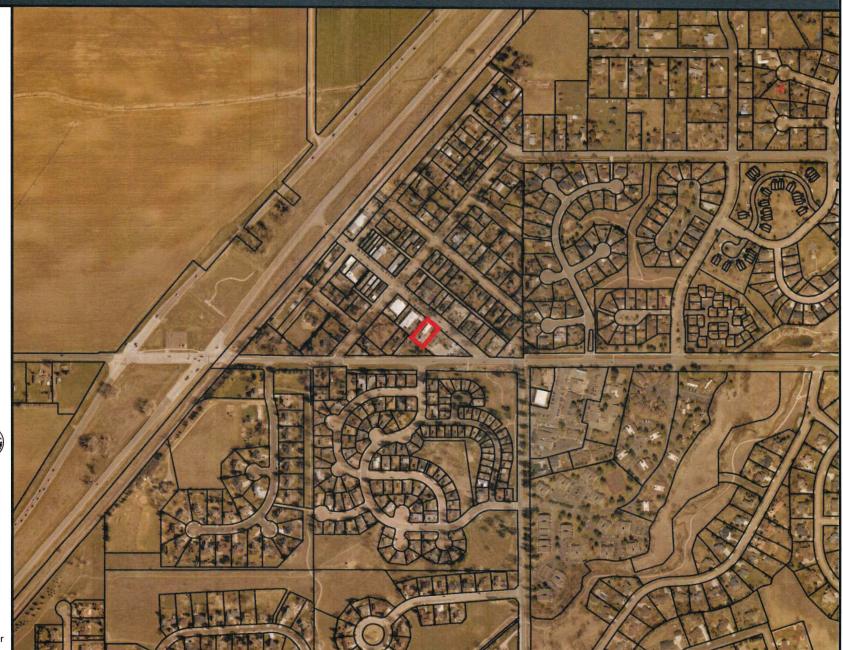


The user agrees to all Terms of Use set forth by Boulder County.
For Terms of Use, please visit: www.bouldercounty.org/mapdisclaimer

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Aerial 291 2ND AVE

Subject Parcel

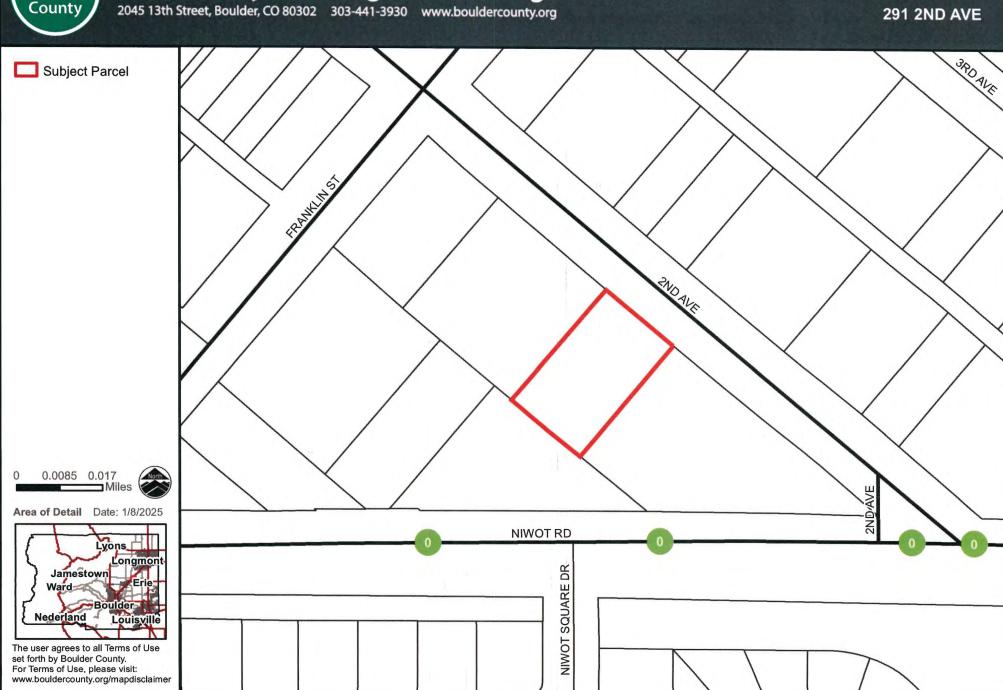


Area of Detail Date: 1/8/2025

Lyons
Longmont
Jamestown
Ward
Boulder
Nederland
Louisville

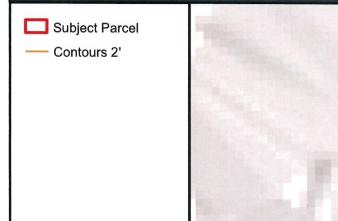
The user agrees to all Terms of Use set forth by Boulder County. For Terms of Use, please visit: www.bouldercounty.org/mapdisclaimer

Comprehensive Plan **291 2ND AVE**



2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Elevation Contours 291 2ND AVE



0 0.0025 0.005 Miles

Area of Detail Date: 1/8/2025

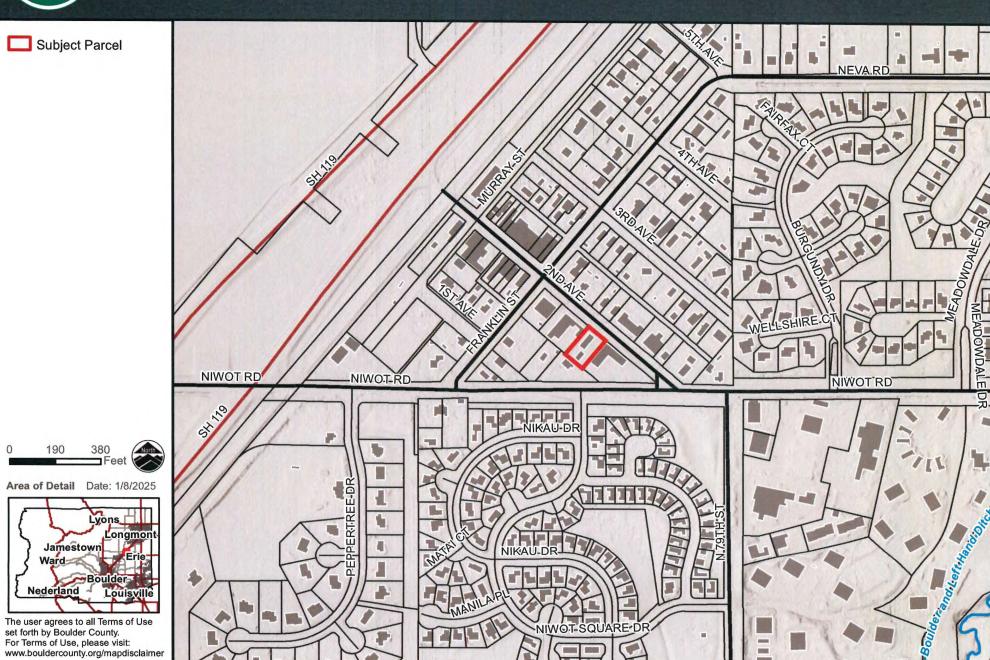


The user agrees to all Terms of Use set forth by Boulder County. For Terms of Use, please visit: www.bouldercounty.org/mapdisclaimer



2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Geologic Hazards
291 2ND AVE



Public Lands & CEs 291 2ND AVE

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Subject Parcel

Boulder County Open Space

County Open Space



set forth by Boulder County. For Terms of Use, please visit: www.bouldercounty.org/mapdisclaimer

Jamestown

Nederland

Boulder

joryan

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Zoning 291 2ND AVE



Zoning Districts

- **Business**
- Multiple Family
- NRCD I
- NRCD II
- Rural Residential
- Suburban Residential

Ditch Setbacks

20 feet

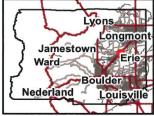
50 feet

Major Road Setbacks

90 feet

XX 160 feet





The user agrees to all Terms of Use set forth by Boulder County. For Terms of Use, please visit: www.bouldercounty.org/mapdisclaimer



Site Plan Review Fact Sheet

3793 sq. ft

The applicant(s) is/are required to complete each section of this Site Plan Review (SPR) Fact Sheet even if the information is duplicated elsewhere in the SPR application. Completed Fact Sheets reduce the application review time which helps expedite the Director's Determination. Please make duplicates of this SPR Fact Sheet if the project involves more than two structures. *These fact sheets can be duplicated to accommodate

Structure #1 Information multiple proposed structures

(e.g.		e of Structure: dio, barn, etc.)	mixed	use bulla	ing
(Finished + Unfi	nished square	ng Floor Area: feet including ge if attached.)	2036 sq. ft.	Deconstruction: 2036	O sq. i
	nclude the nev		are footage in	the table below)	
	Finished	Unfinished	Total	Non-Resident	ial
Basement:	sq. ft.	sq. ft.	sq. ft.	Height (above existing grade)	130'
= /	2702		27/10	Exterior	brick/

sq. ft

Wall Material

Exterior

Wall Color

Roofing

Material

Roofing

Total Bedrooms

Color

see

See

render.

Shingle

render

8

Structure	#2 Info	rmation
Julucture	72 IIII	Jilliation

Total:

First Floor:

Second Floor:

Garage:

■ Detached

Attached

*Covered Porch:

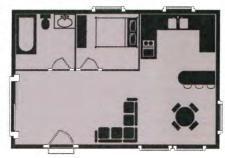
(e.g.	Type residence, stu	of Structure: dio, barn, etc.)			
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)		sq. ft.	Deconstruction:	sq. fi	
Are new floor areas				cur? the table below)	
Proposed FI	oor Area (New	Construction C	nly)	Residential	
	Finished	Unfinished	Total	☐ Non-Residential	
Basement:	sq. ft.	sq. ft.	sq. ft.	Height (above existing grade)	
First Floor:	sq. ft.	sq. ft.	sq. ft.	Exterior Wall Material	
Second Floor:	sq. ft.	sq. ft.	sq. ft.	Exterior Wall Color	
Garage: Detached Attached	sq. ft.	sq. ft.	sq. ft.	Roofing Material	
*Covered Porch:	sq. ft.	sq. ft.	sq. ft.	Roofing Color	
Total:	sq. ft.	sq. ft.	sq. ft.	Total Bedrooms	

^{*}See Article 18-131A for definition of covered porch.

Project Identification: Project Name: Feedsfore Commons Property Address/Location: 291 2nd Ave, Niwof Current Owner: 291 2nd Ave, LLC Size of Property in Acres:

Determining Floor Area

Floor Area is measured in terms of square feet. The total square footage is as everything within the exterior face of the exterior walls including garages and basements. Covered porch area that is attached to the principal structure is not included (see Article 18-131A). The shaded area on the diagram indicates the area counted as square feet.



Residential vs. Non-Residential Floor Area

Residential Floor Area includes all attached and detached floor area (as defined in Article 18-162) on a parcel, including principal and accessory structures used or customarily used for residential purposes, such as garages, studies, pool houses, home offices and workshops. Gazebos and carports up to a total combined size of 400 square feet are exempt. Barns used for agricultural purposed are not considered residential floor area.

Note: If an existing wall(s) and/or roof(s) are removed and a new wall(s)/roof(s) are constructed, the associated floor area due to the new wall(s)/roof(s) are considered new construction and must be included in the calculation of floor area for the Site Plan Review and shown on this Fact Sheet.

If a Limited Impact Special Review is required, then call 303-441-3930 and ask for a new Pre-Application conference for the Limited Impact Special Review.

Grading Calculation

Cut and fill calculations are necessary to evaluate the disturbance of a project and to verify whether or not a Limited Impact Special Review is required. Limited Impact Special Review is required when grading for a project involves more than 500 cubic yards (minus normal cut/fill and backfill contained within the foundation footprint).

If grading totals are close to the 500 yard trigger, additional information may be required, such as a grading plan stamped by a Colorado Registered Professional Engineer.

Earth Work and Grading

This worksheet is to help you accurately determine the amount of grading for the property in accordance with the Boulder County Land Use Code. Please fill in all applicable boxes.

Note: Applicant(s) must fill in the shaded boxes even though foundation work does not contribute toward the 500 cubic yard trigger requiring Limited Impact Special Use Review. Also, all areas of earthwork must be represented on the site plan.

Earth Work and Grading Worksheet:

CUT + FILL = TOTAL

	Cut	Fill	Subtotal
Driveway and Parking Areas			
Berm(s)			
Other Grading			
Subtotal			Box 1
* If the total in Box 1 is great is required.	er than 500 cubic yar	ds, then a Limited Imp	act Special Review
	Cut	Fill	Total
Foundation			
·		oundation excavation ved from the property	

Excess Material will	oe Transported to t	he Following Lo	cation:
-----------------------------	---------------------	-----------------	---------

Excess Materials Transport Location:		
A CONTRACTOR OF THE CONTRACTOR		

Narrative

Use this space to describe any special circumstances that you feel the Land Use Office should be aware of when reviewing your application, including discussion regarding any factors (listed in Article 4-806.2.b.i) used to demonstrate that the presumptive size limitation does not adequately address the size compatibility of the proposed development with the defined neighborhood. If more room is needed, feel free to attach a separate sheet.

see attached	

Is Your Property Gated and Locked?

Note: If county personnel cannot access the property, then it could cause delays in reviewing your application.

Certification

I certify that the information submitted is complete and correct. I agree to clearly identify the property (if not already addressed) and stake the location of the improvements on the site within four days of submitting this application. I understand that the intent of the Site Plan Review process is to address the impacts of location and type of structures, and that modifications may be required. Site work will not be done prior to issuance of a Grading or Building Permit.

Signature Pollful Print Name Jott N LF is that Date 5/26/25	
---	--



April 8, 2025 Project Narrative: Feedstore Commons at 291 2nd Avenue, Niwot, CO 80503

Feedstore Commons has tremendous potential to add life and vitality to Niwot's 2nd Avenue Commercial District.

History: 291 2nd Avenue is the former site of Niwot Rental and Feed. The 'Feedstore' was built in 1975 and operated by Steve and Kay Rollman until they retired in 2022. The property was purchased by 291 2nd Avenue LLC, which is owned by John and Xan Fischer. The Fischers have allowed the existing Feedstore building to be used by local non-profits for the last few years while they considered their options for developing the property.

The existing un-insulated concrete block building with minimal foundation and no historic value was determined to have minimal restoration value, so will be deconstructed.

New Mixed-use Building: A new mixed-use building, constructed on the northwest of the site adjacent to 2nd Avenue, provides a mix of commercial and residential uses. The main level will include 3,316 s.f. of commercial space for retail, restaurant or office use, 4 single car garages (one accessible) for the use of the 2nd floor residents, and elevator and stair access to the residents above. The upper level will include four residences, each with two bedrooms and two bathrooms (approximately 1,100 s.f. each), each with a private balcony and common entry and hallway space. The residential units are within an easy walk to shops, offices, restaurants, public transit, a grocery store and all the amenities, events and activities that Niwot has to offer. The exterior style will be compatible with other new buildings within the NRCD. The location of parking at the rear of the property creates a generous setback between the mixed-use building and the adjacent single family on Niwot Road. The materials are brick, lap siding, and composition shingle roof.

The automobile access is from a drive along the southeast side of the property, from 2nd Avenue. Multimodal transportation to the site is encouraged by the inclusion of bike racks at the rear of the property for employees and residents, and along 2nd Avenue for visitors.

Parking for the property is provided by four on-site garages (one accessible) and two surface parking spaces for the residential units, and 8 surface parking spaces (one accessible) and credit for three street spaces for the commercial use. The required parking for the project is 13 spaces, with 17 spaces provided.

The applicant has held a Community meeting and met with the Niwot Design Review Committee. See attached Community Feedback and Considerations for response. This submittal addresses the comments received.

The proposed project contributes to the economic vitality of Niwot by providing both property tax and potential sales tax revenue. The new residences and businesses will contribute to the walkability, sustainability and vibrancy of Niwot's commercial district.

The size of Feedstore Commons is compatible with the general character of the NRCD. The location of the proposed buildings and uses will not impose an undue burden on public services and infrastructure. The proposed development avoids natural hazards. The proposed development shall not alter historic drainage patterns and flow rates. The proposed development avoids significant natural ecosystems and environmental features. The development shall not have a negative visual impact on the natural features or neighborhood character of the surrounding area. The location of the development shall be compatible with the natural topography and existing vegetation and shall not cause unnecessary or excessive site disturbance. Runoff, erosion and/or sedimentation from the development shall not have a significant adverse impact on the surrounding area. The development is consistent with the Comprehensive Plan and will be an asset to the Niwot Community.



Niwot Community meeting, March 6, 2025, Niwot Hall 5pm Community Feedback & Considerations

1. Privacy Concerns for Adjacent Homes:

- Nearby residents expressed concerns about second-floor balconies overlooking their homes, potentially impacting privacy.
- Suggestions included modifying window designs (e.g., smaller or clerestory windows) to reduce visibility into private yards.
- Response: Second floor residential units on the rear of the property have a 42′ setback where 20′ is required, giving a large separation between the new and existing residences. Bedroom windows on rear of property have been reduced in size by 1/3 to address the privacy and light concerns.

2. Lighting & Noise Considerations:

- Residents worried about security lighting shining into homes and the potential noise from restaurants.
- The fence proposed between the parking and the adjacent residential was positive and welcome. A higher fence than 6' would also be welcome by the neighbors.
- Response: Any potential restaurant hoods have been designed to be located on the front half of the site, so sound should not be an issue with the setback proposed.
- o All exterior light will be dark sky compliant. While the balconies will be required by code to have a light at the door, it will be dark sky compliant, and could be located on the balcony railing, shining down and into the balcony space.
- o An 8' privacy fence, if allowed by the County, would be an option.

3. Architectural Context & Visual Integration:

- One attendee questioned whether the building would be too similar to the existing buildings on the street. She suggested showing more images of the adjacent buildings in the presentation to the Niwot Design Review Committee.
- One attendee suggested colorful awnings
- One attendee was concerned that recessed covered entries were not as desirable for retail users.
- Response: Images of the adjacent buildings were included in the presentation to the Niwot Design Review Committee. They did not share the concern that

- the buildings were too similar, and two members of the committee approved of the design as presented. One member suggested that bolder colors be used.
- Metal awnings are proposed on the southeast side of the building to define the entrance to one of the commercial suites and the residential elevator lobby. They could be colored awnings. The project has a mix of recessed and flush entries, with opportunities for a mix of users. Many retailers in Niwot have recessed entries.

4. Bicycle Infrastructure:

- One Attendee advocated for secure bike parking, particularly given the rise of e-bikes and the town's access to trails. She proposed providing an enclosed area for employee bicycle storage.
- o Response: Since the initial proposal showed more parking than is required, we will replace one parking space in the southwest corner of the property with secure bike racks. This is a very private area of the property and not likely to be visited by people who don't live or work on the property.

5. Traffic & Parking Logistics:

- Concerns about employee parking and potential overflow into street parking were raised.
- A suggestion was made to encourage business tenants to use off-site parking to free up space for customers.
- The owner of the Left Hand Corner Building asked that the gas meters on his property that are adjacent to the entry drive be protected. They are currently protected by a low brick wall that will remain.
- Response: The design as presented requires 13 parking spaces. 14 on site spaces are provided, and credit is given for 3 street spaces for a total of 17 spaces provided. Secure bicycle racks are shown in the southwest corner of the property.
- Encouraging Niwot's business employees to park in the public parking lot to save the street spaces for customers is a positive idea for ALL businesses in Niwot.

6. Economic Viability & Commercial Leasing:

 Residents discussed whether the commercial spaces would be viable given current market trends and existing vacancies.

- Concerns were raised about high lease rates potentially deterring small businesses.
- The costs to run a business in Niwot are definitely a challenge, and Niwot having a minimum wage that is not competitive with any of the adjacent towns hurts Niwot's ability to compete to attract businesses. That said, we have a client who loves Niwot and wants to be a part of the solution. The commercial spaces in this development are designed to be flexible and can accommodate a variety of uses and space needs.

7. Height & Massing:

- Some residents felt that a two-story building was too tall for the area.
- Others supported the design, noting its continuity with neighboring structures.
- o The two-story design proposed, that is under 30' is compatible with other buildings on the street, and complies with the Land Use Code. This building is similar in height to the Left Hand Corner building next door and the Slater Building across the street. Both are mixed use buildings with commercial on the first floor and either residents or offices on the upper floor.

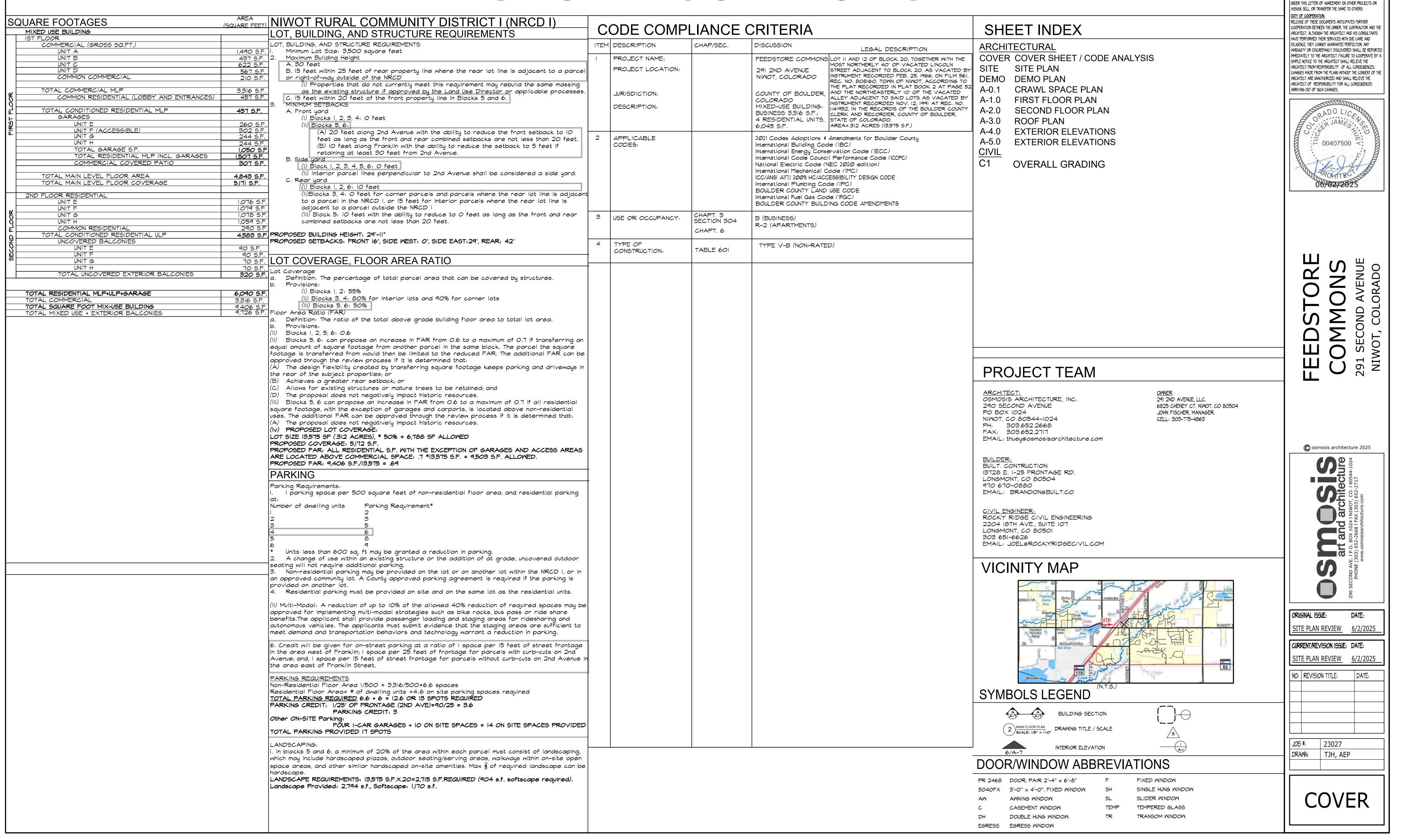
8. Final Comments:

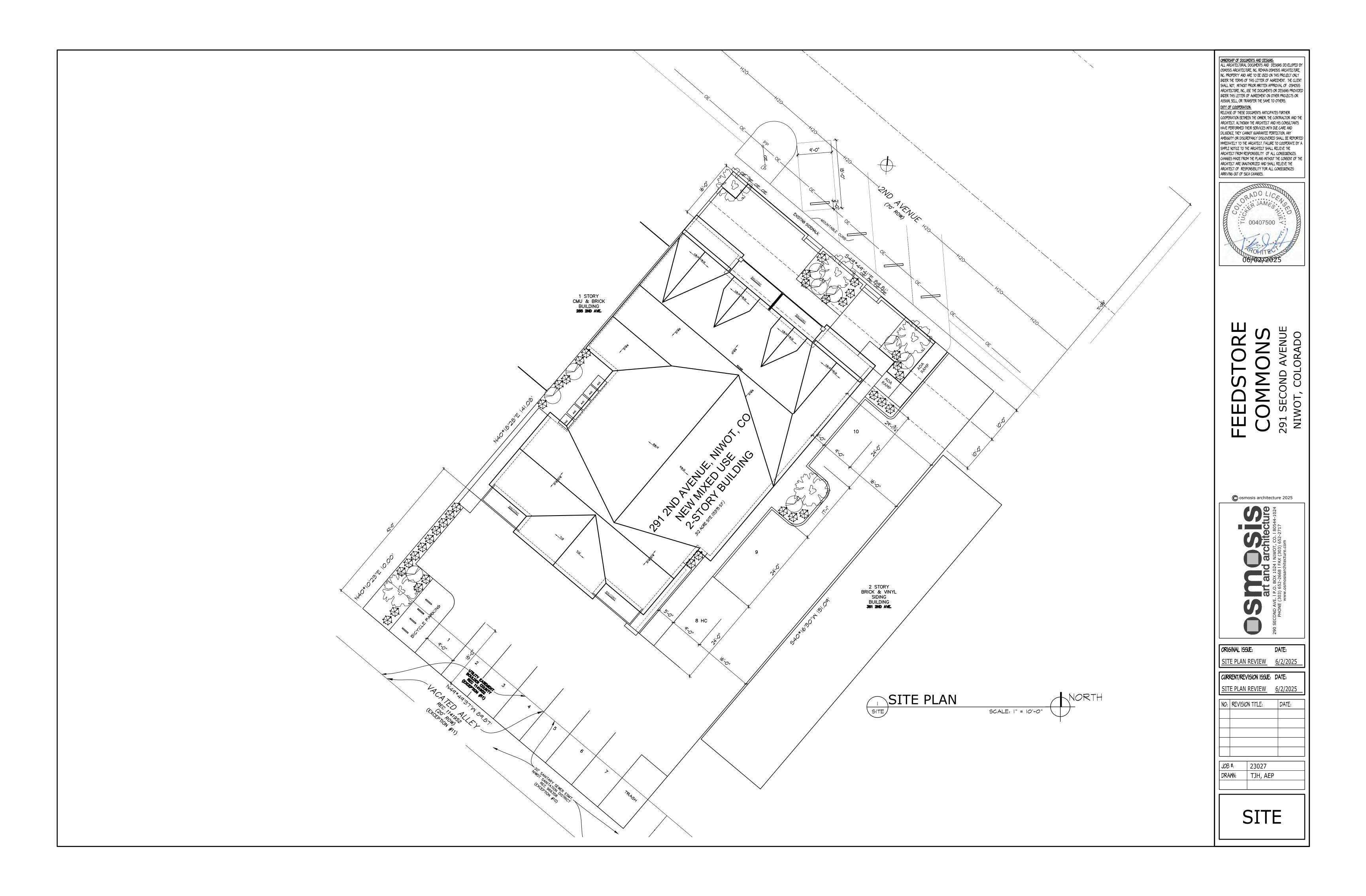
- The greatest concern seemed to be from the adjacent neighbor regarding privacy, noise and light.
- Many of the community members present voiced support for the design and were happy to see this property move into its next phase as a contributing structure to Niwot's downtown.

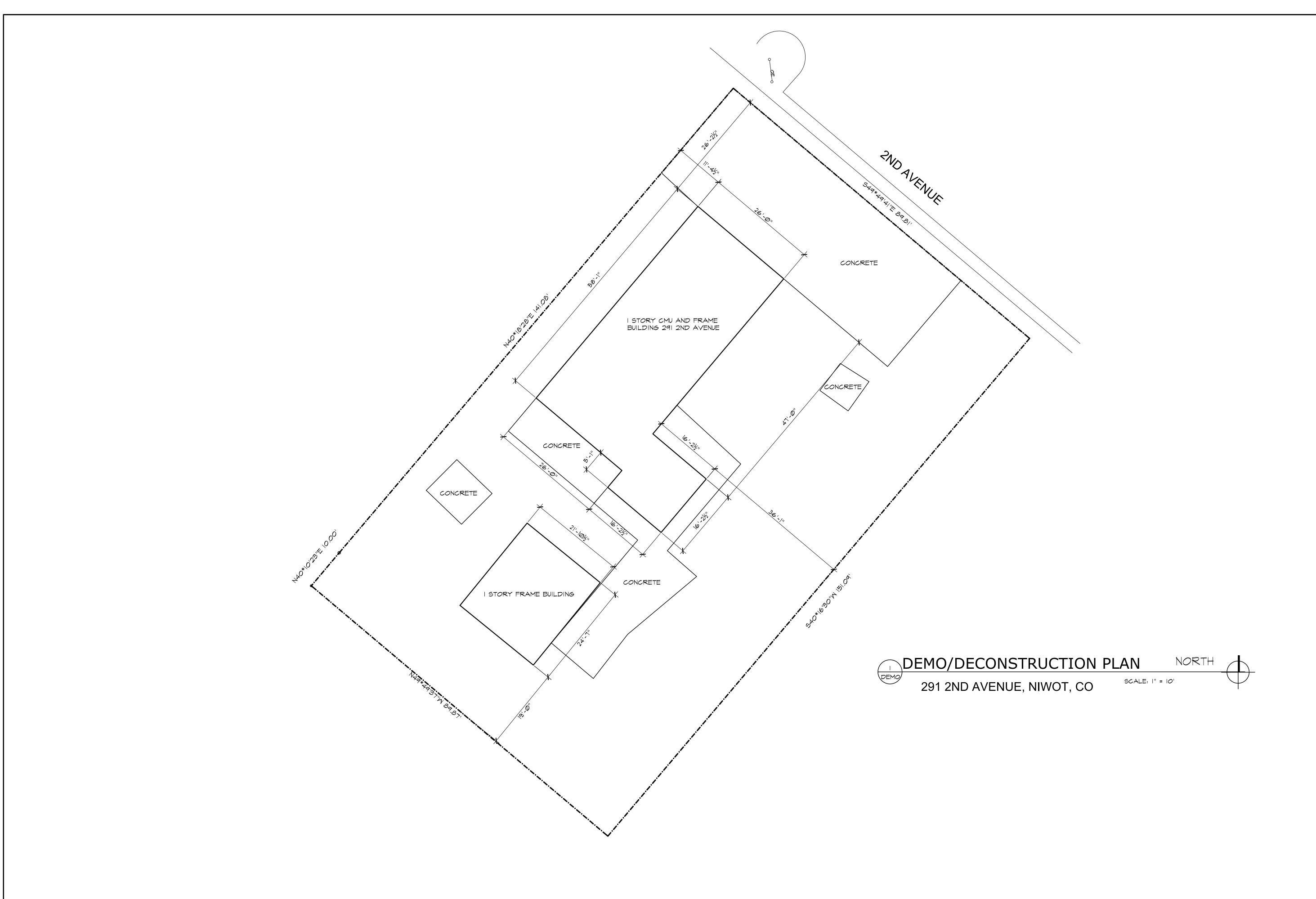
FEEDSTORE COMMONS

OWNERSHIP OF DOCUMENTS AND DESIGNS:
ALL ARCHITECTURAL DOCUMENTS AND DESIGNS DEVELOPED BY

OSMOSIS ARCHITECTURE, INC. REMAIN OSMOSIS ARCHITECTURE, INC. PROPERTY AND ARE TO BE USED ON THIS PROJECT ONLY UNDER THE TERMS OF THIS LETTER OF AGREEMENT. THE CLIENT SHALL NOT, WITHOUT PRIOR WRITTEN APPROVAL OF OSMOSIS ARCHITECTURE, INC., USE THE DOCUMENTS OR DESIGNS PROVIDED







OMNERSHIP OF DOCUMENTS AND DESIGNS:
ALL ARCHITECTURAL DOCUMENTS AND DESIGNS DEVELOPED BY OSMOSIS ARCHITECTURE, INC. REMAIN OSMOSIS ARCHITECTURE, INC. PROPERTY AND ARE TO BE USED ON THIS POLJECT ONLY UNDER THE TERMS OF THIS LETTER OF AGREEMENT. THE CLIENT SHALL NOT, WITHOUT PROW WRITTEN APPROVAL OF OSMOSIS ARCHITECTURE, INC., USE THE DOCUMENTS OR DESIGNS PROVIDED UNDER THIS LETTER OF AGREEMENT ON OTHER PROJECTS OR ASSIGN, SELL, OR TRANSFER THE SAME TO OTHERS.

ASSIGN, SELL, OR TRANSFER THE SAME TO OTHERS.

DUTY OF COOPERATION:

RELEAGE OF THESE DOCUMENTS ANTICIPATES FURTHER

COOPERATION BETWEEN THE OWNER, THE CONTRACTOR AND THE

ARCHITECT. ALTHOUGH THE ARCHITECT AND HIS CONSULTANTS

HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND

DILIGENCE, THEY CANNOT GUARANTEE PERFECTION. ANY

AMBIGUITY OR DISCREPANCY DISCOVERED SHALL BE REPORTED

IMMEDIATELY TO THE ARCHITECT. FAILURE TO COOPERATE BY A

SIMPLE NOTICE TO THE ARCHITECT SHALL RELIEVE THE

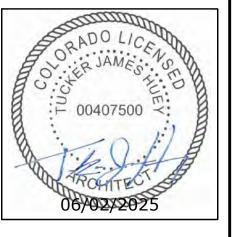
ARCHITECT FROM RESPONSIBILITY OF ALL CONSEQUENCES.

CHANGES MADE FROM THE PLANS MITHOUT THE CONSENT OF THE

ARCHITECT ARE UNAUTHORIZED AND SHALL RELIEVE THE

ARCHITECT OF RESPONSIBILITY FOR ALL CONSEQUENCES

ARRIVING OUT OF SUCH CHANGES.



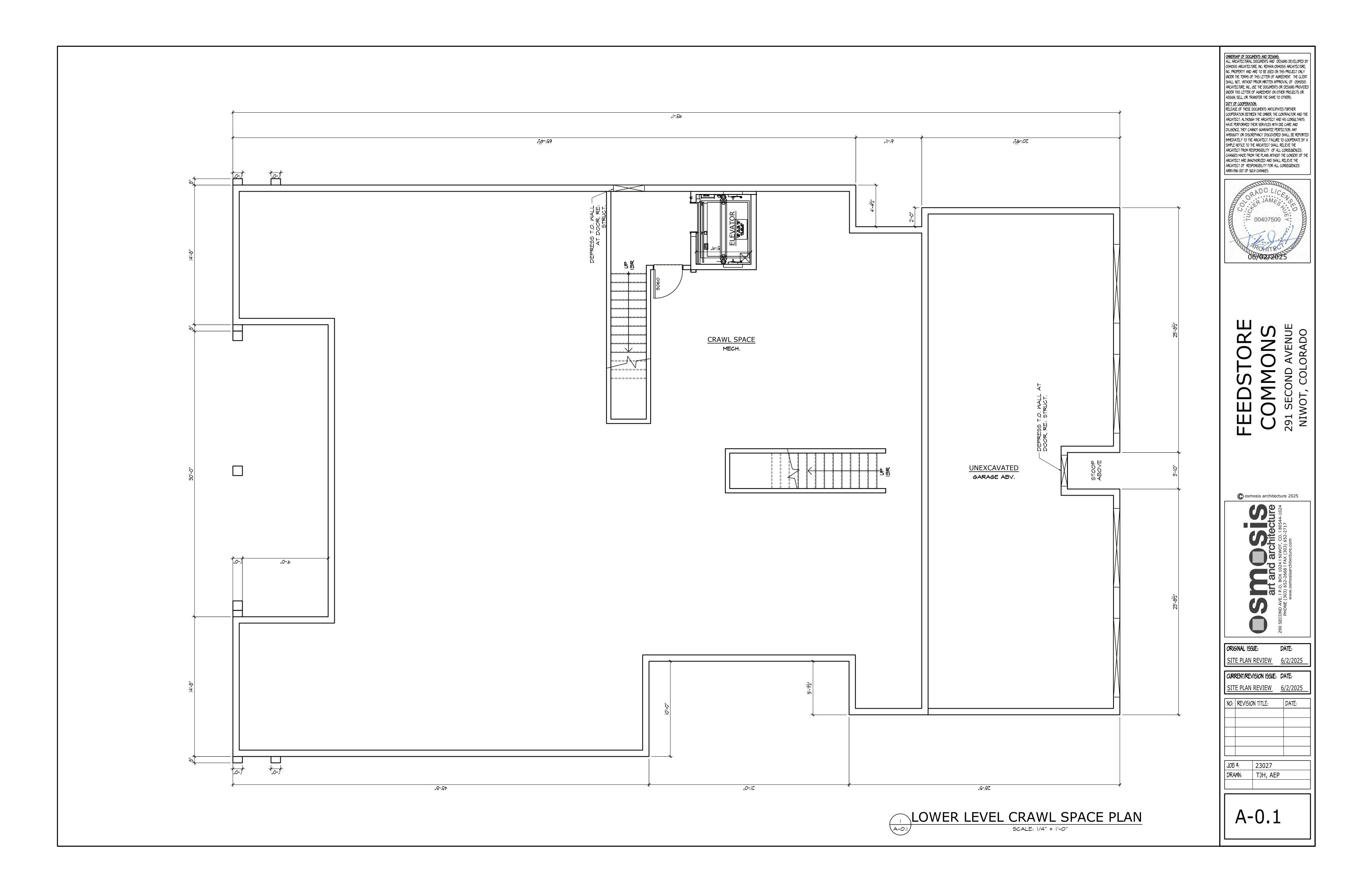
© osmosis architecture 2025

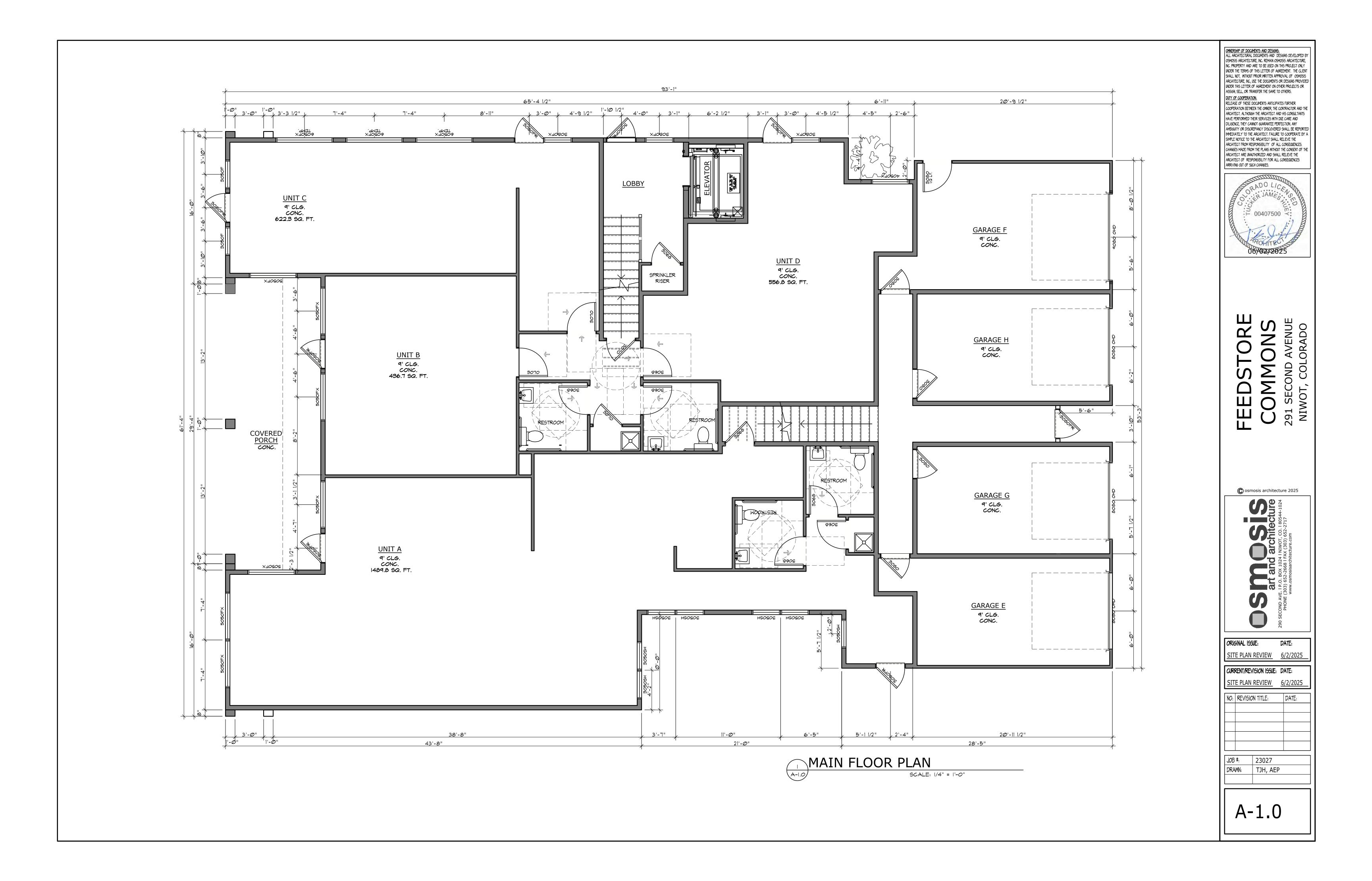
ORIGINAL ISSUE: SITE PLAN REVIEW 6/2/2025 CURRENT/REVISION ISSUE: DATE: SITE PLAN REVIEW 6/2/2025 NO: REVISION TITLE: DATE:

 JOB #:
 23027

 DRAWN:
 TJH, AEP

DEMO







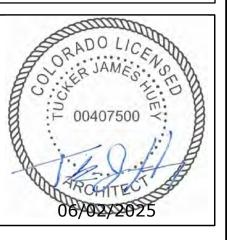
PLAN NOTES:

- THE BUILDING WITH A MEATHER -RESISTIVE EXTERIOR WALL BE PROVIDED BEHIND CLADDING AS
- FIREBLOCKING IS REQUIRED IN CONCEALED SPACES OF STUD FLOOR, AND HORIZONTALLY AT INTERVALS NOT EXCEEDING 10'. AND THE INTERCONNECTIONS CONCEALED SPACES OF A DOES NOT EXCEED 1000S.F.,
 - LANDINGS ARE REQ'D ON BOTH SIDES OF EXTERIOR DOORS AND AT TOP AND BOTTOM OF AT STAIRS (SEE EXCEP.) (MIN. 36"X36"), INCLUDING THE OPERABLE SIDE OF SLIDING DOORS. THE LANDINGS MAY BE NO MORE THAN $7^3\!\!4$ " BELOW THE THRESHOLD OF THE DOOR AS LONG AS THE DOOR DOES NOT SWING OVER THE LANDING. IRC R311.3. & 311.7.6
- DRYER EXHAUST DUCTS SHALL LESS THAN 3 FEET FROM ANY OPENINGS INTO THE BUILDING. DRYER DUCTS SHALL BE 4" IN DETERMINED BY MI502.4.6
- FIREPLACES ARE TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. A COPY OF THESE INSTRUCTIONS MUST BE AVAILABLE TO THE FIELD INSPECTOR AT THE TIME OF INSPECTION AND THE MANUFACTURER MODEL AND LISTING NUMBER MUST BE SUBMITTED TO PERMIT FILE. ONLY FIREPLACE AND CHIMNEY COMPONENTS LISTED BY A NATIONALLY RECOGNIZED TESTING AGENCY ARE ACCEPTABLE.
- SHOWERS AND TUB-SHOWER COMBOS MUST BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE OR THE THERMOSTATIC MUST BE ADJUSTED PER THE MFG'S MIXED WATER SETTING OF 120 DEGREES F. THE WATER HEATER THERMOSTAT IS NOT CONSIDERED A SUITABLE CONTROL FOR MEETING THIS PROVISION. SECTION 410.7, UPC
- FRAMING MEMBERS CARRYING CEILINGS WITH WATER RESISTANT GYP. BD. SHALL BE A MAX OF 12"
- LOCATED SUB SLAB AND SOLAR CONDUIT WITHIN 6" OF ATTIC ACCESS AND LABEL (FIELD LOCATED)

- EXTERIOR WALLS SHALL PROVIDE ENVELOPE AND SHALL INCLUDE FLASHING PER R703.4 A WATER-RESISTANT BARRIER SHAL REQUIRED BY 103.2. PER R102.1, VAPOR RETARDERS ARE REQUIRED AT THE INTERIOR SIDE OF FRAME WALLS IN ZONES MARINE 4-8
- WALLS VERTICALLY AT CEILING AN FIREBLOCKING IS ALSO REQ'D AT FLOOR AND CEILING PENETRATIONS AROUND VENTS, PIPES, DUCTS, ETC. BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES (SOFFITS) BETWEEN STAIR STRINGERS, AND IN THE OPENINGS BETWEEN CHIMNEY CHASES AND ATTIC SPACES MUST BE FIRE STOPPED. FIREBLOCKING MATERIAL TO BE PER 302.II.I LOOSE INSULATION IS NOT ACCEPTABLE. IRC 302.II. PROVIDE DRAFTSTOP ON FLOOR-CEILING ASSEMBLY SO IT RE:R302.12.
- TERMINATE ON THE OUTSIDE OF THE BUILDING. TERMINATIONS SHALL BE BY MANUFACTURERS INSTALLATION BUT SHOULD NOT TERMINATE NOT DIAMETER, THE ALLOWABLE DUCT LENGTH SHALL BE 35' MAX AND
- MIXING VALVE TYPE. HANDLE POSITION STOPS ARE REQ'D AND INSTRUCTIONS TO DELIVER A MAX
- BASEMENTS, HABITABLE ATTICS AND EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE WINDOW OR DOOR APPROVED FOR EMERGENCY ESCAPE OR RESCUE WHICH OPENS DIRECTLY INTO A YARD OR PUBLIC WAY. THE DOOR OR WINDOW SHALL BE OPERABLE FROM INSIDE TO PROVIDE A FULL CLEAR OPENING W/O USE OF SEPARATE TOOLS. ESCAPE WINDOWS SHALL HAVE A MIN. NET CLEAR OPERABLE AREA OF 5.7 SQ. FT., A MIN. HT. OF 24" AND MIN. WIDTH OF 20". FINISHED SILL HT. SHALL NOT BE MORE THAN 44" TO BOTTOM OF CLEAR OPENING. EGRESS WINDOWS AT MAIN LEVEL IS ALLOWED TO BE 5 SQ./FT. WITH 20" MINIMUM WIDTH AND 24" MINIMUM HEIGHT (IF ALLOWED BY MUNICIPALITY, VERIFY WITH ANY LOCAL AMENDMENTS)
- ON CENTER.
- ALL ANGLES OTHER THAN RIGHT ANGLES ARE 45 DEGREES UNLESS NOTED OTHERWISE.
- O. ALL EXTERIOR WALLS ARE 2X6 \$ INTERIOR WALLS ARE 2X4 UNLESS NOTED OTHERWISE.

OWNERSHIP OF DOCUMENTS AND DESIGNS: ALL ARCHITECTURAL DOCUMENTS AND DESIGNS DEVELOPED BY OSMOSIS ARCHITECTURE, INC. REMAIN OSMOSIS ARCHITECTURE, INC. PROPERTY AND ARE TO BE USED ON THIS PROJECT ONLY UNDER THE TERMS OF THIS LETTER OF AGREEMENT. THE CLIENT SHALL NOT, WITHOUT PRIOR WRITTEN APPROVAL OF OSMOSIS ARCHITECTURE, INC., USE THE DOCUMENTS OR DESIGNS PROVIDED UNDER THIS LETTER OF AGREEMENT ON OTHER PROJECTS OR ASSIGN, SELL, OR TRANSFER THE SAME TO OTHERS.

DUTY OF COOPERATION: RELEASE OF THESE DOCUMENTS ANTICIPATES FURTHER COOPERATION BETWEEN THE OWNER, THE CONTRACTOR AND THE ARCHITECT, ALTHOUGH THE ARCHITECT AND HIS CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, THEY CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT. FAILURE TO COOPERATE BY A SIMPLE NOTICE TO THE ARCHITECT SHALL RELIEVE THE ARCHITECT FROM RESPONSIBILITY OF ALL CONSEQUENCES. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF THE ARCHITECT ARE UNAUTHORIZED AND SHALL RELIEVE THE ARCHITECT OF RESPONSIBILITY FOR ALL CONSEQUENCES ARRIVING OUT OF SUCH CHANGES.

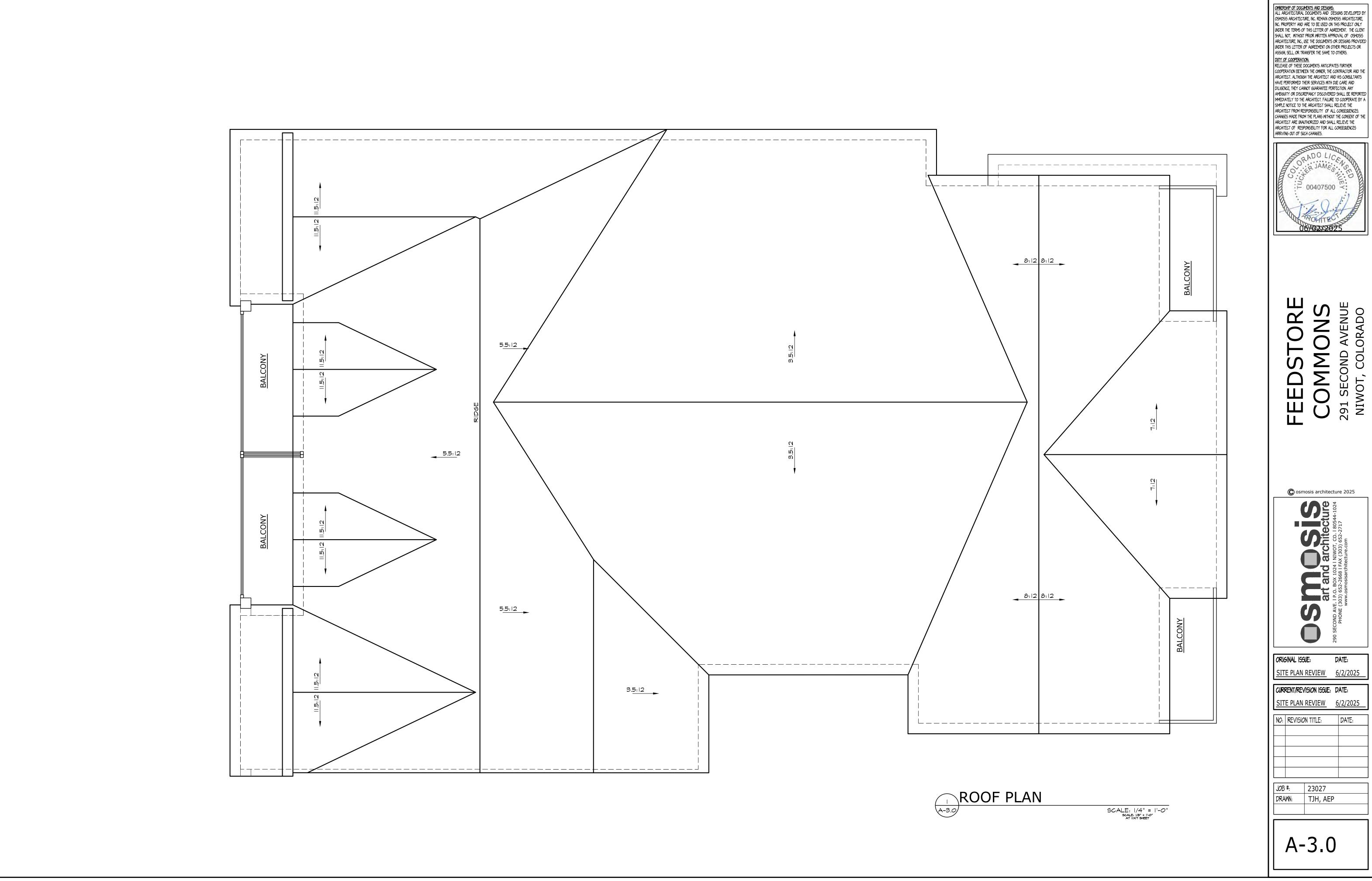


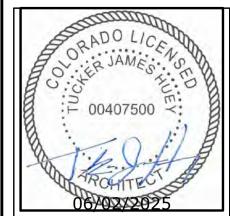
ONS AVENUE ORADO 291 SEC NIWOT,

© osmosis architecture 2025

ORIGINAL I	acile.	DATE:		
ORIGINALI	550L:	DAIL:		
SITE PLAN REVIEW		6/2/2025		
CURRENT/REVISION ISSUE: DATE:				
SITE PLAN REVIEW 6/2/2025				
Lie Dee de		11		
NO: REVIS	DION TITLE:	DATE:		
		•		
JOB #:	23027			
DRAWN:	TJH, AE	P		

A-2.0



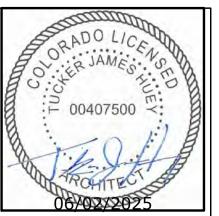


SITE PLAN REVIEW 6/2/2025 SITE PLAN REVIEW 6/2/2025



OWNERSHIP OF DOCUMENTS AND DESIGNS: ALL ARCHITECTURAL DOCUMENTS AND DESIGNS DEVELOPED BY OSMOSIS ARCHITECTURE, INC. REMAIN OSMOSIS ARCHITECTURE, INC. PROPERTY AND ARE TO BE USED ON THIS PROJECT ONLY UNDER THE TERMS OF THIS LETTER OF AGREEMENT. THE CLIENT SHALL NOT, WITHOUT PRIOR WRITTEN APPROVAL OF OSMOSIS ARCHITECTURE, INC., USE THE DOCUMENTS OR DESIGNS PROVIDED UNDER THIS LETTER OF AGREEMENT ON OTHER PROJECTS OR ASSIGN, SELL, OR TRANSFER THE SAME TO OTHERS. DUTY OF COOPERATION: RELEASE OF THESE DOCUMENTS ANTICIPATES FURTHER

COOPERATION BETWEEN THE OWNER, THE CONTRACTOR AND THE ARCHITECT. ALTHOUGH THE ARCHITECT AND HIS CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, THEY CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT. FAILURE TO COOPERATE BY A SIMPLE NOTICE TO THE ARCHITECT SHALL RELIEVE THE ARCHITECT FROM RESPONSIBILITY OF ALL CONSEQUENCES. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF THE ARCHITECT ARE UNAUTHORIZED AND SHALL RELIEVE THE ARCHITECT OR RESPONSIBILITY FOR ALL CONSEQUENCES ARRIVING OUT OF SUCH CHANGES.



© osmosis architecture 2025

ORIGINAL ISSUE: DATE: SITE PLAN REVIEW 6/2/2025 CURRENT/REVISION ISSUE: DATE: SITE PLAN REVIEW 6/2/2025 NO: REVISION TITLE: DATE:

23027

TJH, AEP

A-4.0











	_
DATE	06/02/2025
Job	23027





Job	23027
DATE	06/02/2025





Job	23027
DATE	06/02/2025







Phase 1 Drainage Report

291 2nd Avenue Niwot, Colorado

(Lots 11 and 12, Block 20, together with the most northwesterly 40.00 feet of vacated by instrument recorded February 25, 1966 on Film 561, Reception No. 808160, Town of Niwot, according to the plat recorded in Plat Book 2 at page 52, and the northeasterly 10 feet of the vacated alley adjacent to said lots as vacated by instrument recorded November 12, 1991 at Reception No. 1141952, in the records of the Boulder County Clerk and Recorder, County of Boulder, State of Colorado.)

Prepared for:

291 2nd Avenue LLC John Fischer 6825 Cheney Court Niwot, CO 80504 303.775.4863

Prepared by:

Rocky Ridge Civil Engineering 2204 18th Avenue, Suite 107 Longmont, Colorado, 80501 (303) 651-6626

June 2025

RRCE Job #692-4

Parcel Number: 131725410007

Legal Description: Lots 11 and 12, Block 20, together with the most northwesterly 40.00 feet of vacated by instrument recorded February 25, 1966 on Film 561, Reception No. 808160, Town of Niwot, according to the plat recorded in Plat Book 2 at page 52, and the northeasterly 10 feet of the vacated alley adjacent to said lots as vacated by instrument recorded November 12, 1991 at Reception No. 1141952, in the records of the Boulder County Clerk and Recorder, County of Boulder, State of Colorado

Date: 06/02/25

I, Joel Seamons (Rocky Ridge Civil Engineering), affirm that this report and plan for the preliminary drainage design of the development, 291 2nd Avenue, was prepared by me (or under my direct supervision) in accordance with the provisions of the Boulder County Storm Drainage Criteria Manual for the owners thereof, I understand that the city of Niwot does not and will not assume liability for stormwater infrastructure designed by others.

37162 37162

Registered Professional Engineer State of Colorado No. 37162

Table of Contents

- I. General Location and Description
- II. Drainageway Basins
- III. Summary
- IV. References

Appendices

A: Figures, Maps, and Soils Report

B: Hydrologic Calculations

I. General Location and Description

Location

This 0.31-acre area is located in Niwot, Colorado and has the following Legal Description: Lots 11 and 12, Block 20, together with the most northwesterly 40.00 feet of vacated by instrument recorded February 25, 1966 on Film 561, Reception No. 808160, Town of Niwot, according to the plat recorded in Plat Book 2 at page 52, and the northeasterly 10 feet of the vacated alley adjacent to said lots as vacated by instrument recorded November 12, 1991 at Reception No. 1141952, in the records of the Boulder County Clerk and Recorder, County of Boulder, State of Colorado. This area is heron referenced to as the "site". The site has a proposed land use of mixed use. To the west and the east sides of the site are commercial properties and to the south there are residential properties. A vicinity map is included in **Appendix A** which shows the site location in relation to the surrounding areas.

Property Description

The 0.31-acre site has an existing and proposed land use of mixed use. According to the Web Soils Survey, the area contains one type of soil (the Hydrologic Soil Type is in parenthesis):

• Northeast portion – Nunn-Urban Land Complex (C)

The Web Soil Survey can be found in **Appendix A**

The site presently slopes from south to north at 0.8%. There are no known drainage problems with the property and drainage across the site consists of very simple sheet flow.

II. Drainageway Basins

Historic Drainage

As stated earlier, this site is located in Niwot. All of the historic flows drain to 2nd Avenue to the north. The proposed site improvements lie outside of the 100-year flood plain according to the Flood Insurance Rate Map community-panel number:

• 08059C0089G, January 20, 2016

The map listed above can be found in **Appendix A.** Existing soils depths should be obtained from a geotechnical engineer prior to final design.

Drainage Design Criteria

The Urban Storm Drainage Criteria Manual (USDCM) from Mile High Flood District (MHFD) along with the Boulder County Storm Drainage Criteria Manual were used for the design of the site for all runoff requirements.

The Rational Method was used to determine the 10 and 100-year peak runoff and rainfall intensity. Intensity was calculated by this runoff spreadsheet using time of concentration, rainfall and generic C-coefficients for the Denver area. P-values for the rainfall were determined using NOAA Atlas 14, specifically selecting the project site location.

Impervious percentages were taken from Table 6-3 from the UDM (Volume 1). Table 6.5 was used to find the runoff coefficient values needed for the Rational Formula. Time of concentration and imperviousness calculations can be found in **Appendix B**.

Using the rational method with an impervious value of 5%, the time of concentration was calculated as 23.72 minutes and the peak flow for the 10-yr and 100-yr storm events are 0.12 cfs and 0.65 cfs respectively for the historic drainage.

Proposed Drainage

The proposed site generally slopes from south to north with a concrete pan starting in the southwest corner of the site an ending at the northwest corner carrying all flows from the parking lotto a proposed chase drain which daylights the flows onto Second Avenue where it will eventually enter the existing Niwot Stormwater system.

Impervious Calculations

Using the rational method with impervious values from Table 6-3, the impervious percentage of the site was calculated as 87.7%. The time of concentration was calculated as 7.51 minutes and the peak flow for the 10-yr and 100-yr storm events are 0.87 cfs and 1.64 cfs respectively.

III. Summary

In conclusion, this study has been prepared in accordance with the Boulder County Storm Drainage Criteria Manual and Mile High Flood District Drainage Standards. The results of this study indicate that the proposed development will safely convey runoff from the south side of the site to the north side with no adverse effects or impacts on the surrounding developments as required by Mile High Flood District. All historic drainage patterns will remain.

IV. References

County of Boulder. 2016. Storm Drainage Criteria Manual.

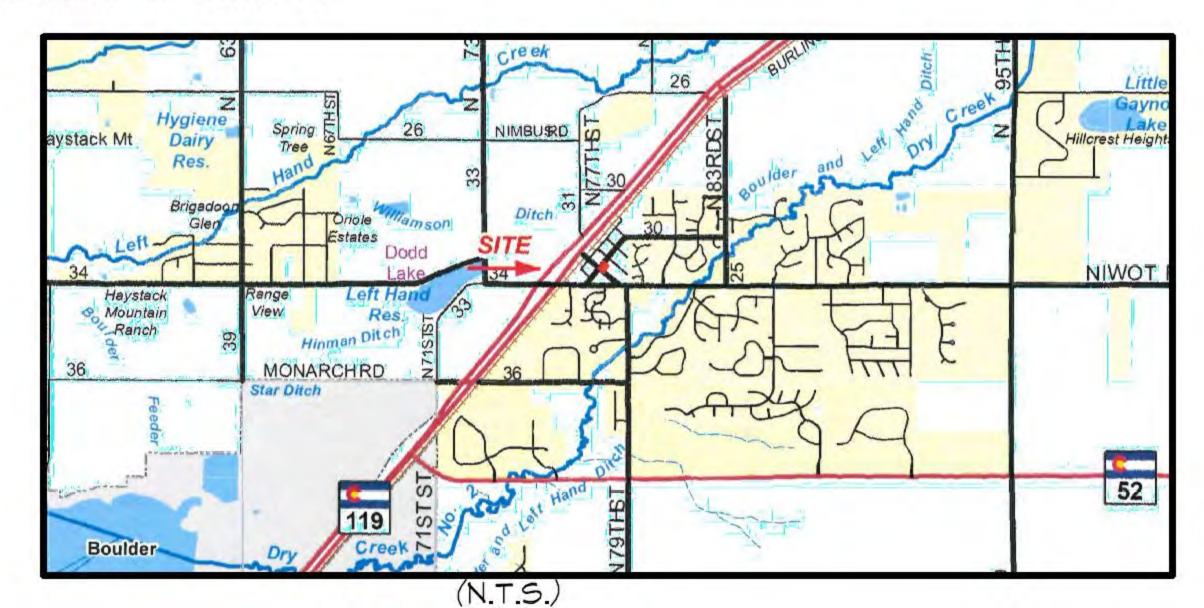
Mile High Flood District (MHFD) Online. <u>Urban Storm Drainage Criteria Manual</u>, Volume 1, 2 & Volume 3.



Appendix A

Figures, Maps, and Soils Report

VICINITY MAP



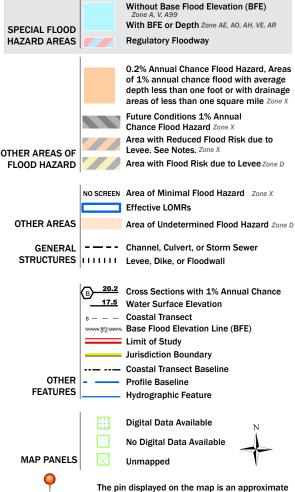
National Flood Hazard Layer FIRMette





Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT



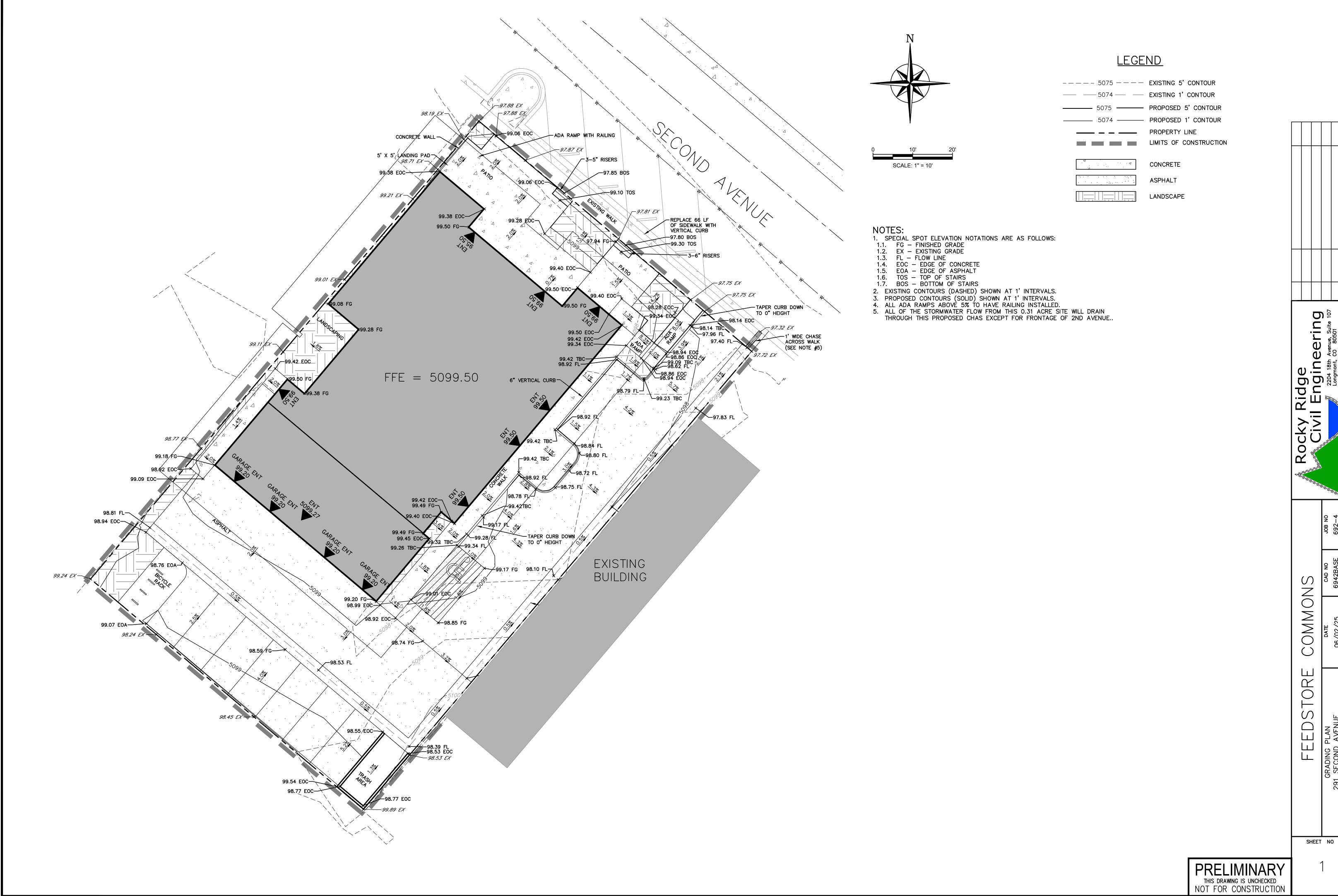
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

point selected by the user and does not represent

an authoritative property location.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/22/2025 at 3:50 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.





Natural Resources Conservation

Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Boulder County Area, Colorado



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2 053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	
Soil Map	
Soil Map	
Legend	10
Map Unit Legend	11
Map Unit Descriptions	11
Boulder County Area, Colorado	13
NnA—Nunn sandy clay loam, 0 to 1 percent slopes	13
References	15

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

-

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

(o)

Blowout

 \boxtimes

Borrow Pit

Ж

Clay Spot

 \Diamond

Closed Depression

Š

Gravel Pit

.

Gravelly Spot

0

Landfill Lava Flow

٨.

Marsh or swamp

@

Mine or Quarry

0

Miscellaneous Water
Perennial Water

0

Rock Outcrop

+

Saline Spot

. .

Sandy Spot

Severely Eroded Spot

⇔

Sinkhole

8

Slide or Slip

Ø

Sodic Spot

۵

Spoil Area Stony Spot



Very Stony Spot



Wet Spot Other



Special Line Features

Water Features

_

Streams and Canals

Transportation

ransp

Rails

~

Interstate Highways

__

US Routes

 \sim

Major Roads

~

Local Roads

Background

The same

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20.000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Boulder County Area, Colorado Survey Area Data: Version 21, Sep 6, 2024

Soil map units are labeled (as space allows) for map scales 1:50.000 or larger.

Date(s) aerial images were photographed: Jul 2, 2021—Aug 25, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NnA	Nunn sandy clay loam, 0 to 1 percent slopes	0.3	100.0%
Totals for Area of Interest		0.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Boulder County Area, Colorado

NnA—Nunn sandy clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: jps9 Elevation: 4,900 to 5,500 feet

Mean annual precipitation: 12 to 18 inches Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 155 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 90 percent Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Valley sides, terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy alluvium

Typical profile

H1 - 0 to 10 inches: sandy clay loam

H2 - 10 to 16 inches: clay H3 - 16 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to

moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 2s Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: C

Ecological site: R067BY042CO - Clayey Plains

Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 5 percent

Ecological site: R067BY002CO - Loamy Plains

Custom Soil Resource Report

Hydric soil rating: No

Kim

Percent of map unit: 5 percent Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2 053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf



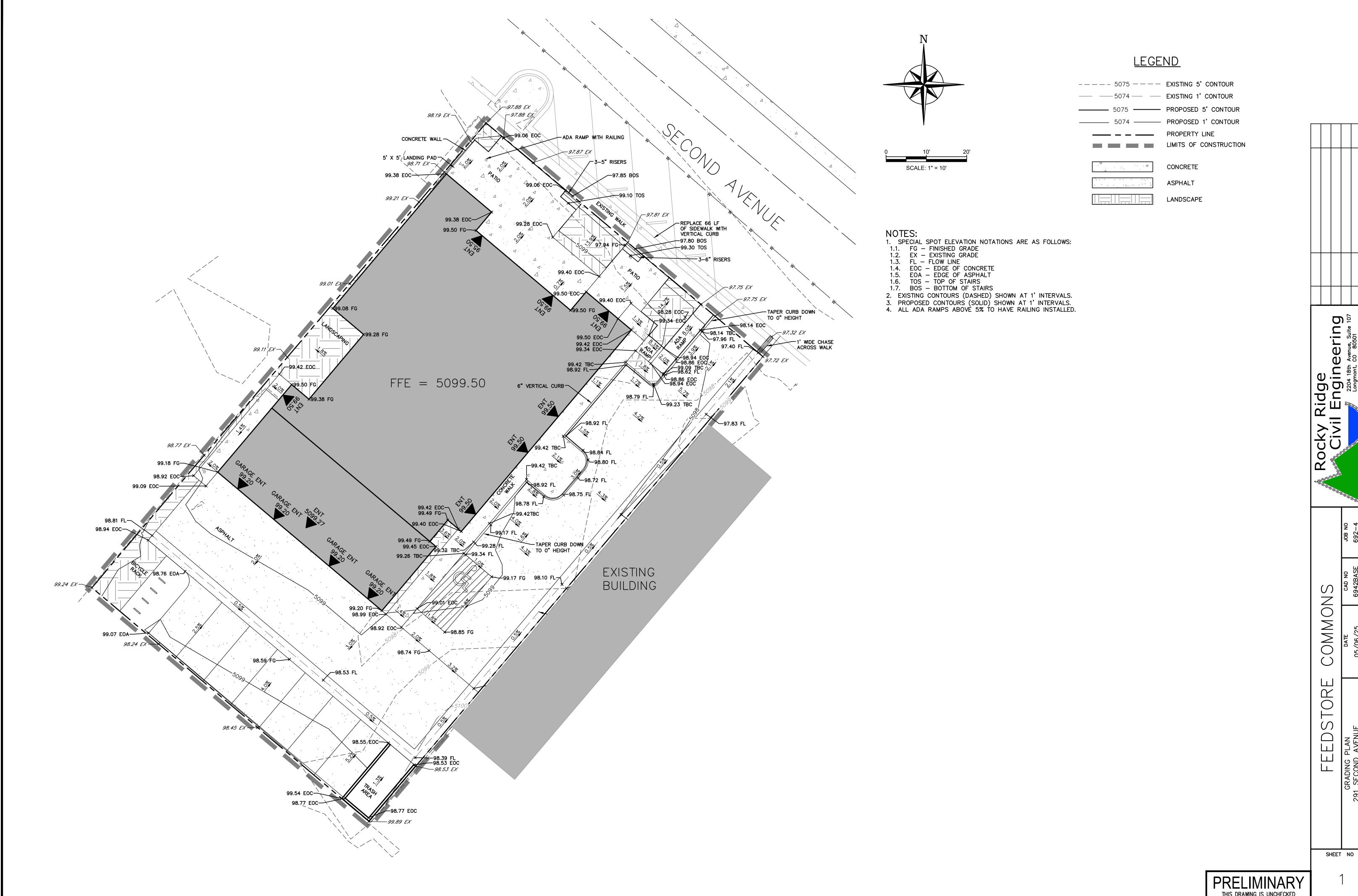
Appendix B

Hydrologic Calculations

HYDROLOGIC SOIL TYPE: C

PROPOSED (OVERALL)							
LAND USE	AREA (sf)	AREA (AC)	% IMPERV	C2	C5	C10	C100
ROOF	4,988	0.11	95%	0.79	0.81	0.83	0.87
CONC DRIVE/WALK	1,718	0.04	95%	0.79	0.81	0.83	0.87
DISTURBED SOIL	1,313	0.03	20%	0.14	0.20	0.28	0.57
PAVED STREET	5,556	0.13	95%	0.79	0.81	0.83	0.87
TOTAL	13,575	0.312	87.7%	0.72	0.75	0.78	0.84

																Calcula	tion of P	eak Runo	ff using R	Rational M	1ethod																		
Designer Company Date Project	6/2/2025				Cells of th	is color are	e for requir	red user-in			t _i =	0.395(1.1 - C		Computed				t _{minimum} = t _{minimum} =	5 (urban) 10 (non-urban)				1	Select I	UDFCD location		5-yr 1.09	10-yr 1.33	25-yr 1.69	50-yr 1.99	100-yr 2.31			obtained fro	m the NO	AA website (click this lin	<u>n</u> k)	
Location						is color are	e for calcul	lated result		on overrides	t,	outiful .	0V _t		c = (26 - 17i)	+ L ₁ 60(14i + 9)	$\sqrt{S_t}$				ted t _c , Regional	lt _c)}		nsity Equation		28.50	10.00	0.786		$= \frac{a * P_1}{(b + t_c)^c}$,c					Q(cfs) = CIA			
l						Runo	ff Coeffici	ient, C				Over	and (Initial) Flo	w Time				Channe	lized (Travel) F	-low Time	,		Tin	ne of Concentra	ition			Rainfall In	ntensity, I	l (in/hr)					Peak	k Flow, Q (c	.fs)		
Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousnes s	2-yr	5-yr	10-yr	25-yr	50-yr	100-у	r 500-yr	Overland Flow Lengt L _i (ft)		D/S Elevation (ft) (Optional)	Overland Flow Slope S _i (ft/ft)	Overland Flow Time t _i (min)	Channelized Flow Length L _t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S _t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V _t (ft/sec)	Channelized Flow Time t _i (min)	Computed t _c (min)	Regional t _c (min)	Selected t _c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
TOTAL											l					i			0.005	20	1.41															\rightarrow	_	\rightarrow	
A	0.31	С	87.7	0.72	0.75	0.78	0.81	0.83	0.84	0.86	150.00			0.011	7.51	222.00			0.005	20	1.41	2.62	10.12	13.55	10.12	2.22	2.93	3.58	4.55	5.36	6.22	8.45	0.50	0.69	0.87	1.15	1.38	1.64	2.28
Н	0.31	С	5.0	0.03	0.08	0.17	0.35	0.42	0.50	0.60	150.00			0.011	21.95	150.00			0.005	20	1.41	1.77	23.72	28.79	23.72	1.48	1.96	2.39	3.03	3.57	4.15	5.64	0.01	0.05	0.12	0.33	0.46	0.65	1.05
																																				=			
																																				=		_	
																																	=			=	_	=	
																																	=			=	_	=	
																																			_	\equiv	_	_	
																																					_	_	



PRELIMINARY
THIS DRAWING IS UNCHECKED
NOT FOR CONSTRUCTION



MEASUREMENTS

Width:	8.5	
Length:		
Height:	6	
Extension:	10.5	
Height Adjustable:	NO	
Min Overall Height:		
Max Overall Height:		
Slope:	NO	
Wire Length:	7	
Chain Length:		
Safety Cable Included:	NO	
Net Weight:	0.9	
Canopy Width:	5.13	
Canopy Height:		
Canopy Length:		
Center to Bottom:	2.75	
Backplate Width:		
Backplate Height:		
Center to Top:	3.25	
Power:		

LAMPING

No. of Bulbs:	1	
Max Bulb Wattage:	60	
Light Type:	A-15,MED	
Socket:	E26,MED	
Dimmable:	YES	
Ballast:		
Rated Life Hours:		
Photocell Included:	NO	
Bulb/LED Included:		
Bulb/LED Included:		
Color Temp.:		
CRI:		
Initial Lumens:		
Delivered Lumens:		

Kirkham™ - 1 Light Wall Mount

Item #:	8101-A138
UPC Code:	747396079714
Product Family Name:	Kirkham™
Finish:	Aspen Bronze
Category:	WALL MOUNT
Category Type:	
Certification:	3057374
Patents:	
Notes:	







Dark Sky

et Location

ETL Intertek

GLASS

Description:		
Material:		
Part No.:		
Quantity:		
Width:		
Height:		
Length:		

SHIPPING

Carton Width:	11.0
Carton Height:	8.0
Carton Length:	13.0
Carton Weight:	2.2
Carton Cubic Feet:	0.662
Small Package Shippable:	YES
Master Pack Width:	13.5
Master Pack Height:	22.75
Master Pack Length:	25.25
Master Pack Weight:	13.926
Master Cubic Feet:	4.488
Multi-Pack:	1
Master Pack:	6

For additional information, please contact Customer Care: 1-800-221-7977 | Product depicted on this specsheet is protected by United States Federal and/or State laws including US Patent Trademark and/or Copyright and unfair competition laws. Unauthorized reproduction or use carriers severe legal penalties.

Rev03.14.2025 12:35 PM

MRNING: Handling this product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands with soap and water after installing, handling, cleaning or otherwise buching his product for more information go to views P65Warnings.ca.gov.

291 2ND AVENUE TRANSPORTATION SYSTEM IMPACT STUDY

BOULDER COUNTY, COLORADO

JUNE 2025

Prepared for:

Osmosis Architecture 290 Second Avenue, PO Box 1024 Niwot, CO 80544

Prepared by:

DELICH ASSOCIATES 2272 Glen Haven Drive Loveland, CO 80538 Phone: 970-669-2061

FAX: 970-669-5034





Project #2525

TABLE OF CONTENTS

I. PROJECT DESCRIPTION	
Proposed Land Use	
Pedestrian, Bicycle, and Transit Travel	
II. STUDY AREA	4
III. EXISTING CONDITIONS	5
Existing Transportation Facilities	5
Existing Traffic	7
Existing Operation	
Accident Data and Analysis	7
IV. TRIP GENERATION	10
V. MODE SHARE	11
VI. BACKGROUND TRAFFIC & ADJACENT DEVELOPMENT	12
VII. TRIP DISTRIBUTION & ASSIGNMENT	15
VIII. FUTURE CONDITIONS ANALYSIS	20
Signal Warrants	20
Operation Analysis	20
Geometry	20
IX. CONCLUSIONS & MITIGATION RECOMMENDATIONS	24



LIST OF TABLES

1.	Current Peak Hour Operation	9
	Trip Generation	
	Person Trips by Travel Mode	
	Short Range (2030) Total Peak Hour Operation	
	Long Range (2045) Total Peak Hour Operation	
	LIST OF FIGURES	
1.	Site Location	2
2.	Site Plan	3
3.	Existing Intersection Geometry and Control	6
4.	Recent Daily and Peak Hour Traffic	8
5.	Short Range (2030) Background Daily and Peak Hour Traffic	.13
	Long Range (2045) Background Daily and Peak Hour Traffic	
	Trip Distribution	
	Site Generated Daily and Peak Hour Traffic	
	Short Range (2030) Total Daily and Peak Hour Traffic Trip Distribution	
	Long Range (2045) Total Daily and Peak Hour Traffic Site Plan	
	Short Range (2030) and Long Range (2045) Intersection Geometry and Control	

APPENDICES

- A. Transportation Pre-Application Methodology Letter/County staff comments
- B. Count Data
- C. Current Peak Hour Operation
- D. Short Range (2030) Total Peak Hour Operation
- E. Long Range (2045) Total Peak Hour Operation



I. PROJECT DESCRIPTION

This Transportation System Impact Study (TSIS) for 291 2nd Avenue addresses the study area, existing facilities, traffic, accidents, trip generation, geometry, and parking requirements at and near the proposed development. The proposed project site is located along the south side of 2nd Avenue near the Niwot/2nd intersection in Boulder County, Colorado.

This study conforms to a Transportation System Impact Study per the Boulder County Multimodal Transportation Standards. A Transportation Pre-Application Methodology Letter (TP-AML) was submitted on April 1, 2025. A copy of the Transportation Pre-Application Methodology Letter and Boulder staff comments are provided in Appendix A. The scope of this study was discussed with the owner/developer and Boulder County staff.

Proposed Land Use

The site location is shown in Figure 1. The site (291 2nd Avenue) is located along the south side of 2nd Avenue near the Niwot Road/2nd Avenue intersection within the commercial area of Niwot. Figure 2 shows a site plan of the proposed 291 2nd Avenue Site. The subject property currently has an approximately 2,175 square foot building and shed on site that are unoccupied. The previous use was the Niwot Feed and Grain Store Gallery. The building and shed are to be razed. This proposal is a 3,316 square foot commercial use, on the first floor, and 4 apartment dwelling units, on the second floor. The Commercial use could be a restaurant, office, or retail. The site will have driveway access on 2nd Avenue on the west side of the lot. With this proposal, there will be 14 parking spaces (4 garage spaces with 1 of those being handicap accessible and 10 open spaces with 1 of those being handicap accessible) on site. There is also on-street diagonal parking on 2nd Avenue.

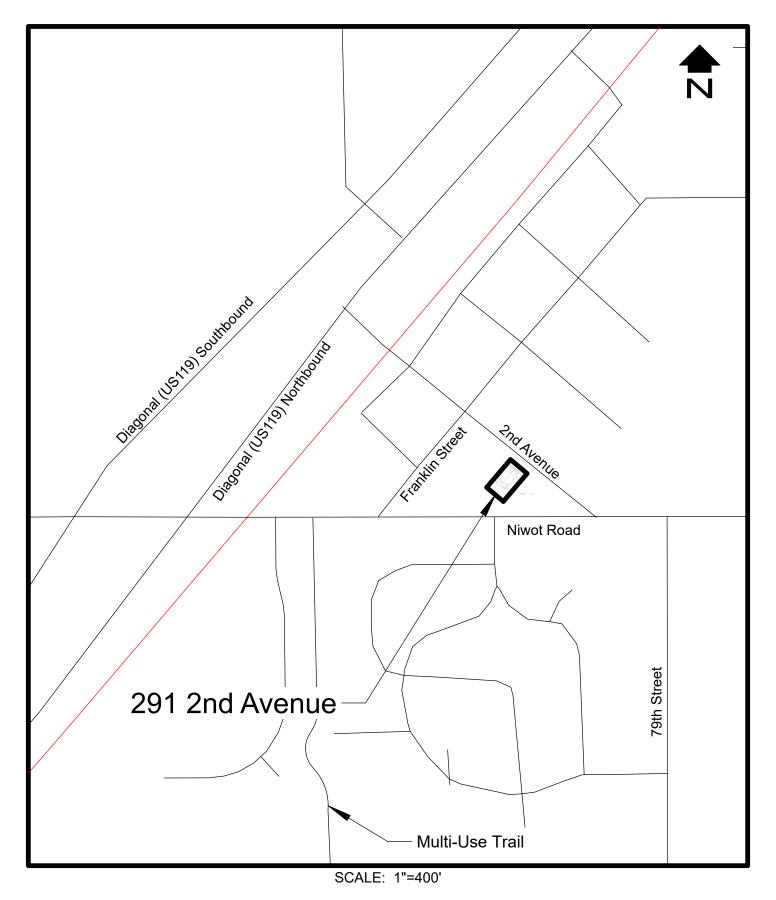
Pedestrian, Bicycle, and Transit Travel

There are sidewalks within the 291 2nd Avenue study area. Niwot Road and N. 79th Street have 3-4 foot bicycle lanes. The nearest trail is approximately 0.25 miles west of the 291 2nd Avenue site. This trail connects to the Longmont to Boulder Trail. The location of the nearest trail is shown in Figure 1.

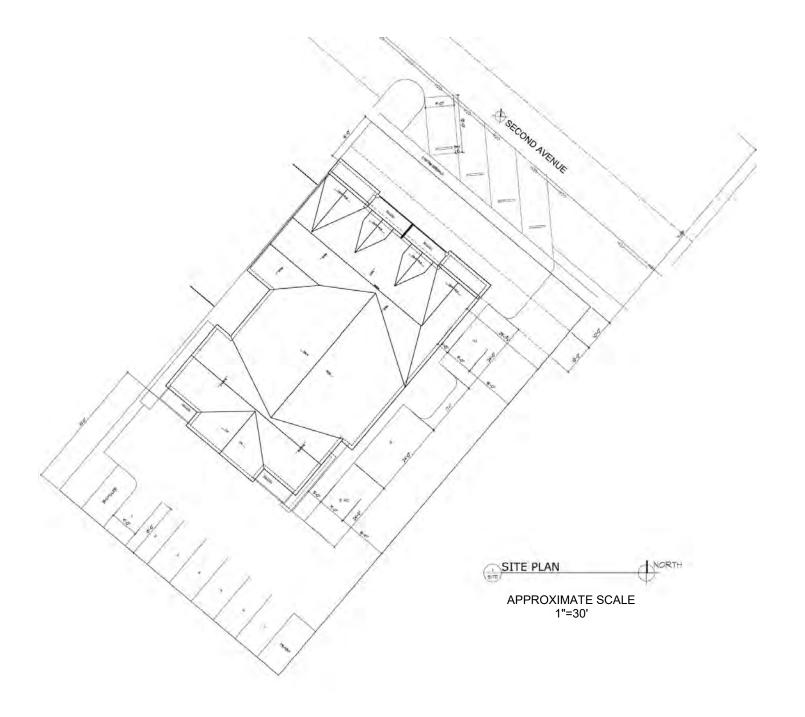
This area is served by RTD Route Bolt. There are bus stops on the US119 (Diagonal Highway) at the US119/Niwot Road intersection. This is approximately 0.4 miles west of the site.

To encourage multimodal use, bike racks will be installed on site. Additional there sidewalks, bike lanes, and transit nearby that encourages multimodal use.









SITE PLAN

II. STUDY AREA

The project site was the Niwot Feed and Grain Store Gallery. The land surrounding the site consists of commercial and residential uses. There are commercial uses to the northwest, northeast, and southeast of the site. There are single family residences to the southwest of the site.

The primary streets near 291 2nd Avenue are 2nd Avenue, Franklin Street, Niwot Road, N. 79th Street, and the Diagonal Highway (US119). The US119/Niwot Road intersections are the only signalized intersections in the area. The unsignalized intersections in the area are the Niwot Road/Franklin, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections.



III. EXISTING CONDITIONS

Existing Transportation Facilities

Figure 3 shows a schematic of the current geometry and traffic control at the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections.

Diagonal Highway (US119) is a regional highway with a four-lane cross section and a posted speed of 55 mph. At the US119 (Southbound)/Niwot Road intersection, US119 has a southwestbound left-turn deceleration lane, two through lanes, a southwestbound right-turn deceleration lane and southwestbound right-turn acceleration lane. At the US119 (Northbound)/Niwot Road intersection, US119 has a northeastbound left-turn deceleration lane, two through lanes, a northeastbound right-turn deceleration lane.

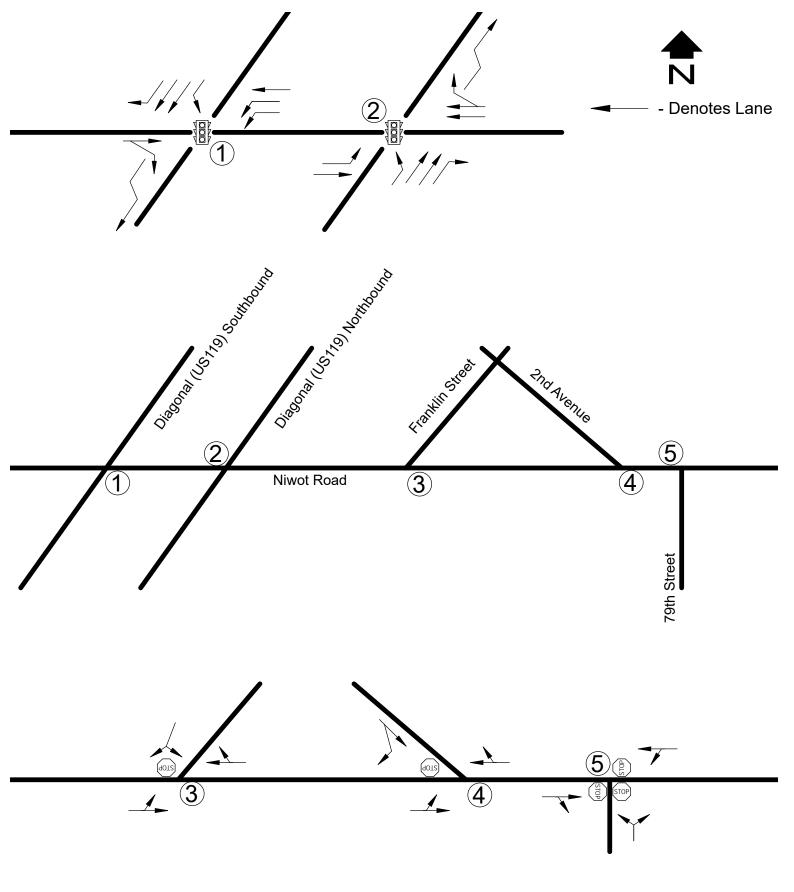
Niwot Road is a collector street with a two-lane cross section and a posted speed of 35 mph. At the US119 (Southbound)/Niwot Road intersection, Niwot Road has dual westbound left-turn lanes, a through lane in each direction, and an eastbound right-turn channelization island. At the US119 (Northbound)/Niwot Road intersection, Niwot Road has an eastbound left-turn lane, an eastbound through lane, two westbound through lanes, and a westbound right-turn channelization island. At the Niwot Road/Franklin Street intersection, Niwot Road has all movements combined into single lanes. At the Niwot Road/2nd Avenue intersection, Niwot Road has all movements combined into single lanes. The Niwot Road/Franklin Street and Niwot Road/2nd Avenue, respectively. At the Niwot Road/N. 79th Street intersection, Niwot Road has all movements combined into a single lane. The Niwot Road/N. 79th Street intersection has all-way sign control.

Franklin Street is a residential collector street with a two-lane cross section and a posted speed of 25 mph. Franklin Street only has a northeast leg at the Niwot Road/Franklin Street intersection. At the Niwot Road/Franklin Street intersection, Franklin Street has southeastbound movements combined into a single lane.

Second Avenue is a residential collector street with a two-lane cross section and a posted speed of 25 mph. Second Avenue only has a northwest leg at the Niwot Road/2nd Avenue intersection. At the Niwot Road/2nd Avenue intersection, 2nd Avenue has a southeastbound left-turn lane and a southeastbound right-turn channelization island.

North 79th Street Avenue is a collector street with a two-lane cross section and a posted speed of 35 mph. North 79th Street only has a south leg at the Niwot Road/N. 79th Street intersection. At the Niwot Road/N. 79th Street intersection, N. 79th Street has all northbound movements combined into a single lane.





EXISTING INTERSECTION GEOMETRY AND CONTROL



Existing Traffic

Recent daily and peak hour traffic volumes at the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections are shown in Figure 4. The daily traffic counts at the were obtained in 2023. The peak hour counts were obtained in May 2025. Raw traffic count data is provided in Appendix B.

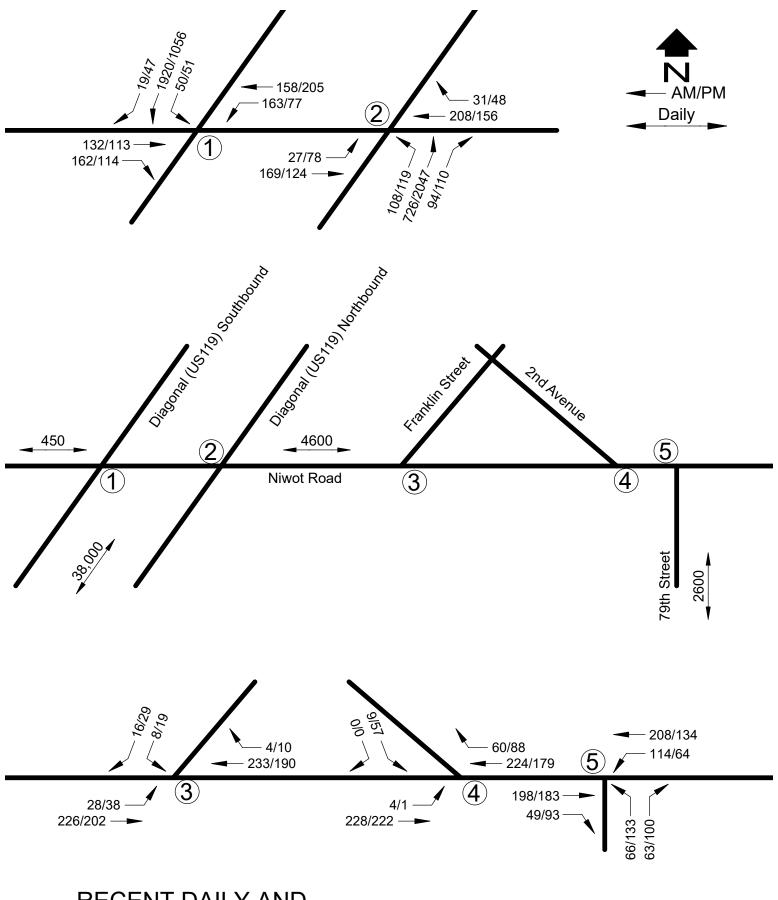
Existing Operation

The US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections were evaluated and the peak hour operation is displayed in Table 1. Calculation forms are provided in Appendix C. The cycle length at the US119 (Southbound)/Niwot Road and US119 (Northbound)/Niwot Road intersections were chosen based upon optimal volume/capacity characteristics. The phase splits were optimized using the Synchro operational software. The intersections were evaluated using techniques provided in the Highway Capacity Manual, 7th Edition. A description of the level of service for signalized and unsignalized intersections from the Highway Capacity Manual, 7th Edition is also provided in Appendix C. Customarily, the overall intersection peak hour factor is used rather than the peak hour factor for each individual movement. Acceptable operation is defined by Boulder County as level of service D or better, overall, during the peak hours.

Accident Data and Analysis

Accident data was obtained from the Boulder County for the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street Intersections for a three year period (2020 to 2023).





RECENT DAILY AND PEAK HOUR TRAFFIC



	TABLE 1		
C	Current Peak Hour Opera		. Comico
Intersection	Movement		Service
	ED T/DT	AM (delay)	PM (delay)
	EB T/RT WB LT	D (45.4 secs) D (44.4 secs)	D (45.4 secs) D (45.2 secs)
	WB T	C (25.1 secs)	D (40.7 secs)
	WB APPROACH	, ,	` '
US119 (SB)/Niwot Road	SWB LT	C (34.9 secs)	D (42.0 secs)
(signal)		A (4.6 secs)	A (3.8 secs)
	SWB T	B (12.0 secs)	A (5.5 secs)
	SWB RT	A (4.5 secs)	A (3.8 secs)
	SWB APPROACH	B (11.8 secs)	A (5.4 secs)
	OVERALL	B (16.7 secs)	B (15.2 secs)
	EB LT	C (33.2 secs)	D (36.3 secs)
	EB T	C (27.7 secs)	D (38.1 secs)
	EB APPROACH	C (28.4 secs)	D (37.4 secs)
US119 (NB)/Niwot Road	WB T/RT	D (41.6 secs)	D (42.7 secs)
(signal)	NEB LT	A (4.5 secs)	A (3.9 secs)
(e.g. a.)	NEB T	A (4.3 secs)	B (12.2 secs)
	NEB RT	A (3.5 secs)	A (3.8 secs)
	NEB APPROACH	A (4.3 secs)	B (11.5 secs)
	OVERALL	B (12.1 secs)	B (15.4 secs)
Niwot Road/Franklin Street	EB LT/T	A (7.9 secs)	A (7.7 secs)
(stop sign)	SWB LT/RT	B (11.1 secs)	B (10.8 secs)
(stop sign)	OVERALL	A (0.9 secs)	A (1.7 secs)
Niwot Road/2 nd Avenue	EB LT/T	A (7.9 secs)	A (7.8 secs)
	SEB LT/RT	B (12.7 secs)	B (12.3 secs)
(stop sign)	OVERALL	A (0.3 secs)	A (1.3 secs)
	EB T/RT	B (10.5 secs)	B (10.8 secs)
Niwot Road/N. 79th Street	WB LT/T	B (12.4 secs)	B (10.8 secs)
(stop sign)	NB LT/RT	A (9.8 secs)	B (10.3 secs)
	OVERALL	B (11.2 secs)	B (10.7 secs)



IV. TRIP GENERATION

Trip generation is important in considering the impact of a development such as this upon the existing and proposed street system. This proposal is a 3,316 square foot commercial use, on the first floor and 4 apartment dwelling units, on the second floor. The Commercial use could be a restaurant, office, or retail. For analysis purposes, the highest trip generation was used, High-Turnover (Sit-Down) Restaurant, Code 932, and Multifamily Housing (Low-Rise), Code 220. Using Trip Generation, 11th Edition, ITE as the reference document, the calculated trip generation of the proposed 291 2nd Avenue is shown in Table 2. The calculated trip generation is: 382 daily trip ends; 34 morning peak hour trip ends; and 32 afternoon peak hour.

The vehicle trips were converted to person trips using the DRCOG Regional model rate of 1.37 people per vehicle. Table 2 also shows the calculated daily and peak hour person trip generation. The expected person trip generation is: 524 daily trip ends; 46 morning peak hour trip ends; and 44 afternoon peak hour.

	TABLE 2 Trip Generation											
Cada	AWDTE AM Peak Hour					ır	PM Peak Hour					
Code	Use	Size	Rate	Trips	Rate	In	Rate	Out	Rate	In	Rate	Out
932	High-Turner (Sit-Down) Restaurant	3.316 KSF	107.20	356	9.57 55%	17	9.57 45%	15	9.05 61%	18	9.05 39%	12
220	Multifamily Housing (Low-Rise)	4 D.U.	6.74	26	0.40 24%	0	0.40 76%	2	0.51 63%	1	0.51 37%	1
	Total Vehicle Trips			382		17		17		19		13
Total F	Person Trips (1.37 Persons/		524		23		23		26		18	



V. MODE SHARE

As mentioned before, bike racks will be installed on site. Additional there sidewalks, bike lanes, and transit nearby that encourages multimodal use. With the high multi-modal use in Boulder and Boulder County it is expected that around 5 percent may use the bus, 5 percent may bicycle, and 5 percent may walk. Table 3 shows the person trips by travel mode for the 291 2nd Avenue development. Using this information, the vehicle trip generation is 40 (20 in/20 out) morning trip ends and 38 (23 in/15 out) afternoon trip ends.

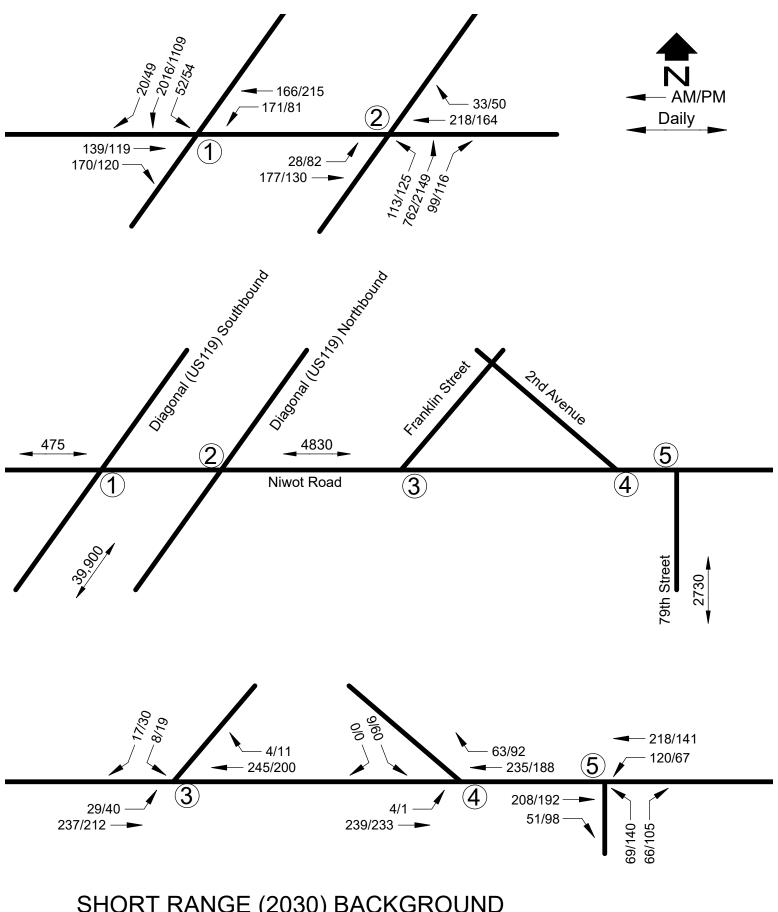
TABLE 3 Person Trips by Travel Mode										
Number of person trips										
Mode	Percent of trips	AM (in/out)	PM (in/out)							
Single occupant vehicle	85	20/20	23/15							
Carpool	0	0/0	0/0							
Bus	5	1/1	1/1							
Bicycle	5	1/1	1/1							
Walk	5	1/1	1/1							
Total number of person trips		23/23	26/18							



VI. BACKGROUND TRAFFIC & ADJACENT DEVELOPMENT

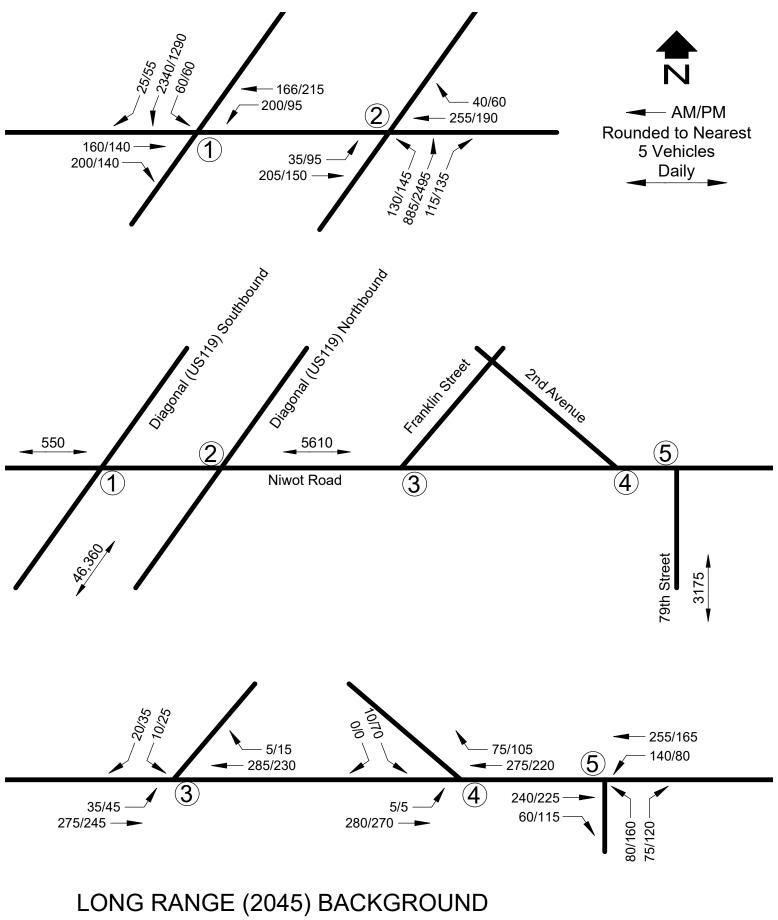
The traffic on US119, Niwot Road, Franklin Street, 2nd Avenue, and N. 79th Street in the short range (2030) future and long range (2045) future was increased by 1 percent per year. The CDOT 20-year growth factor on US119 is 1.13 in this area. At this time there are no other developments proposed in the area. Figure 5 shows the short range (2030) background peak hour traffic. Figure 6 shows the long range (2045) background peak hour traffic.





SHORT RANGE (2030) BACKGROUND DAILY AND PEAK HOUR TRAFFIC





DAILY AND PEÀK HÓUR TRAFFIC

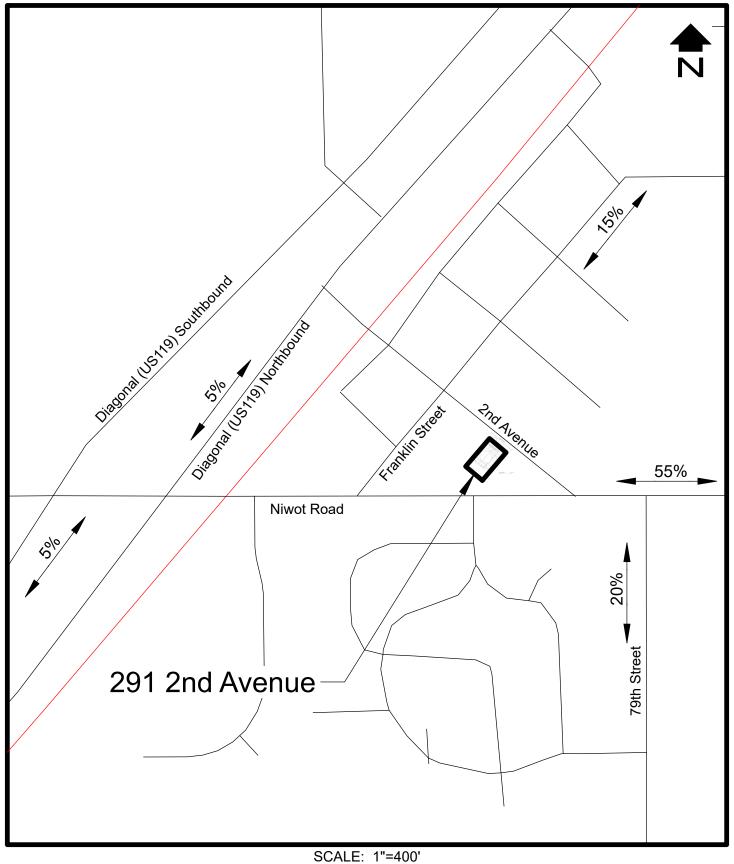


VII. TRIP DISTRIBUTION & ASSIGNMENT

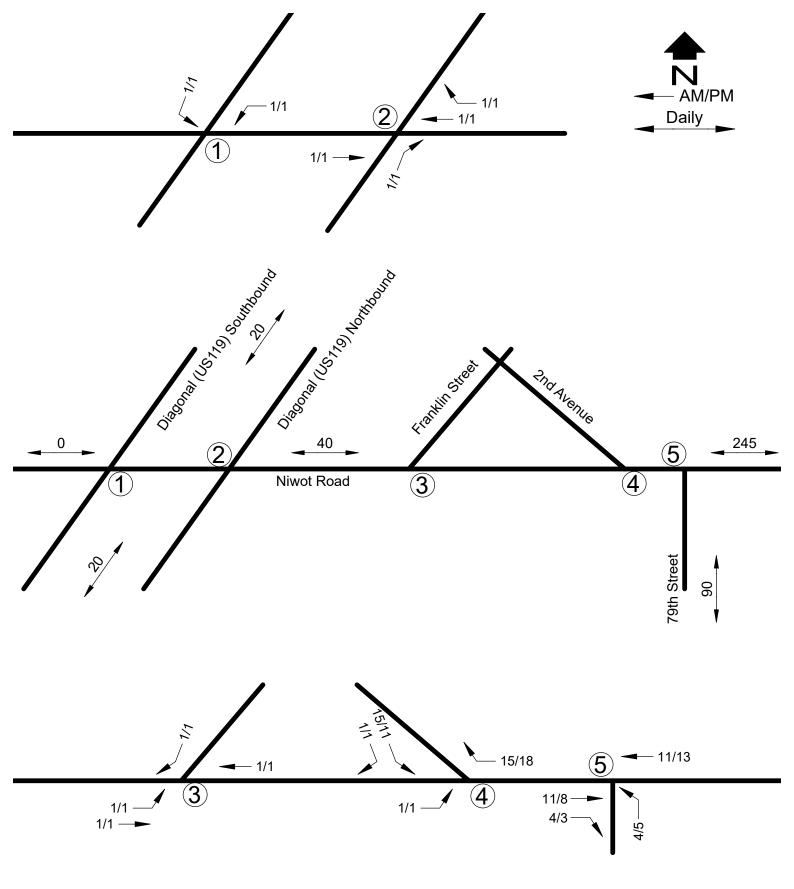
The trip distribution for 291 2nd Avenue property is a function of trip production/ attraction locations in the general vicinity of the site (5± mile radius). It is estimated at: 10 percent to/from the west, 55 percent to/from the east, 20 percent to/from the south, and 15 percent to/from the north. Given this trip distribution, the relative impact of these additional uses will not be significant on the adjacent roads/streets. Figure 7 shows the trip distribution used for 291 2nd Avenue.

Trip assignment is how the generated and distributed trips are expected to be loaded on the street system. The assigned trips are the resultant of the trip distribution process. The site generated peak hour trip assignment for 291 2nd Avenue is shown in Figure 8. The site generated traffic was combined with the background traffic to determine the total forecasted traffic for the study area. Figures 9 and 10 show the respective short range (2030) and long range (2045) total peak hour traffic at the key intersections.



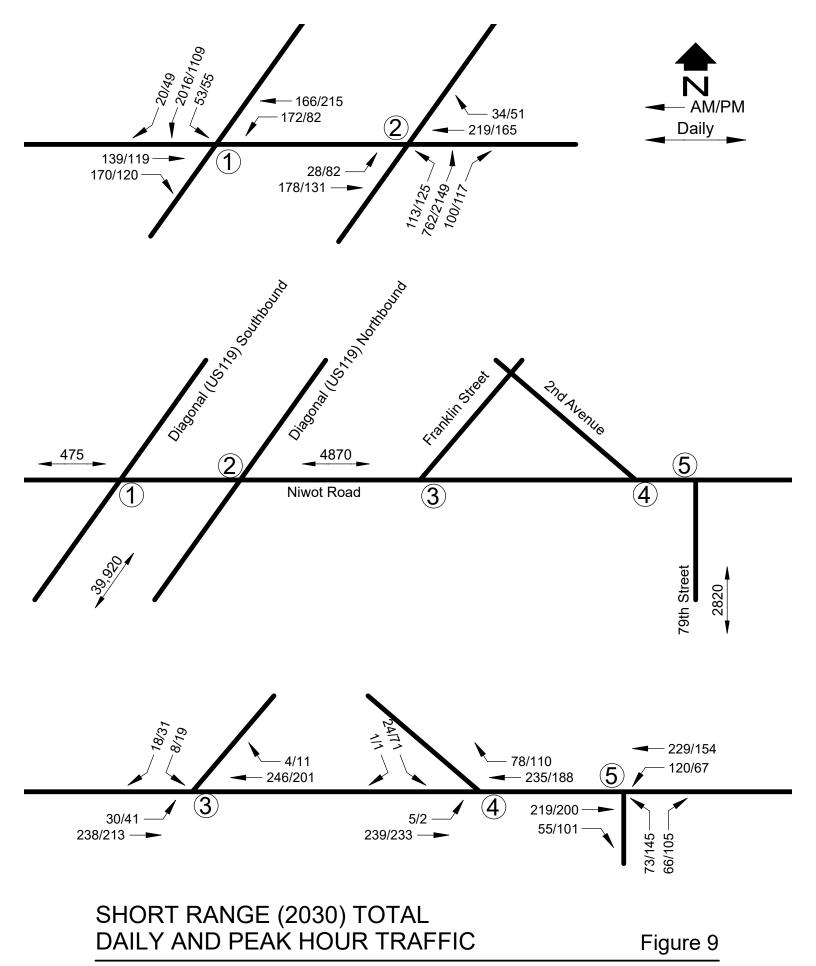


TRIP DISTRIBUTION

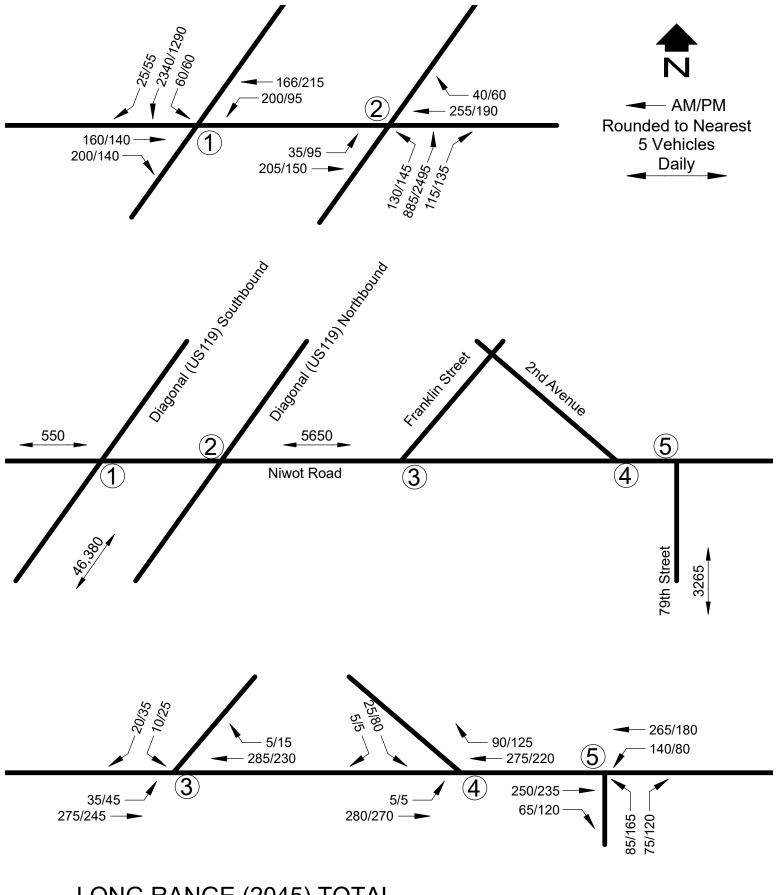


SITE GENERATED DAILY AND PEAK HOUR TRAFFIC









LONG RANGE (2045) TOTAL DAILY AND PEAK HOUR TRAFFIC



VIII. FUTURE CONDITIONS ANALYSIS

Signal Warrants

As a matter of policy, traffic signals are not installed at any location unless warrants are met according to the <u>Manual on Uniform Traffic Control Devices</u> (MUTCD). There are nine signal warrants in the MUTCD. The US119/Niwot Road intersections are currently signalized. The Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections will not be signalized.

Operation Analysis

Operation analyses were performed at the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections. The operation analyses were conducted for the short range analysis, reflecting a year 2030 condition. The long range analysis reflects a year 2045 condition.

Table 4 shows the short range (2030) total peak hour operation at the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections with development of 291 2nd Avenue. Calculation forms are provided in Appendix D. The key intersections operate acceptably in the morning and afternoon peak hours with the existing geometry and control.

Table 5 shows the long range (2045) total peak hour operation at the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections with development of 291 2nd Avenue. Calculation forms are provided in Appendix E. The key intersections operate acceptably in the morning and afternoon peak hours with the existing geometry and control. At the US119 (Southbound)/Niwot Road intersection, the calculated delay in the morning and afternoon peak hours for the eastbound approach and the westbound left-turn was commensurate with level of service E. At the US119 (Northbound)/Niwot Road intersection, the calculated delay in the morning and afternoon peak hours for the westbound approach was commensurate with level of service E.

Geometry

The short range (2030) and long range (2045) geometry is shown in Figure 11. This is the existing geometry. 291 2nd Avenue will have minimal impact on the surrounding streets. It is not anticipated that any geometric improvements are needed on any street or intersections for the foreseeable future.

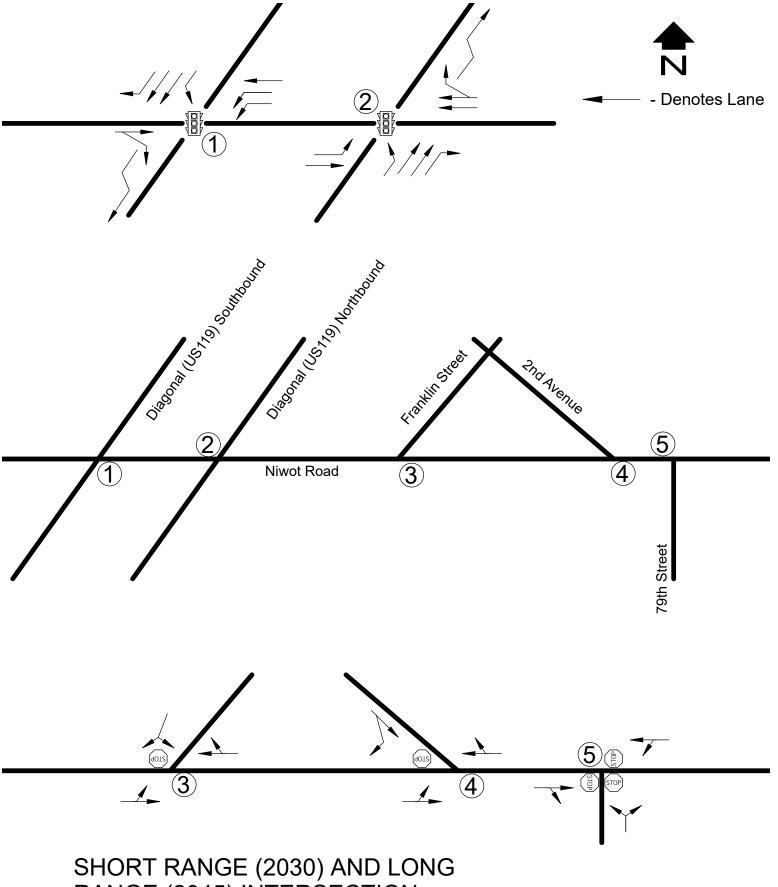


TABLE 4 Short Range (2030) Total Peak Hour Operation				
Intersection	Movement	Level of Service		
		AM (delay)	PM (delay)	
US119 (SB)/Niwot Road (signal)	EB T/RT	D (45.2 secs)	D (45.3 secs)	
	WB LT	D (45.1 secs)	D (41.7 secs)	
	WB T	C (24.5 secs)	C (26.9 secs)	
	WB APPROACH	C (35.0 secs)	C (31.0 secs)	
	SWB LT	A (4.8 secs)	A (4.0 secs)	
	SWB T	B (14.3 secs)	A (5.8 secs)	
	SWB RT	A (4.7 secs)	A (3.9 secs)	
	SWB APPROACH	B (14.0 secs)	A (5.7 secs)	
	OVERALL	B (18.5 secs)	B (13.3 secs)	
US119 (NB)/Niwot Road (signal)	EB LT	C (32.7 secs)	C (32.6 secs)	
	EB T	C (27.1 secs)	C (25.1 secs)	
	EB APPROACH	C (27.8 secs)	C (28.0 secs)	
	WB T/RT	D (41.1 secs)	D (42.6 secs)	
	NEB LT	A (4.8 secs)	A (4.0 secs)	
	NEB T	A (4.5 secs)	B (15.3 secs)	
	NEB RT	A (3.6 secs)	A (3.9 secs)	
	NEB APPROACH	A (4.6 secs)	B (14.3 secs)	
	OVERALL	B (12.1 secs)	B (17.1 secs)	
Niwot Road/Franklin Street (stop sign)	EB LT/T	A (7.9 secs)	A (7.8 secs)	
	SWB LT/RT	B (11.3 secs)	B (10.9 secs)	
	OVERALL	A (1.0 secs)	A (1.7 secs)	
Niwot Road/2 nd Avenue (stop sign)	EB LT/T	A (8.0 secs)	A (7.9 secs)	
	SEB LT/RT	B (13.2 secs)	B (12.8 secs)	
	OVERALL	A (0.6 secs)	A (1.5 secs)	
Niwot Road/N. 79 th Street (stop sign)	EB T/RT	B (11.3 secs)	B (11.6 secs)	
	WB LT/T	B (13.7 secs)	B (10.9 secs)	
	NB LT/RT	B (10.3 secs)	B (11.5 secs)	
	OVERALL	B (12.2 secs)	B (11.4 secs)	



TABLE 5 Long Range (2045) Total Peak Hour Operation				
Intersection	Movement	Level of Service		
		AM (delay)	PM (delay)	
US119 (SB)/Niwot Road (signal)	EB T/RT	E (60.5 secs)	E (60.2 secs)	
	WB LT	E (55.0 secs)	E (58.3 secs)	
	WB T	C (32.5 secs)	D (37.4 secs)	
	WB APPROACH	D (44.9 secs)	D (43.8 secs)	
	SWB LT	A (5.5 secs)	A (4.1 secs)	
	SWB T	C (25.7 secs)	A (6.5 secs)	
	SWB RT	A (0.0 secs)	A (4.0 secs)	
	SWB APPROACH	C (25.2 secs)	A (6.4 secs)	
	OVERALL	C (29.6 secs)	B (16.8 secs)	
	EB LT	D (44.1 secs)	D (49.6 secs)	
US119 (NB)/Niwot Road (signal)	EB T	D (38.5 secs)	D (37.6 secs)	
	EB APPROACH	D (39.3 secs)	D (42.3 secs)	
	WB T/RT	E (55.0 secs)	E (57.2 secs)	
	NEB LT	A (5.2 secs)	A (3.8 secs)	
	NEB T	A (4.9 secs)	C (26.4 secs)	
	NEB RT	A (3.8 secs)	A (3.7 secs)	
	NEB APPROACH	A (5.0 secs)	C (24.4 secs)	
	OVERALL	B (15.8 secs)	C (27.8 secs)	
Niwot Road/Franklin Street (stop sign)	EB LT/T	A (8.1 secs)	A (7.9 secs)	
	SWB LT/RT	B (12.2 secs)	B (11.7 secs)	
	OVERALL	A (1.0 secs)	A (1.8 secs)	
Niwot Road/2 nd Avenue (stop sign)	EB LT/T	A (8.2 secs)	A (8.0 secs)	
	SEB LT/RT	B (13.4 secs)	B (13.8 secs)	
	OVERALL	A (0.7 secs)	A (1.7 secs)	
Niwot Road/N. 79 th Street (stop sign)	EB T/RT	B (13.3 secs)	B (14.2 secs)	
	WB LT/T	C (18.0 secs)	B (12.7 secs)	
	NB LT/RT	B (11.4secs)	B (13.6 secs)	
	OVERALL	C (15.1 secs)	B (13.6 secs)	





SHORT RANGE (2030) AND LONG RANGE (2045) INTERSECTION GEOMETRY AND CONTROL



IX. CONCLUSIONS & MITIGATION RECOMMENDATIONS

This study assessed the impacts of 291 2nd Avenue development on the street system in the vicinity of the proposed development. 291 2nd Avenue is located along the south side of 2nd Avenue near the Niwot/2nd intersection in Boulder County, Colorado. As a result of this analysis, the following is concluded:

- The development of 291 2nd Avenue in Boulder County is feasible from a traffic engineering standpoint. The 291 2nd Avenue development will generate approximately 524 daily person trip ends, 46 morning person peak hour trip ends, and 44 afternoon person peak hour trip ends.
- Current operation at the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections are acceptable.
- US119, Niwot Road, and N. 79th Street have paved shoulders that bicycles can/do use. The nearest trail is approximately 0.25 miles west of the 291 2nd Avenue site.
- The nearest bus stop is at the US119/Niwot Road intersection.
- In the short range (2030) future, given the development of 291 2nd Avenue and an increase in background traffic, the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersections operate as shown in Figure 4.
- In the long range (2045) future, given development of Valmont Subaru, the US119 (Southbound)/Niwot Road, US119 (Northbound)/Niwot Road, Niwot Road/Franklin Street, Niwot Road/2nd Avenue, and Niwot Road/N. 79th Street intersection operates as shown in Table 5. At the US119 (Southbound)/Niwot Road intersection, the calculated delay in the morning and afternoon peak hours for the eastbound approach and the westbound left-turn was commensurate with level of service E. At the US119 (Northbound)/Niwot Road intersection, the calculated delay in the morning and afternoon peak hours for the westbound approach was commensurate with level of service E.
- The short range (2030) and long range (2045) geometry is shown in Figure 11.



APPENDIX A

DELICH ASSOCIATES Traffic & Transportation Engineering

2272 Glen Haven Drive Loveland, Colorado 80538 Phone: (970) 669-2061 Fax: (970) 669-5034



April 8, 2025

Anita Riley Boulder County Transportation Department 2525 13th Street, P.O. Box 471 Boulder, CO 80304

Dear Anita:

This Transportation Pre-Application Methodology Letter (PAM) addresses the proposed methodology for the transportation system impact analysis per the Boulder County Multimodal Transportation Standards for a 3,377 square foot commercial use with four apartments on the second story at 291 2nd Avenue in Niwot, Colorado. This PAM addresses the additional trip generation as well as other elements.

An aerial photograph showing the site location is provided in Appendix A. The subject property is on 2nd Avenue just north of the Niwot Road/2nd Avenue intersection within the commercial area of Niwot. There is currently on-street perpendicular parking on 2nd Avenue. There is a driveway access to the property on 2nd Avenue. The property has an approximately 2,175 square foot building and shed on site that are unoccupied. The previous use was the Niwot Feed and Grain Store Gallery. The building and shed are to be razed. Using Trip Generation, 11th Edition, ITE, as the reference document, the current land use (Strip Retail Plaza (>40K), Code 822) generates: 118 daily trip ends, 5 morning peak hour trip ends, and 14 afternoon peak hour trip ends, as shown in Table 1.

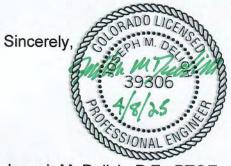
The site plan and floor plans are provided in Appendix B. The site will have driveway access on 2nd Avenue on the west side of the lot. With this proposal, there will be 15 parking spaces (4 garage spaces with 1 of those being handicap accessible and 10 open spaces with 1 of those being handicap accessible) on site. This proposal is a 3,316 square foot commercial use, on the first floor and 4 apartment dwelling units, on the second floor. The commercial use could be a restaurant, office, or retail. For analysis purposes, the highest trip generation was used, High-Turnover (Sit-Down) Restaurant, Code 932, and Multifamily Housing (Low-Rise), Code 220. Using the cited reference document, the calculated trip generation of the proposed land uses is shown in Table 2. The calculated trip generation is 382 daily trip ends, 34 morning peak hour trip ends, and 32 afternoon peak hour trip ends.

Recent (2023) available daily traffic on Niwot Road, east of SH119 is 4,600 vehicles per day. The trip distribution for the subject property is a function of trip production/attraction locations in the general vicinity of the site (5± mile radius). Preliminary trip distribution is estimated at: 35 percent to/from the west, 35 percent to/from the east, 20 percent to/from the south, and 10 percent to/from the north.

The primary travel mode will be by private automobile. The nearest transit stop is on SH119, which is approximately 0.4 miles to the west of the site. There are approximately 4 foot wide bicycle lanes on Niwot Road.

The change in the trip generation will be 264 more daily trip ends, 29 more morning peak hour trip ends, and 18 more afternoon peak hour trip ends. Based on the Boulder County Multimodal Transportation Standards a Transportation System Impact Study will be required.

Do not hesitate to contact me if you have questions or desire additional information.



Joseph M. Delich, P.E., PTOE

File: 2525LT01

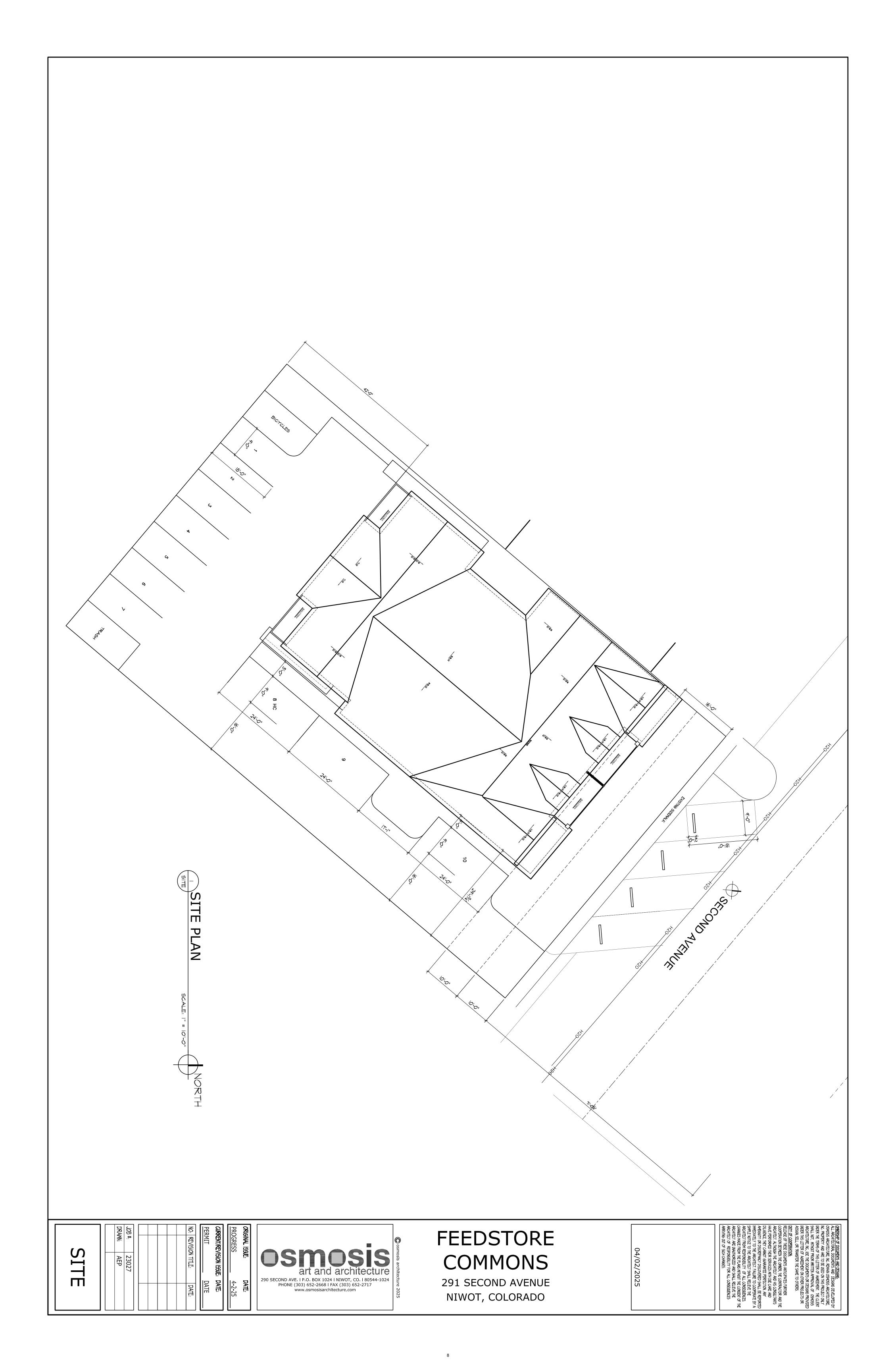
		Cur	TABI rent Trip	_E 1 Generation	on			
Code	Use	Size	AWI	DTE	AM Pea	k Hour	PM Pea	k Hour
Code	USE	Size	Rate	Trips Ends	Rate	Trip Ends	Rate	Trip Ends
822	Strip Retail Plaza (<40k)	2.175 KSF	54.45	118	2.36	5	6.59	14

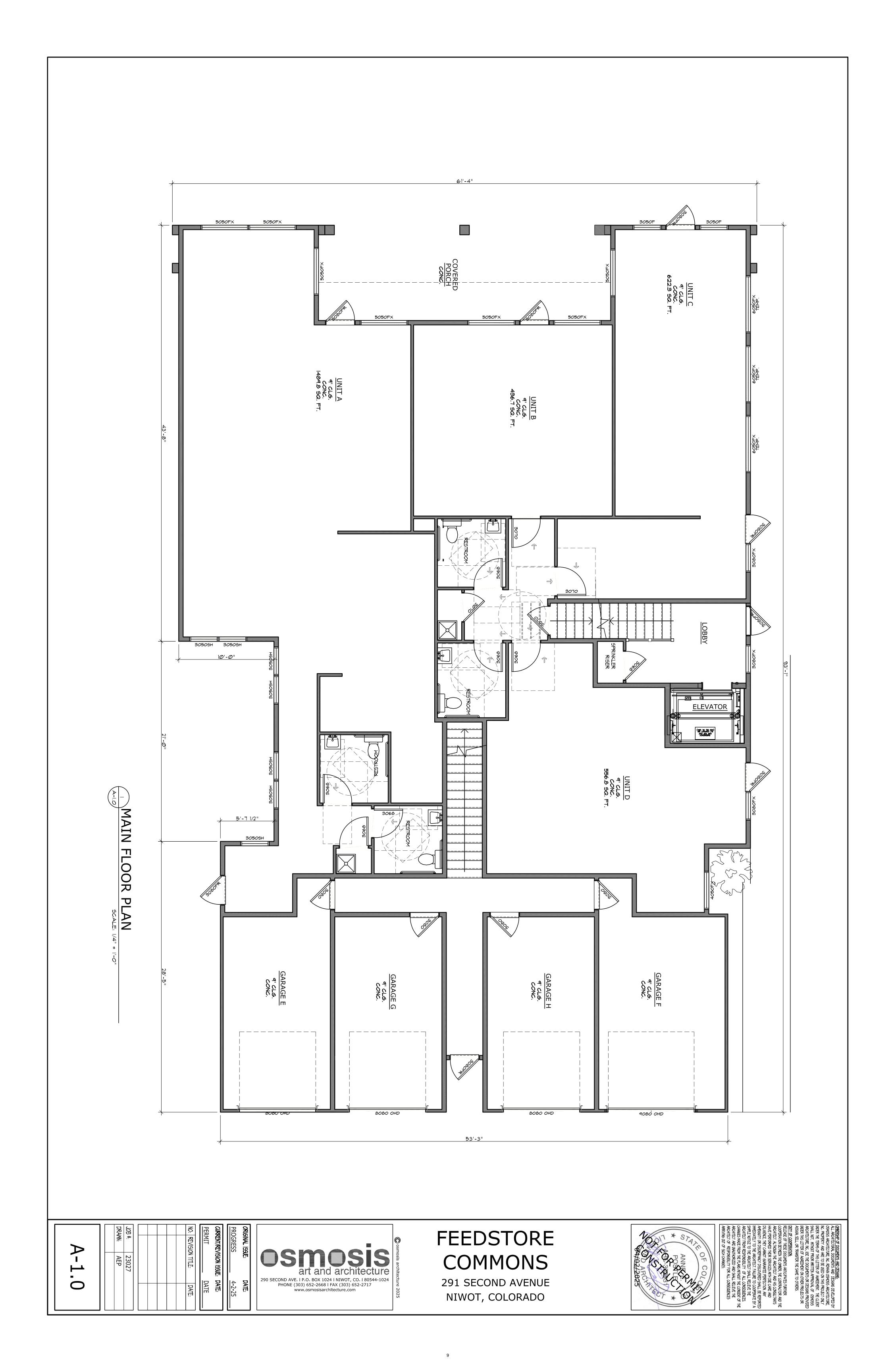
		Trip Ge	TABI neration	E 2 of the Pro	oposal			
Codo	llee	Ci	AW	DTE	AM Pea	ak Hour	PM Pea	k Hour
Code	Use	Size	Rate	Trips Ends	Rate	Trip Ends	Rate	Trip Ends
932	High-Turnover (Sit-Down) Restaurant	3.316 KSF	107.20	356	9.57	32	9.05	30
220	Multifamily Housing (Low-Rise)	4 D.U.	6.74	26	0.40	2	0.51	2
	Total			382		34		32

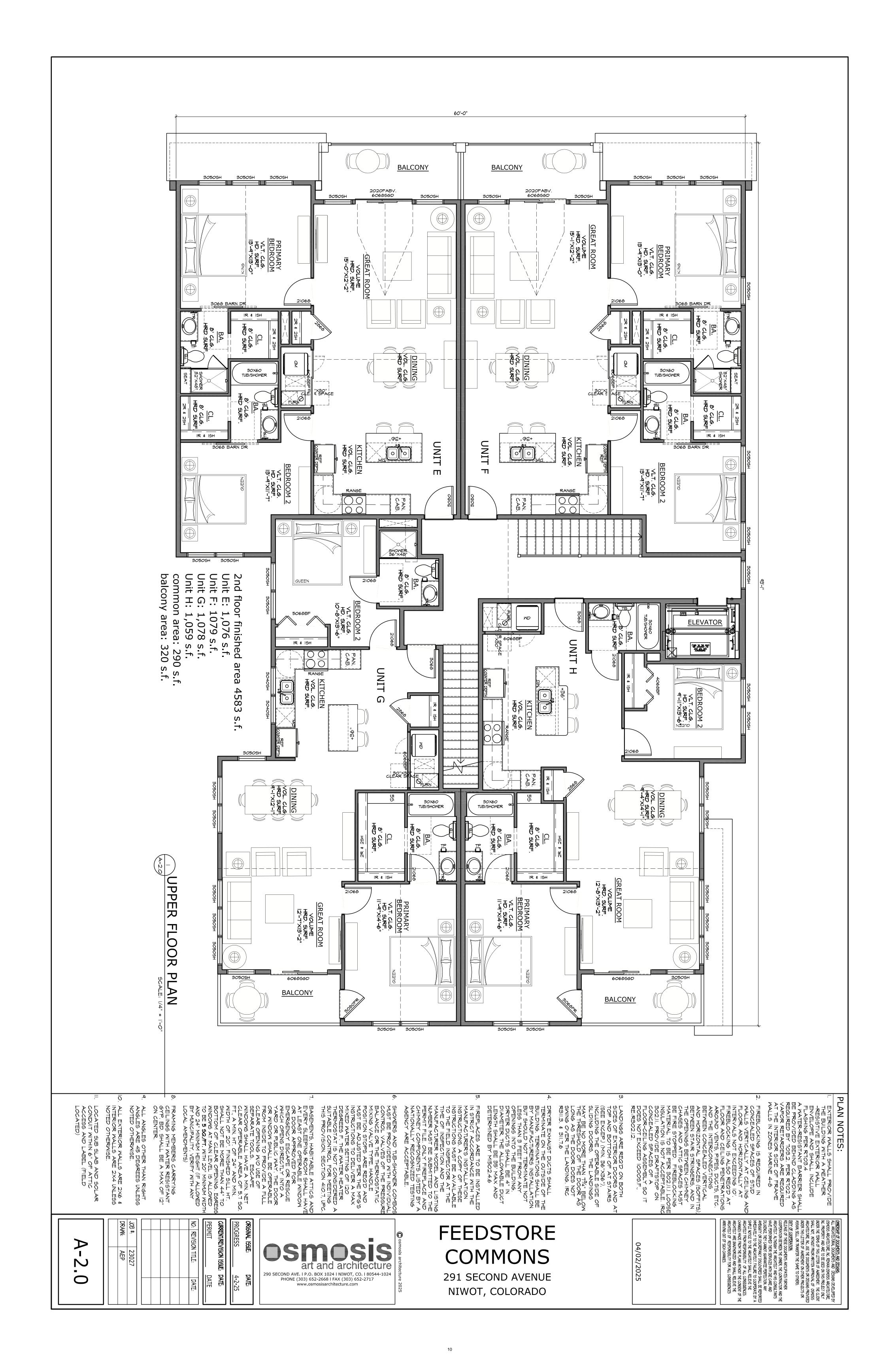
APPENDIX A



APPENDIX B







FW: [EXTERNAL] FW: 291 2nd Avenue PAM

Subject: FW: [EXTERNAL] FW: 291 2nd Avenue PAM

From: "Anne Postle" <apostle@osmosisarchitecture.com>

Date: 4/28/2025, 9:37 AM

To: "'Joseph Delich'" <joseph@delichassoc.com>

FYI

Please let us know next steps

Anne Postle
Principal | Architect
osmosis architecture

Γ	O 303-652-2668
Γ	apostle@osmosisarchitecture.com
Γ	osmosisarchitecture.com
г	290 Second Ave PO Box 1024 Niwot CO 8054

facebook twitter linkedin instagram

From: Transportation Development Review < TransDevReview@bouldercounty.gov>

Sent: Thursday, April 24, 2025 4:30 PM

To: Anne Postle <apostle@osmosisarchitecture.com>; Transportation Development Review <TransDevReview@bouldercounty.gov>; Knotts, Amber <aknotts@bouldercounty.gov>

Cc: Grimm, Denise <dgrimm@bouldercounty.gov>; 'Tucker Huey' <thuey@osmosisarchitecture.com>

Subject: RE: [EXTERNAL] FW: 291 2nd Avenue PAM

Hello Anne,

Thank you for the opportunity to review the Pre-application Methodology Statement (PAMS) for 291 2nd Avenue.

Staff has reviewed the PAMS and agrees with the conclusion arrived at by the traffic engineer. A modified Transportation System Impact Study (TSIS) must be submitted with your Land Use Review application.

The modified TSIS must include, without limitation:

- Project description
 - Proposal and development application
 - Development timing and phasing
 - Land Uses
 - Site/townsite plan
 - Pedestrian, bicycle, and transit travel within ¼ mile of the site
 - Type of sidewalks, shared-use paths and connections to existing and planned destinations
- Study area to include:
 - o 2000-foot impact radius from the project site
 - All signalized and key unsignalized intersections
 - All multimodal facilities, infrastructure, & services
 - School and park locations
 - Parking locations, type (lot, structure, etc.), & use

11

- Evaluation of existing and future conditions for:
 - Multimodal transportation facilities and services
 - Access management/spacing dimensions
 - ADT/PHT on roadways and intersections
 - LOS performance on roadways and intersections
 - Trip generation, distribution and assignment
 - Safety and accident analysis
 - Mode share
 - Pedestrian and bicycle hazards
 - Pedestrian access to transit stops
 - New barriers to non-motorized facilities
 - Cumulative conditions
 - Cumulative conditions plus proposed project
 - Signal and stop sign warrants
- Conclusions and Mitigations recommendations for:
 - Safety issues across modes
 - Proposed mode share, transportation demand management (TDM) & other measures that may reduce project's net external single-occupant vehicle trips
 - Access infrastructure
 - Mode share and TDM strategies

For more details about the TSIR requirements, please refer to the <u>Boulder County Multimodal Transportation</u> <u>Standards</u>, section 4.7.

Please let me know if you have any questions,

Regards,

Anita Riley | Principal Planner

Planning Division | Boulder County Community Planning & Permitting

P.O. Box 471 Boulder, CO 80306 | Courthouse Annex – 2045 13th St. Boulder, CO 80302 ariley@bouldercounty.gov | **Direct**: (303) 413-7512 | **Main**: (303) 441-3930 | www.boco.org/cpp

My office hours are Monday through Thursday, 8:00 am to 5:30 pm, and Friday, 8:00 am to noon.

From: Anne Postle <apostle@osmosisarchitecture.com>

Sent: Tuesday, April 8, 2025 3:18 PM

 $\textbf{To:} \ Transportation \ Development \ Review < \underline{TransDevReview@bouldercounty.gov}; \ Knotts, Amber$

<a href="mailto:aknotts@bouldercounty.gov>

Cc: Grimm, Denise <dgrimm@bouldercounty.gov>; 'Tucker Huey' <thuey@osmosisarchitecture.com>

Subject: [EXTERNAL] FW: 291 2nd Avenue PAM

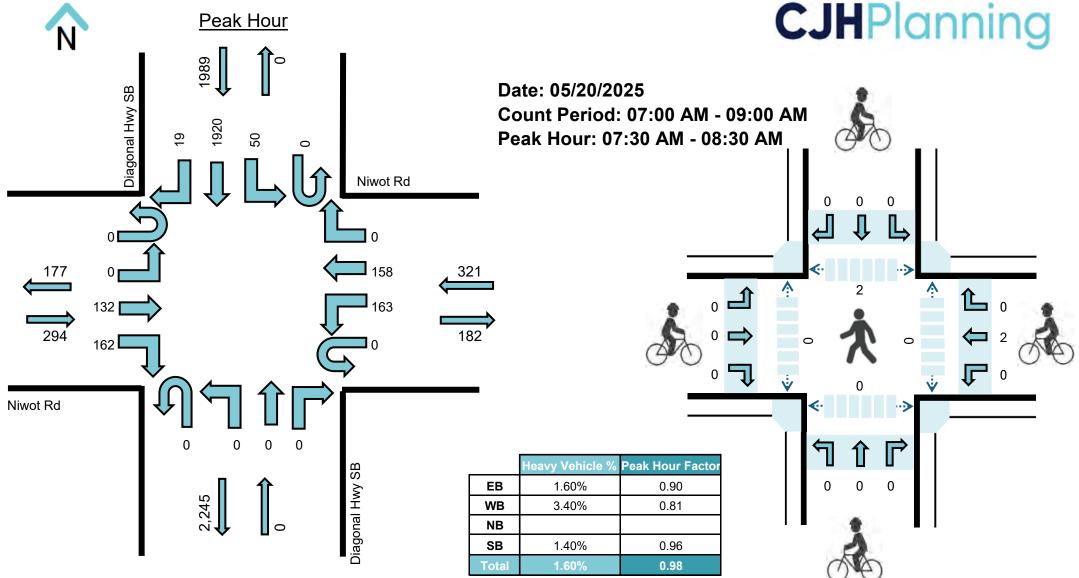
PAMS for your review for 291 2nd Avenue in Niwot Please let me know if you have any questions. Thank you

Anne Postle
Osmosis Art and Architecture
P.O. Box 1024
Niwot, CO 80544-1024
www.osmosisarchitecture.com
303 995-9944 cell
303 652-2668 off

APPENDIX B

Niwot Rd Diagonal Hwy SB





Two	Hour	Count	Summary
-----	------	-------	----------------

			Niw	ot Rd			Niwo	ot Rd			Diagona	I Hwy SB			Diagona	al Hwy SB			
Interval	Start		East	bound			West	bound			North	bound			South	nbound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 /	AΜ	0	0	16	32	0	19	18	0	0	0	0	0	0	4	400	4	493	0
7:15 /	AΜ	0	0	49	31	0	33	28	0	0	0	0	0	0	12	486	2	641	0
7:30	AM	0	0	44	38	0	42	33	0	0	0	0	0	0	9	490	2	658	0
7:45	AM	0	0	21	43	0	46	53	0	0	0	0	0	0	13	463	6	645	2,437
8:00	AM	0	0	31	40	0	36	42	0	0	0	0	0	0	17	468	5	639	2,583
8:15	AM	0	0	36	41	0	39	30	0	0	0	0	0	0	11	499	6	662	2,604
8:30 /	AΜ	0	0	34	38	0	43	33	0	0	0	0	0	0	12	483	5	648	2,594
8:45 /	AΜ	0	0	40	44	0	33	40	0	0	0	0	0	0	16	456	8	637	2,586
Count ⁻	Total	0	0	271	307	0	291	277	0	0	0	0	0	0	94	3,745	38	5,023	0
	All	0	0	132	162	0	163	158	0	0	0	0	0	0	50	1920	19	-	2,604
Peak Hour	HV	0	0	2	1	0	5	6	0	0	0	0	0	0	1	26	0	-	41
	HV %	_	_	2%	1%	_	3%	4%	_	_	_	_	_	_	2%	1%	0%	_	2%

Into much Otant		Heav	y Vehicles T	otals			В	icycles Tota	ls			Pedestrians (C	Crossing Leg) 1	Γotals	
Interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	3	0	7	10	2	0	0	1	3	0	0	0	0	0
7:15 AM	0	1	0	8	9	1	0	0	1	2	0	0	0	0	0
7:30 AM	0	3	0	6	9	0	1	0	0	1	0	0	1	0	1
7:45 AM	1	1	0	6	8	0	0	0	0	0	0	0	1	0	1
8:00 AM	1	0	0	6	7	0	1	0	0	1	0	0	0	0	0
8:15 AM	1	2	0	14	17	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	3	0	12	17	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	0	20	21	0	0	0	0	0	0	0	0	0	0
Count Total	6	13	0	79	98	3	2	0	2	7	0	0	2	0	2
Peak Hour	3	6	0	32	41	0	2	0	0	2	0	0	2	0	2

Count Period: 07:00 AM - 09:00 AM Peak Hour: 07:30 AM - 08:30 AM



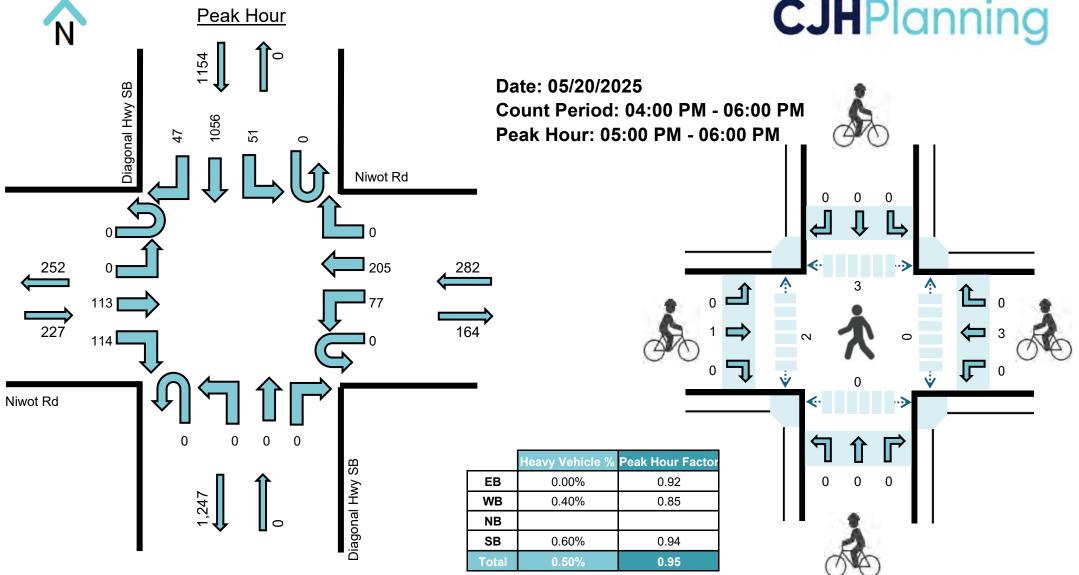
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			Diagona	l Hwy SB			Diagona	l Hwy SB			Delling
Interval Start		Eastl	bound			Westl	bound			North	bound			South	bound		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	0	2	0	0	0	0	0	0	0	6	1	10	0
7:15 AM	0	0	0	1	0	3	1	0	0	0	0	0	0	0	4	0	9	0
7:30 AM	0	0	0	0	0	2	3	0	0	0	0	0	0	0	4	0	9	0
7:45 AM	0	0	1	0	0	1	1	0	0	0	0	0	0	0	5	0	8	36
8:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	5	0	7	33
8:15 AM	0	0	0	1	0	1	2	0	0	0	0	0	0	1	12	0	17	41
8:30 AM	0	0	2	0	0	4	3	0	0	0	0	0	0	0	8	0	17	49
8:45 AM	0	0	1	2	0	5	0	0	0	0	0	0	0	0	13	0	21	62
Count Total	0	0	5	5	0	17	12	0	0	0	0	0	0	1	57	1	98	0
Peak Hour	0	0	2	1	0	5	6	0	0	0	0	0	0	1	26	0	41	0

Bicycle Gain														
		Niwot Rd			Niwot Rd		Di	agonal Hwy	SB	Di	agonal Hwy	SB		
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One nour
7:00 AM	0	2	0	0	0	0	0	0	0	0	1	0	3	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	1	0	2	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	4
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	3	0	0	0	0	0	0	0	0	0	0	7	0
Peak Hour	0	0	0	0	2	0	0	0	0	0	0	0	2	0

Niwot Rd Diagonal Hwy SB





Two	Hour	Count	Summary
1 77 0	HOUL	Count	Julilliaiv

			Niw	ot Rd			Niwo	ot Rd			Diagona	l Hwy SB			Diagona	l Hwy SB			
Interval	Start		Eastl	bound			Westl	bound			North	bound			South	bound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		One nour
4:00	PM	0	0	35	29	0	35	65	0	0	0	0	0	0	15	239	12	430	0
4:15	PM	0	0	30	26	0	15	52	0	0	0	0	0	0	14	256	15	408	0
4:30	PM	0	0	43	35	0	15	43	0	0	0	0	0	0	16	240	10	402	0
4:45	PM	0	0	28	23	0	19	39	0	0	0	0	0	0	19	256	11	395	1,635
5:00	PM	0	0	34	28	0	23	40	0	0	0	0	0	0	17	257	9	408	1,613
5:15	PM	0	0	31	30	0	15	54	0	0	0	0	0	0	11	267	13	421	1,626
5:30	PM	0	0	21	27	0	23	60	0	0	0	0	0	0	9	286	12	438	1,662
5:45	PM	0	0	27	29	0	16	51	0	0	0	0	0	0	14	246	13	396	1,663
Count [*]	Total	0	0	249	227	0	161	404	0	0	0	0	0	0	115	2,047	95	3,298	0
	All	0	0	113	114	0	77	205	0	0	0	0	0	0	51	1056	47	-	1,663
Peak Hour	HV	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	-	8
11501	HV %	_	_	0%	0%	_	0%	0%	_	_	_	_	_	_	0%	1%	0%	_	0%

Interval Start		Heav	y Vehicles T	otals			В	icycles Tota	ls			Pedestrians (C	Crossing Leg) 1	Γotals	
interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	1	0	5	7	0	1	0	0	1	0	0	0	0	0
4:15 PM	2	0	0	7	9	1	1	0	0	2	0	0	1	0	1
4:30 PM	1	0	0	1	2	1	0	0	0	1	0	0	0	0	0
4:45 PM	2	0	0	5	7	0	2	0	0	2	0	0	1	0	1
5:00 PM	0	0	0	3	3	1	3	0	0	4	0	0	1	0	1
5:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	2	2	0	0	0	0	0	0	2	0	0	2
5:45 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
Count Total	6	2	0	25	33	3	7	0	0	10	0	2	3	0	5
Peak Hour	0	1	0	7	8	1	3	0	0	4	0	2	1	0	3

Count Period: 04:00 PM - 06:00 PM Peak Hour: 05:00 PM - 06:00 PM



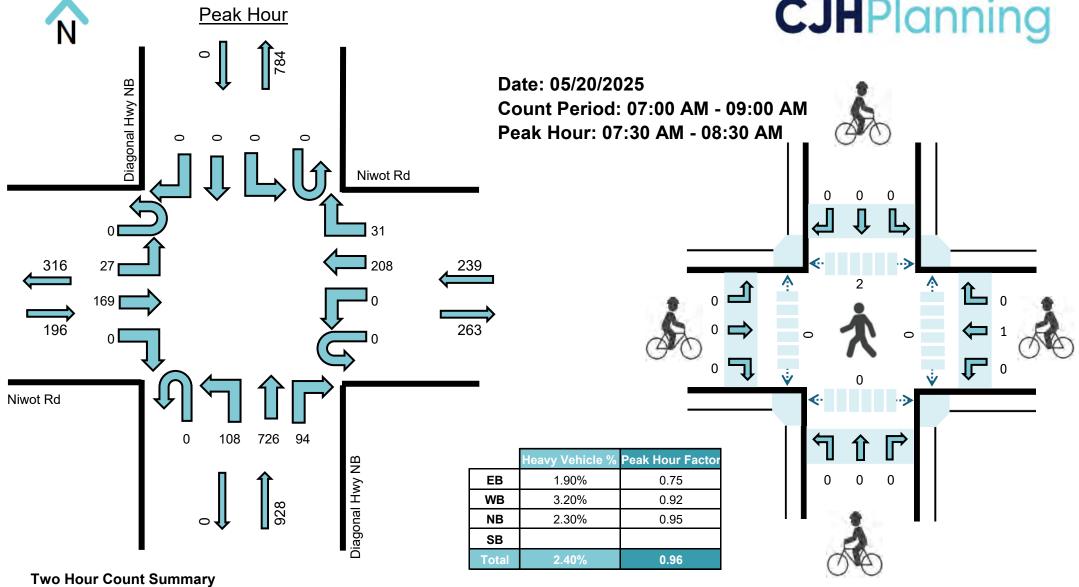
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			Diagona	l Hwy SB			Diagona	l Hwy SB			Dallina
Interval Start		Eastl	bound			West	bound			North	bound			South	bound		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	1	0	0	0	0	0	0	0	0	4	1	7	0
4:15 PM	0	0	2	0	0	1	0	0	0	0	0	0	0	0	6	0	9	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5	0	7	25
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	21
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	13
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	13
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	8
Count Total	0	0	6	0	0	2	1	0	0	0	0	0	0	0	23	1	33	0
Peak Hour	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	8	0

Bicycle Gain	···· v													
		Niwot Rd			Niwot Rd		Di	iagonal Hwy	SB	Di	agonal Hwy	SB		
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One riour
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:15 PM	0	1	0	0	1	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	0	0	0	2	0	0	0	0	0	0	0	2	6
5:00 PM	0	1	0	0	3	0	0	0	0	0	0	0	4	9
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	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	4
Count Total	0	3	0	0	0	0	0	0	0	0	0	0	10	0
Peak Hour	0	1	0	0	3	0	0	0	0	0	0	0	4	0

Niwot Rd Diagonal Hwy NB





			Niw	ot Rd			Niw	ot Rd			Diagona	l Hwy NB			Diagona	Hwy NB			
Interval	Start		Eastl	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		One riour
7:00 /	AM	0	7	9	0	0	0	23	1	0	13	115	10	0	0	0	0	178	0
7:15 /	AM	0	10	40	0	0	0	35	9	0	27	152	24	0	0	0	0	297	0
7:30	AM.	0	5	60	0	0	0	53	9	0	26	170	32	0	0	0	0	355	0
7:45	AM	0	4	31	0	0	0	59	6	0	28	190	27	0	0	0	0	345	1,175
8:00	AM.	0	11	36	0	0	0	50	8	0	29	196	14	0	0	0	0	344	1,341
8:15	AM	0	7	42	0	0	0	46	8	0	25	170	21	0	0	0	0	319	1,363
8:30 /	AM	0	9	39	0	0	0	52	9	0	27	185	15	0	0	0	0	336	1,344
8:45 /	AM	0	12	42	0	0	0	39	5	0	29	168	18	0	0	0	0	313	1,312
Count ⁻	Γotal	0	65	299	0	0	0	357	55	0	204	1,346	161	0	0	0	0	2,487	0
	All	0	27	169	0	0	0	208	31	0	108	726	94	0	0	0	0	-	1,363
Peak Hour	HV	0	2	1	0	0	0	6	1	0	4	15	4	0	0	0	0	-	33
iioui	HV %	-	7%	1%	-	-	-	3%	3%	_	4%	2%	4%	_	-	-	-	-	2%

Interval Start		Heav	y Vehicles T	otals			В	icycles Tota	ls			Pedestrians (Crossing Leg) 1	Totals	
interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	3	4	0	7	2	0	0	0	2	0	0	0	0	0
7:15 AM	0	7	5	0	12	1	0	1	0	2	0	0	0	0	0
7:30 AM	0	2	10	0	12	0	0	0	0	0	0	0	1	0	1
7:45 AM	1	4	2	0	7	0	0	0	0	0	0	0	1	0	1
8:00 AM	1	0	4	0	5	0	1	0	0	1	0	0	0	0	0
8:15 AM	3	4	2	0	9	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	6	9	0	16	0	0	0	0	0	0	0	0	0	0
8:45 AM	2	5	9	0	16	0	0	0	0	0	0	0	0	0	0
Count Total	8	31	45	0	84	3	1	1	0	5	0	0	2	0	2
Peak Hour	5	10	18	0	33	0	1	0	0	1	0	0	2	0	2

Count Period: 07:00 AM - 09:00 AM Peak Hour: 07:30 AM - 08:30 AM



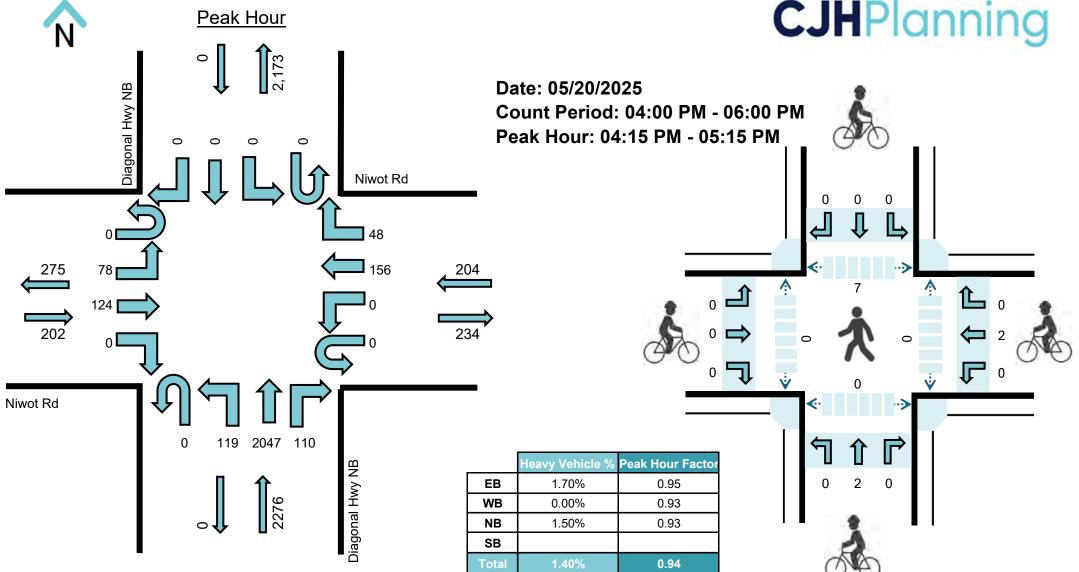
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			Diagona	l Hwy NB			Diagona	l Hwy NB			D. II'.
Interval Start		Eastb	oound			West	bound			North	bound			South	bound		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	0	0	3	4	0	0	0	0	0	7	0
7:15 AM	0	0	0	0	0	0	2	0	0	5	5	0	0	0	0	0	12	0
7:30 AM	0	0	0	0	0	0	2	0	0	0	10	0	0	0	0	0	12	0
7:45 AM	0	1	0	0	0	0	1	0	0	3	1	1	0	0	0	0	7	38
8:00 AM	0	1	1	0	0	0	0	1	0	0	2	0	0	0	0	0	5	36
8:15 AM	0	0	0	0	0	0	3	0	0	1	2	3	0	0	0	0	9	33
8:30 AM	0	0	1	0	0	0	2	0	0	4	9	0	0	0	0	0	16	37
8:45 AM	0	1	1	0	0	0	1	0	0	4	8	1	0	0	0	0	16	46
Count Total	0	3	3	0	0	0	11	1	0	20	41	5	0	0	0	0	84	0
Peak Hour	0	2	1	0	0	0	6	1	0	4	15	4	0	0	0	0	33	0

Bicycle Gain														
		Niwot Rd			Niwot Rd		Di	agonal Hwy	NB	Di	agonal Hwy	NB		
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One nour
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	1	0	0	0	0	0	1	0	0	0	0	2	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	4
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	1
Count Total	0	3	0	0	0	0	0	0	0	0	0	0	5	0
Peak Hour	0	0	0	0	1	0	0	0	0	0	0	0	1	0

Niwot Rd Diagonal Hwy NB





Two Hour Count	Summary
-----------------------	---------

			Niwo	ot Rd			Niw	ot Rd			Diagona	al Hwy NB			Diagona	l Hwy NB			
Interval	Start		Eastl	bound			West	tbound			North	nbound			South	bound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		One near
4:00 F	PM	0	20	32	0	0	0	62	14	0	29	478	27	0	0	0	0	662	0
4:15 F	PM	0	13	37	0	0	0	34	11	0	34	466	37	0	0	0	0	632	0
4:30 F	M	0	16	35	0	0	0	41	13	0	41	508	23	0	0	0	0	677	0
4:45 F	PM	0	23	25	0	0	0	39	11	0	22	563	27	0	0	0	0	710	2,681
5:00 F	M	0	26	27	0	0	0	42	13	0	22	510	23	0	0	0	0	663	2,682
5:15 F	PM	0	14	24	0	0	0	39	7	0	31	472	30	0	0	0	0	617	2,667
5:30 F	PM	0	10	22	0	0	0	47	7	0	32	449	23	0	0	0	0	590	2,580
5:45 F	PM	0	7	34	0	0	0	33	10	0	38	426	20	0	0	0	0	568	2,438
Count T	otal	0	129	236	0	0	0	337	86	0	249	3,872	210	0	0	0	0	5,119	0
_	All	0	78	124	0	0	0	156	48	0	119	2047	110	0	0	0	0	-	2,682
Peak Hour	HV	0	2	3	0	0	0	0	2	0	0	29	1	0	0	0	0	-	37
	HV %	_	3%	2%	_	_	_	0%	4%	_	0%	1%	1%	_	_	_	_	_	1%

Interval Start		Heav	y Vehicles T	otals			В	icycles Tota	s			Pedestrians (C	Crossing Leg) 1	「otals	
interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	2	0	3	0	0	0	0	0	0	0	1	0	1
4:15 PM	2	0	5	0	7	0	0	0	0	0	0	0	2	0	2
4:30 PM	1	0	10	0	11	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	8	0	9	0	0	0	0	0	0	0	3	0	3
5:00 PM	0	0	10	0	10	1	2	2	0	5	0	0	1	0	1
5:15 PM	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0
Count Total	5	0	50	0	55	1	2	2	0	5	0	0	7	0	7
Peak Hour	4	0	33	0	37	1	2	2	0	5	0	0	6	0	6

Count Period: 04:00 PM - 06:00 PM Peak Hour: 04:15 PM - 05:15 PM



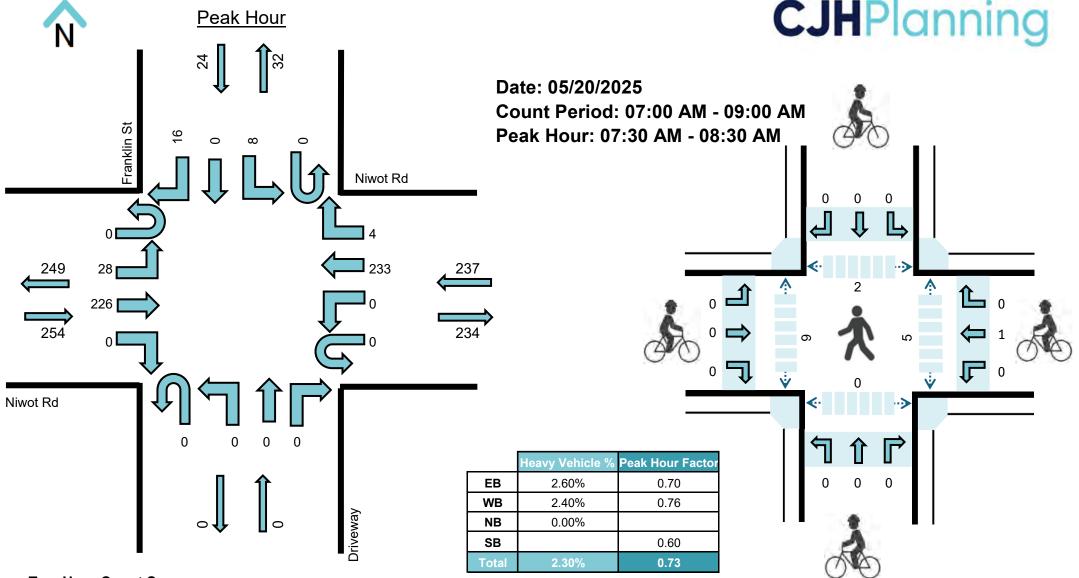
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			Diagona	l Hwy NB			Diagona	l Hwy NB			D. II'.
Interval Start		Eastb	oound			West	bound			North	bound			South	bound		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	0	0	0	2	0	0	0	0	0	3	0
4:15 PM	0	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	7	0
4:30 PM	0	1	1	0	0	0	0	0	0	0	9	0	0	0	0	0	11	0
4:45 PM	0	1	0	0	0	0	0	1	0	0	6	1	0	0	0	0	9	30
5:00 PM	0	0	0	0	0	0	0	1	0	0	9	0	0	0	0	0	10	37
5:15 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	7	37
5:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	30
5:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	25
Count Total	0	2	4	0	0	0	0	2	0	0	46	1	0	0	0	0	55	0
Peak Hour	0	2	3	0	0	0	0	2	0	0	29	1	0	0	0	0	37	0

Bicycle Gain	·····													
		Niwot Rd			Niwot Rd		Di	agonal Hwy	NB	Di	agonal Hwy	NB		
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One riour
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	0	0	0	0	0	0	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	0
5:00 PM	0	0	0	0	2	0	0	2	1	0	0	0	5	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	5	0
Peak Hour	0	0	0	0	2	0	0	2	0	0	0	0	4	0

Niwot Rd Franklin St/Driveway





			Niw	ot Rd			Niw	ot Rd			Drive	eway			Frank	lin St			l <u></u>
Interval	Start		Eastl	oound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		One nour
7:00 /	AM	0	2	19	0	0	0	24	1	0	0	0	0	0	0	0	3	49	0
7:15 /	AM	0	0	67	0	0	0	43	0	0	0	0	0	0	0	0	4	114	0
7:30	ΑM	0	7	84	0	0	0	77	1	0	0	0	0	0	3	0	4	176	0
7:45	AM.	0	10	46	0	0	0	59	0	0	0	0	0	0	1	0	3	119	458
8:00	AM.	0	4	43	0	0	0	50	2	0	0	0	0	0	0	0	3	102	511
8:15	AM.	0	7	53	0	0	0	47	1	0	0	0	0	0	4	0	6	118	515
8:30 /	AM	0	7	48	0	0	0	53	3	0	0	0	0	1	0	0	8	120	459
8:45 /	AM	0	5	59	0	0	0	38	7	0	0	0	0	0	4	0	7	120	460
Count ⁻	Γotal	0	42	419	0	0	0	391	15	0	0	0	0	1	12	0	38	918	0
	All	0	28	226	0	0	0	233	4	0	0	0	0	0	8	0	16	-	515
Peak Hour	HV	0	0	5	0	0	0	5	0	0	0	0	0	0	1	0	1	-	12
	HV %	_	0%	2%	_	-	_	2%	0%	_	_	-	-	_	13%	-	6%	_	2%

lusta musil Ottant		Heav	y Vehicles T	otals			В	icycles Tota	Is			Pedestrians (C	Crossing Leg) 1	Γotals	
Interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	2	0	0	0	2	0	1	0	0	1
7:15 AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0
7:30 AM	1	2	0	0	3	0	0	0	0	0	0	2	0	0	2
7:45 AM	1	2	0	0	3	0	0	0	0	0	1	0	1	0	2
8:00 AM	1	1	0	0	2	0	1	0	0	1	2	2	1	0	5
8:15 AM	3	1	0	0	4	0	0	0	0	0	2	0	0	0	2
8:30 AM	1	2	0	0	3	0	0	0	0	0	0	3	0	0	3
8:45 AM	2	3	1	0	6	0	0	0	0	0	0	1	0	0	1
Count Total	9	12	1	0	22	3	1	0	0	4	5	9	2	0	16
Peak Hour	6	6	0	0	12	0	1	0	0	1	5	4	2	0	11

Count Period: 07:00 AM - 09:00 AM Peak Hour: 07:30 AM - 08:30 AM



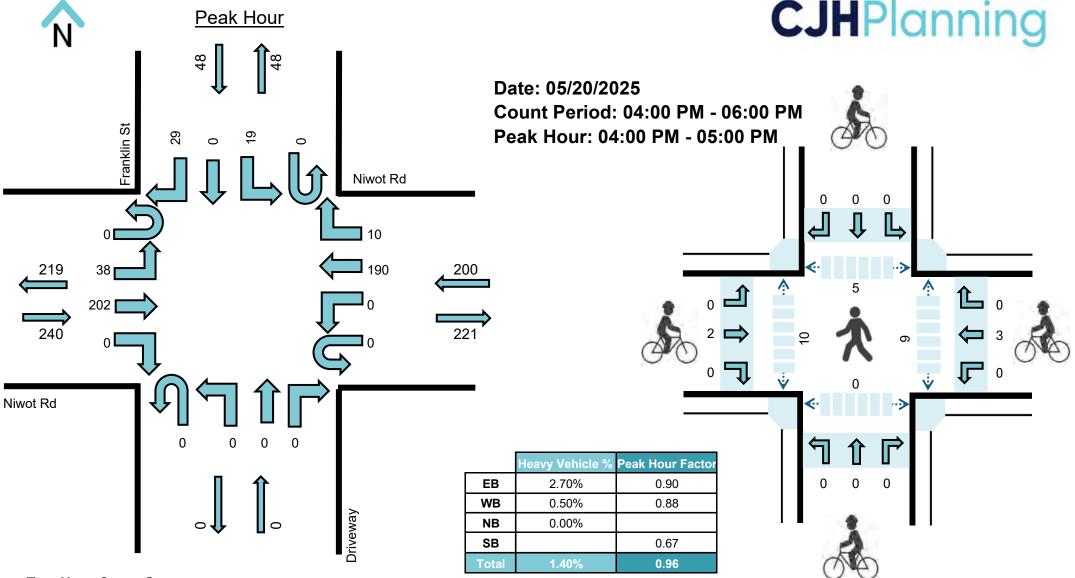
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			Drive	eway			Frank	din St			D. III
Interval Start		Eastl	bound			West	bound			North	bound			South	bound		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	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	3	0
7:45 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	7
8:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	9
8:15 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	4	12
8:30 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	12
8:45 AM	0	0	2	0	0	0	2	1	0	0	0	0	0	0	0	1	6	15
Count Total	0	0	8	0	0	0	10	1	0	0	0	0	0	1	0	2	22	0
Peak Hour	0	0	5	0	0	0	5	0	0	0	0	0	0	1	0	1	12	0

Bicycle Gain														
		Niwot Rd			Niwot Rd			Driveway			Franklin St			
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One nour
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	1	0	0	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	3
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	1
Count Total	0	3	0	0	0	0	0	0	0	0	0	0	4	0
Peak Hour	0	0	0	0	1	0	0	0	0	0	0	0	1	0

Niwot Rd Franklin St/Driveway





Two Hour Count Summary

			•																
			Niwo	ot Rd			Niw	ot Rd			Drive	eway			Frank	din St			
Interval	Start		Eastl	oound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		One nour
4:00	PM	0	6	47	0	0	0	54	2	0	0	0	0	0	8	0	10	127	0
4:15	PM	0	15	52	0	0	0	41	2	0	0	0	0	0	4	0	4	118	0
4:30	PM	0	9	55	0	0	0	53	4	0	0	0	0	0	1	0	5	127	0
4:45	PM	0	8	48	0	0	0	42	2	0	0	0	0	0	6	0	10	116	488
5:00	PM	0	3	52	0	0	0	46	1	0	0	0	0	0	8	0	9	119	480
5:15	PM	0	6	45	0	0	0	41	1	0	0	0	0	0	1	0	6	100	462
5:30	PM	0	3	41	0	0	0	53	1	0	0	0	0	0	2	0	10	110	445
5:45	PM	0	3	50	0	0	0	32	1	0	0	0	0	0	2	0	7	95	424
Count	Total	0	53	390	0	0	0	362	14	0	0	0	0	0	32	0	61	912	0
	All	0	38	202	0	0	0	190	10	0	0	0	0	0	19	0	29	-	488
Peak Hour	HV	0	0	5	0	0	0	1	0	0	0	0	0	0	1	0	0	-	7
11341	HV %	_	0%	2%	_	_	_	1%	0%	_	_	_	_	_	5%	_	0%	_	1%

Interval Start		Heav	y Vehicles T	otals			В	icycles Tota	ls			Pedestrians (Crossing Leg) 1	Γotals	
interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	0	0	0	2	0	1	1	0	2	0	3	0	0	3
4:15 PM	2	0	0	0	2	1	0	0	0	1	2	0	0	0	2
4:30 PM	1	0	0	0	1	1	0	0	0	1	1	1	1	0	3
4:45 PM	1	1	0	0	2	0	5	0	0	5	1	1	0	0	2
5:00 PM	0	1	0	0	1	0	1	0	0	1	4	1	4	0	9
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:45 PM	0	1	0	0	1	0	0	2	0	2	0	2	0	0	2
Count Total	6	3	0	0	9	2	7	3	0	12	9	10	5	0	24
Peak Hour	6	1	0	0	7	2	6	1	0	9	4	5	1	0	10

Count Period: 04:00 PM - 06:00 PM Peak Hour: 04:00 PM - 05:00 PM



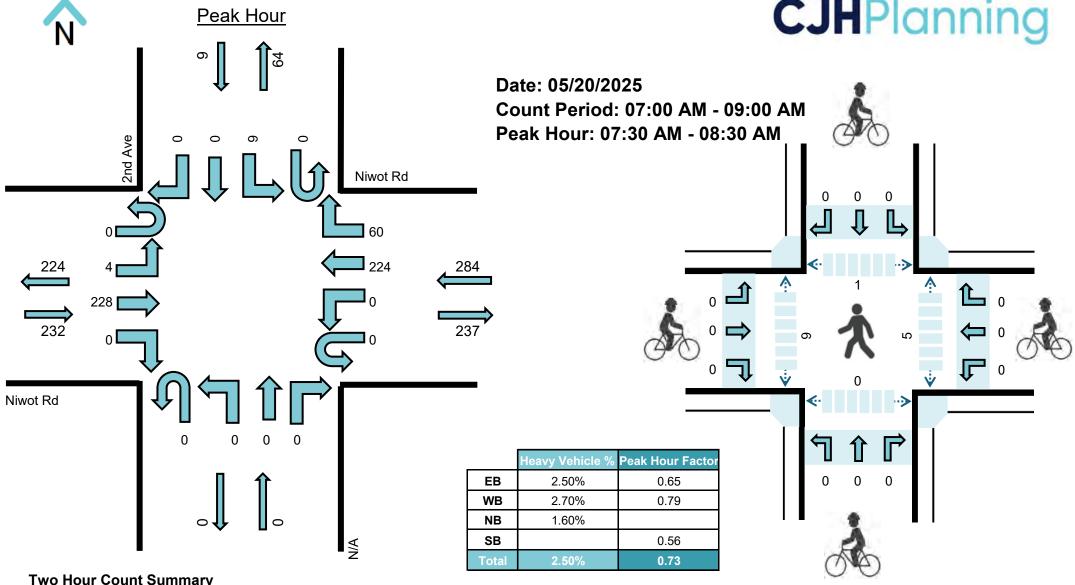
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			Drive	eway			Frank	din St			Delline
Interval Start		Eastb	oound			West	bound			North	bound			South	bound		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	0	0	0	0	0	0	1	0	0	2	0
4:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	7
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
Count Total	0	0	5	0	0	0	3	0	0	0	0	0	0	1	0	0	9	0
Peak Hour	0	0	5	0	0	0	1	0	0	0	0	0	0	1	0	0	7	0

		Niwot Rd			Niwot Rd			Driveway			Franklin St			
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One riour
4:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	2	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	2	0	0	0	0	0	0	3	5	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	8
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	2	0	0	0	0	0	0	0	0	0	0	0	2	3
Count Total	2	2	0	0	0	0	0	0	0	0	0	0	12	0
Peak Hour	0	2	0	0	3	0	0	0	0	0	0	0	5	0

Niwot Rd 2nd Ave





1 110 110		ount ou	IIIIIIary																
			Niwo	ot Rd			Niw	ot Rd			N	/ A			2nd	Ave			l
Interval	Start		Eastl	oound			West	bound			North	bound			South	bound		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	20	0	0	0	25	6	0	0	0	0	0	2	0	0	53	0
7:15	AM	0	1	65	0	0	0	36	9	0	0	0	0	0	1	0	0	112	0
7:30	AM	0	0	89	0	0	0	75	15	0	0	0	0	0	1	0	0	180	0
7:45	AM	0	4	43	0	0	0	57	15	0	0	0	0	0	4	0	0	123	468
8:00	AM	0	0	42	0	0	0	48	17	0	0	0	0	0	2	0	0	109	524
8:15	AM	0	0	54	0	0	0	44	13	0	0	0	0	0	2	0	0	113	525
8:30	AM	0	0	54	0	0	0	49	19	0	0	0	0	0	5	0	1	128	473
8:45	AM	0	1	59	0	0	0	45	25	0	0	0	0	0	8	0	0	138	488
Count ⁻	Total	0	6	426	0	0	0	379	119	0	0	0	0	0	25	0	1	956	0
	All	0	4	228	0	0	0	224	60	0	0	0	0	0	9	0	0	-	525
Peak Hour	HV	0	0	6	0	0	0	6	1	0	0	0	0	0	0	0	0	-	13
	HV %	-	0%	3%	-	-	-	3%	2%	-	-	-	-	-	0%	-	-	-	2%

Indomed Start		Heav	y Vehicles T	otals			В	icycles Tota	ls			Pedestrians (Crossing Leg) 1	Γotals	
Interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	1	0	1	2	0	0	0	2	0	1	0	0	1
7:15 AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0
7:30 AM	1	2	1	0	4	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	2	0	0	3	0	0	0	0	0	2	3	1	0	6
8:00 AM	1	1	0	0	2	0	0	0	0	0	3	3	0	0	6
8:15 AM	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0
8:45 AM	2	1	0	0	3	0	0	0	0	0	0	2	0	0	2
Count Total	9	11	2	0	22	3	0	0	0	3	5	9	1	0	15
Peak Hour	6	6	1	0	13	0	0	0	0	0	5	6	1	0	12

Count Period: 07:00 AM - 09:00 AM Peak Hour: 07:30 AM - 08:30 AM



Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			N	/A			2nd	Ave			Dallina
Interval Start		Easth	oound			West	bound			North	bound			South	bound		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	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	4	0
7:45 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	9
8:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	10
8:15 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4	13
8:30 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	13
8:45 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3	13
Count Total	0	0	9	0	0	0	11	2	0	0	0	0	0	0	0	0	22	0
Peak Hour	0	0	6	0	0	0	6	1	0	0	0	0	0	0	0	0	13	0

		Niwot Rd			Niwot Rd			N/A			2nd Ave			
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One nour
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	1	0	0	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	3
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	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	3	0	0	0	0	0	0	0	0	0	0	3	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Niwot Rd 2nd Ave

Count Total

Count Total

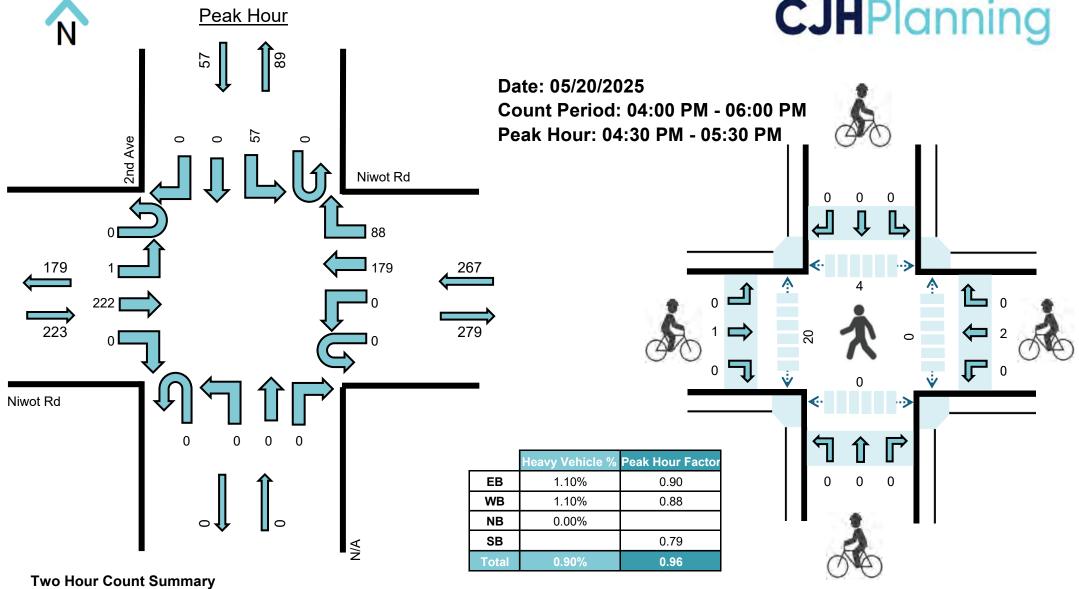
Peak Hour

HV

Peak



1,048



			Eastbound																4
Interval Start		Eastl	bound			West	bound			North	bound			South	nbound		15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		One riour	
4:00 PM	0	0	54	0	0	0	57	18	0	0	0	0	0	11	0	0	140	0	
4:15 PM	0	2	48	0	0	0	47	16	0	0	0	0	0	8	0	2	123	0	
4:30 PM	0	1	56	0	0	0	57	19	0	0	0	0	0	10	0	0	143	0	
4:45 PM	0	0	62	0	0	0	40	19	0	0	0	0	0	18	0	0	139	545	
5:00 PM	0	0	55	0	0	0	39	23	0	0	0	0	0	15	0	0	132	537	
5:15 PM	0	0	49	0	0	0	43	27	0	0	0	0	0	14	0	0	133	547	
5:30 PM	0	0	40	0	0	0	52	24	0	0	0	0	0	10	0	1	127	531	
5:45 PM	0	1	53	0	0	0	36	9	0	0	0	0	0	10	0	2	111	503	

Hour	HV	0	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	-	5
	HV %	-	0%	1%	-	-	-	1%	0%	-	-	-	-	-	2%	-	-	-	1%
Interval	Stort		He	avy Vehic	cles Tota	ls				Bicycles	Totals				Pede	estrians (C	Crossing L	eg) Totals	
iiiteivai	Start	EB	WB	NE	В	SB	Total	EB	WB	NE	3	SB	Total	East	,	West	North	South	Total
4:00	PM	2	0	1		0	3	0	1	0		0	1	0		1	0	0	1
4:15	PM	2	0	0)	0	2	2	1	0		0	3	0		10	0	0	10
4:30	PM	1	0	0)	0	1	1	0	0		0	1	0		1	2	0	3
4:45	PM	1	1	0)	0	2	0	2	0		0	2	0		4	0	0	4
5:00	PM	1	1	0)	0	2	0	0	0		0	0	0		2	2	0	4
5:15	PM	0	0	0)	0	0	0	0	0		0	0	0		0	0	0	0
5:30	PM	0	0	0		0	0	0	0	0		0	0	0		1	0	0	1
5:45	PM	0	0	0)	0	0	1	0	0		0	1	0		1	0	0	1

Count Period: 04:00 PM - 06:00 PM Peak Hour: 04:30 PM - 05:30 PM



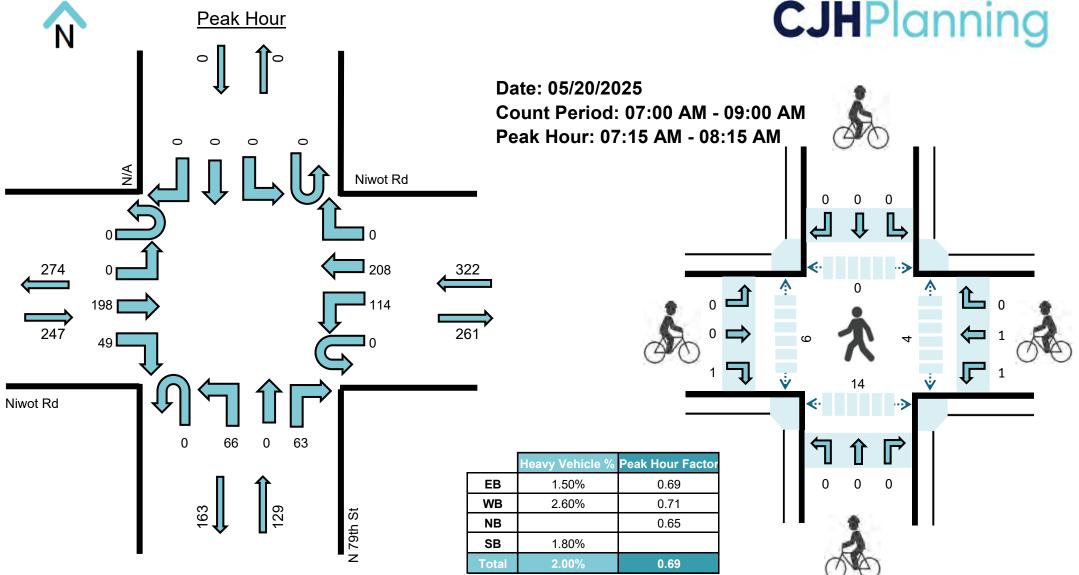
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			N	/A			2nd	Ave			Delling
Interval Start		Easth	oound			West	bound			North	bound			South	bound		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	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
4:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	8
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	7
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	6	0	0	0	2	1	0	0	0	0	0	1	0	0	10	0
Peak Hour	0	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	5	0

Bicycle Gain														
		Niwot Rd			Niwot Rd			N/A			2nd Ave			
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One nour
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:15 PM	0	2	0	0	1	0	0	0	0	0	0	0	3	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2	7
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	1
Count Total	0	4	0	0	0	0	0	0	0	0	0	0	8	0
Peak Hour	0	1	0	0	2	0	0	0	0	0	0	0	3	0

Niwot Rd N 79th St





Two Hour Count Summary

			Niw	ot Rd			Niwo	ot Rd			N 79	th St			N	/A			
Interval	Start		Eastl	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 /	AΜ	0	0	19	2	0	14	25	0	0	6	0	5	0	0	0	0	71	0
7:15	AM	0	0	59	9	0	18	39	0	0	8	0	17	0	0	0	0	150	0
7:30	AM	0	0	75	14	0	40	74	0	0	17	0	33	0	0	0	0	253	0
7:45	AM	0	0	30	17	0	35	49	0	0	21	0	5	0	0	0	0	157	631
8:00	AM	0	0	34	9	0	21	46	0	0	20	0	8	0	0	0	0	138	698
8:15 /	AΜ	0	0	39	18	0	17	42	0	0	17	0	14	0	0	0	0	147	695
8:30 /	AΜ	0	0	33	26	0	18	51	0	0	17	0	7	0	0	0	0	152	594
8:45 /	AΜ	0	0	43	23	0	16	36	0	0	30	0	24	0	0	0	0	172	609
Count ⁻	Total	0	0	332	118	0	179	362	0	0	136	0	113	0	0	0	0	1,240	0
	All	0	0	198	49	0	114	208	0	0	66	0	63	0	0	0	0	-	698
Peak Hour	HV	0	0	2	1	0	2	4	0	0	3	0	2	0	0	0	0	-	14
11501	HV %	_	_	1%	2%	_	2%	2%	-	_	5%	-	3%	_	_	-	_	-	2%

Interval Start		Heav	y Vehicles T	otals			В	icycles Tota	ls			Pedestrians (0	Crossing Leg) 1	「otals	
interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	1	0	2	3	0	0	0	3	3	0	1	0	1	2
7:15 AM	1	1	0	1	3	0	0	0	1	1	0	0	0	0	0
7:30 AM	2	3	0	0	5	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	2	0	1	4	0	0	0	0	0	0	0	0	2	2
8:00 AM	0	1	0	1	2	0	1	0	1	2	2	3	0	4	9
8:15 AM	3	1	0	0	4	0	0	0	0	0	1	0	0	2	3
8:30 AM	1	3	0	0	4	0	0	0	0	0	0	1	0	3	4
8:45 AM	3	1	0	0	4	0	0	0	0	0	1	1	0	2	4
Count Total	11	13	0	5	29	0	1	0	5	6	4	6	0	14	24
Peak Hour	4	7	0	3	14	0	1	0	2	3	2	3	0	6	11

Count Period: 07:00 AM - 09:00 AM Peak Hour: 07:15 AM - 08:15 AM



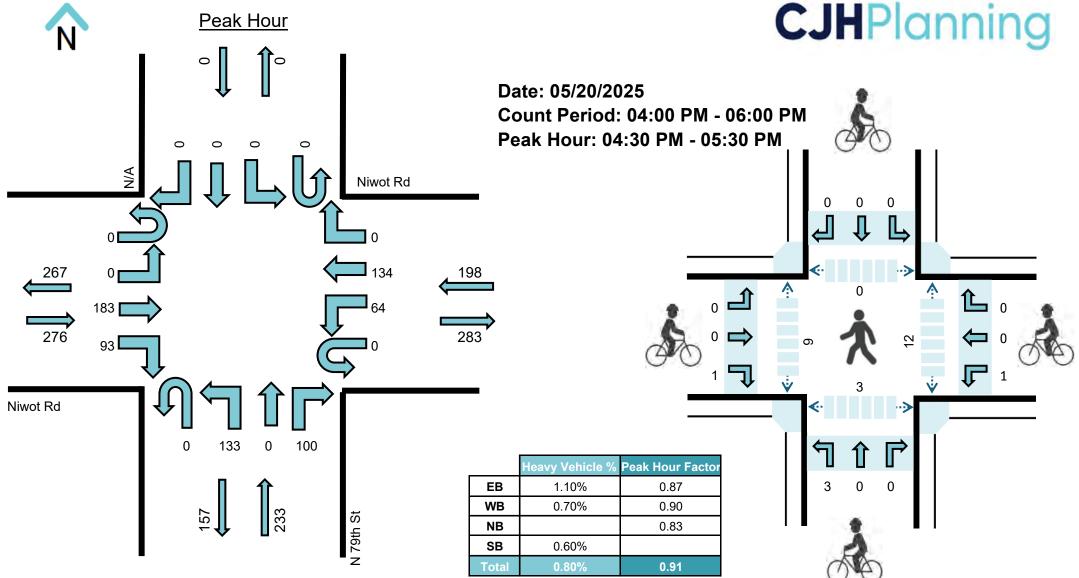
Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			N 79	th St			N	/A			D. III
Interval Start		East	oound			West	bound			North	bound			South	bound		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	2	0	0	0	1	0	0	0	0	0	0	3	0
7:15 AM	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	3	0
7:30 AM	0	0	1	0	0	0	2	0	0	1	0	1	0	0	0	0	5	0
7:45 AM	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	4	15
8:00 AM	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2	14
8:15 AM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	4	15
8:30 AM	0	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	4	14
8:45 AM	0	0	2	0	0	0	0	0	0	1	0	1	0	0	0	0	4	14
Count Total	0	0	8	1	0	4	6	0	0	7	0	3	0	0	0	0	29	0
Peak Hour	0	0	2	1	0	2	4	0	0	3	0	2	0	0	0	0	14	0

Bicycle Gailli	···· ,													
		Niwot Rd			Niwot Rd			N 79th St			N/A			
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One riour
7:00 AM	0	0	2	1	0	0	0	0	0	0	0	0	3	0
7:15 AM	0	0	1	0	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	4
8:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	2	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	2	0	0	0	0	0	0	0	0	6	0
Peak Hour	0	0	1	1	1	0	0	0	0	0	0	0	3	0

Niwot Rd N 79th St





Two	Hour	Count	Summary
1 77 0	HOUL	Count	Julilliaiv

			Niw	ot Rd			Niw	ot Rd			N 79	th St			N	/A			
Interval	Start		East	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 F	PM	0	0	52	14	0	15	48	0	0	27	0	20	0	0	0	0	176	0
4:15 F	⊃M	0	0	38	17	0	13	35	0	0	28	0	19	0	0	0	0	150	0
4:30 F	PM	0	0	44	22	0	17	32	0	0	44	0	26	0	0	0	0	185	0
4:45 F	PM	0	0	56	23	0	22	33	0	0	25	0	35	0	0	0	0	194	705
5:00 F	PM	0	0	39	31	0	12	30	0	0	32	0	18	0	0	0	0	162	691
5:15 F	PM	0	0	44	17	0	13	39	0	0	32	0	21	0	0	0	0	166	707
5:30 F	⊃M	0	0	35	16	0	15	43	0	0	33	0	21	0	0	0	0	163	685
5:45 F	PM	0	0	45	19	0	11	29	0	0	16	0	16	0	0	0	0	136	627
Count 7	Total	0	0	353	159	0	118	289	0	0	237	0	176	0	0	0	0	1,332	0
	All	0	0	183	93	0	64	134	0	0	133	0	100	0	0	0	0	-	707
Peak Hour	HV	0	0	2	1	0	0	0	0	0	2	0	1	0	0	0	0	-	6
	HV %	_	_	1%	1%	_	0%	0%	_	_	2%	_	1%	_	_	_	_	_	1%

Interval Start		Heav	y Vehicles T	otals			В	icycles Tota	Is			Pedestrians (C	Crossing Leg) 1	Γotals	
Interval Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	1	0	0	4	0	1	0	0	1	0	1	0	0	1
4:15 PM	2	0	0	1	3	1	1	0	0	2	3	3	0	3	9
4:30 PM	1	0	0	0	1	0	0	0	2	2	1	0	0	0	1
4:45 PM	1	1	0	0	2	0	2	0	0	2	3	1	0	0	4
5:00 PM	1	1	0	1	3	0	1	0	0	1	0	2	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3
5:30 PM	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2
5:45 PM	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2
Count Total	8	3	0	2	13	3	5	0	2	10	12	9	0	3	24
Peak Hour	3	2	0	1	6	0	3	0	2	5	6	4	0	0	10

Count Period: 04:00 PM - 06:00 PM Peak Hour: 04:30 PM - 05:30 PM



Heavy Vehicle Summary

		Niwo	ot Rd			Niwo	ot Rd			N 79	th St			N	/A			Dalling
Interval Start		Easth	oound			West	bound			North	bound			South	bound		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	2	0	0	0	0	0	0	1	0	1	0	0	0	0	4	0
4:15 PM	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	3	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	10
5:00 PM	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	3	9
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
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	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	0	0	5	2	0	0	0	0	0	3	0	3	0	0	0	0	13	0
Peak Hour	0	0	2	1	0	0	0	0	0	2	0	1	0	0	0	0	6	0

Bicycle Gain	····•													
		Niwot Rd			Niwot Rd			N 79th St			N/A			
Interval Start		Eastbound			Westbound			Northbound			Southbound		15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		One nour
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:15 PM	0	1	0	0	0	0	1	0	0	0	0	0	2	0
4:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	2	0
4:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	2	7
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	7
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	4
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	3
Count Total	0	2	0	1	0	0	4	0	0	0	0	0	10	0
Peak Hour	0	0	1	1	0	0	3	0	0	0	0	0	5	0

APPENDIX C

	_#	→	7	*	←	٤	•	×	/*	6	×	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		1>		1,1,4	†					ሻ	^	7
Traffic Volume (veh/h)	0	132	162	163	158	0	0	0	0	50	1920	19
Future Volume (veh/h)	0	132	162	163	158	0	0	0	0	50	1920	19
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	135	0	166	161	0				51	1959	5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	182		235	403	0				1220	2433	1085
Arrive On Green	0.00	0.10	0.00	0.11	0.36	0.00				0.68	0.68	0.68
Sat Flow, veh/h	0	1870	0	3456	1870	0				1781	3554	1585
Grp Volume(v), veh/h	0	135	0	166	161	0				51	1959	5
Grp Sat Flow(s),veh/h/ln	0	1870	0	1728	1870	0				1781	1777	1585
Q Serve(g_s), s	0.0	6.3	0.0	4.2	5.8	0.0				8.0	34.9	0.1
Cycle Q Clear(g_c), s	0.0	6.3	0.0	4.2	5.8	0.0				8.0	34.9	0.1
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	182		235	403	0				1220	2433	1085
V/C Ratio(X)	0.00	0.74		0.70	0.40	0.00				0.04	0.81	0.00
Avail Cap(c_a), veh/h	0	384		288	634	0				1220	2433	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.92	0.92	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	39.5	0.0	39.0	24.5	0.0				4.6	10.0	4.5
Incr Delay (d2), s/veh	0.0	5.9	0.0	5.4	0.6	0.0				0.0	2.1	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
%ile BackOfQ(50%),veh/ln	0.0	3.2	0.0	1.9	2.4	0.0				0.3	11.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	45.4	0.0	44.4	25.1	0.0				4.6	12.0	4.5
LnGrp LOS		D		D	С					Α	В	Α
Approach Vol, veh/h		135			327						2015	
Approach Delay, s/veh		45.4			34.9						11.8	
Approach LOS		D			С						В	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			10.6	13.2		66.1		23.9				
Change Period (Y+Rc), s			4.5	4.5		4.5		23.9 4.5				
			4.5 7.5	18.5		50.5		30.5				
Max Green Setting (Gmax), s			6.2									
Max Q Clear Time (g_c+l1), s				8.3		36.9		7.8				
Green Ext Time (p_c), s			0.1	0.4		11.2		8.0				
Intersection Summary			10.7									
HCM 7th Control Delay, s/veh HCM 7th LOS			16.7 B									
Notes			_									

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

	Ĺ	*	-	$\mathbb{K}_{\mathbb{H}}$	←
Phase Number	1	3	4	6	8
Movement	SWL	WBL	EBT	SWTL	WBT
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	None	None	None	C-Max	None
Maximum Split (s)	55	12	23	55	35
Maximum Split (%)	61.1%	13.3%	25.6%	61.1%	38.9%
Minimum Split (s)	9.5	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)			7	7	7
Flash Don't Walk (s)			11	11	11
Dual Entry	No	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	83	48	60	83	48
End Time (s)	48	60	83	48	83
Yield/Force Off (s)	43.5	55.5	78.5	43.5	78.5
Yield/Force Off 170(s)	43.5	55.5	67.5	32.5	67.5
Local Start Time (s)	0	55	67	0	55
Local Yield (s)	50.5	62.5	85.5	50.5	85.5
Local Yield 170(s)	50.5	62.5	74.5	39.5	74.5
Intersection Summary					
Cycle Length			90		

Cycle Length 90
Control Type Actuated-Coordinated
Natural Cycle 90

Offset: 83 (92%), Referenced to phase 2: and 6:SWTL, Start of Green





	-	*	←	6	×	</th
Lane Group	EBT	WBL	WBT	SWL	SWT	SWR
Lane Group Flow (vph)	300	166	161	51	1959	19
v/c Ratio	0.86	0.59	0.27	0.05	0.97	0.02
Control Delay (s/veh)	57.2	49.9	29.0	9.1	33.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.2	49.9	29.0	9.1	33.1	0.1
Queue Length 50th (ft)	155	49	56	12	537	0
Queue Length 95th (ft)	#289	82	148	28	#744	0
Internal Link Dist (ft)	563		393		304	
Turn Bay Length (ft)		250		300		300
Base Capacity (vph)	368	286	631	1015	2030	939
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.58	0.26	0.05	0.97	0.02
Intersection Summary						

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	≯	→	7	*	+	٤	•	×	<i>></i>	6	×	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		ĵ»		1,1	†					*	^	7
Traffic Volume (veh/h)	0	113	114	77	205	0	0	0	0	51	1056	47
Future Volume (veh/h)	0	113	114	77	205	0	0	0	0	51	1056	47
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	119	0	81	216	0				54	1112	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	167		167	350	0				1269	2533	1130
Arrive On Green	0.00	0.09	0.00	0.02	0.06	0.00				0.71	0.71	0.71
Sat Flow, veh/h	0	1870	0	3456	1870	0				1781	3554	1585
Grp Volume(v), veh/h	0	119	0	81	216	0				54	1112	21
Grp Sat Flow(s),veh/h/ln	0	1870	0	1728	1870	0				1781	1777	1585
Q Serve(g_s), s	0.0	5.6	0.0	2.1	10.1	0.0				8.0	11.8	0.3
Cycle Q Clear(g_c), s	0.0	5.6	0.0	2.1	10.1	0.0				8.0	11.8	0.3
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	167		167	350	0				1269	2533	1130
V/C Ratio(X)	0.00	0.71		0.49	0.62	0.00				0.04	0.44	0.02
Avail Cap(c_a), veh/h	0	468		288	717	0				1269	2533	1130
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.94	0.94	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	39.9	0.0	43.2	39.1	0.0				3.8	5.4	3.8
Incr Delay (d2), s/veh	0.0	5.6	0.0	2.1	1.7	0.0				0.0	0.1	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
%ile BackOfQ(50%),veh/ln	0.0	2.8	0.0	0.9	5.2	0.0				0.2	3.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	45.4	0.0	45.2	40.7	0.0				3.8	5.5	3.8
LnGrp LOS		D		D	D					Α	Α	Α
Approach Vol, veh/h		119			297						1187	
Approach Delay, s/veh		45.4			42.0						5.4	
Approach LOS		D			D						Α	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			8.8	12.5		68.6		21.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			7.5	22.5		46.5		34.5				
Max Q Clear Time (g_c+l1), s			4.1	7.6		13.8		12.1				
\ O			0.1	0.5		10.4		1.2				
Green Ext Time (p_c), s			0.1	0.5		10.4		1.2				
Intersection Summary HCM 7th Control Delay, s/veh			15.2									
HCM 7th LOS			15.2 B									
Notes												

	Ĺ	*	-	$\mathcal{H}_{\rm b}$	←
Phase Number	1	3	4	6	8
Movement	SWL	WBL	EBT	SWTL	WBT
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	None	None	None	C-Max	None
Maximum Split (s)	51	12	27	51	39
Maximum Split (%)	56.7%	13.3%	30.0%	56.7%	43.3%
Minimum Split (s)	9.5	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)			7	7	7
Flash Don't Walk (s)			11	11	11
Dual Entry	No	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	83	44	56	83	44
End Time (s)	44	56	83	44	83
Yield/Force Off (s)	39.5	51.5	78.5	39.5	78.5
Yield/Force Off 170(s)	39.5	51.5	67.5	28.5	67.5
Local Start Time (s)	0	51	63	0	51
Local Yield (s)	46.5	58.5	85.5	46.5	85.5
Local Yield 170(s)	46.5	58.5	74.5	35.5	74.5
Intersection Summary					
Cycle Length			90		

Offset: 83 (92%), Referenced to phase 2: and 6:SWTL, Start of Green





	→	_	←	4	×	1
Lane Group	EBT	WBL	WBT	SWL	SWT	SWR
Lane Group Flow (vph)	239	81	216	54	1112	49
v/c Ratio	0.70	0.30	0.42	0.05	0.50	0.05
Control Delay (s/veh)	37.6	40.6	34.9	9.1	11.7	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.6	40.6	34.9	9.1	11.7	1.4
Queue Length 50th (ft)	100	24	116	12	178	0
Queue Length 95th (ft)	165	48	178	32	278	10
Internal Link Dist (ft)	563		393		304	
Turn Bay Length (ft)		250		300		300
Base Capacity (vph)	474	286	714	1104	2208	1015
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.28	0.30	0.05	0.50	0.05
Intersection Summary						

	_≉	→	7	*	+	٤	•	×	<i>></i>	Ĺ	×	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	, j	1			∱ }		7	^	7			
Traffic Volume (veh/h)	27	169	0	0	208	31	108	726	94	0	0	0
Future Volume (veh/h)	27	169	0	0	208	31	108	726	94	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	28	176	0	0	217	0	432	756	64			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.25	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	169	320	0	0	330		1299	2591	1156			
Arrive On Green	0.06	0.34	0.00	0.00	0.09	0.00	0.73	0.73	0.73			
Sat Flow, veh/h	1781	1870	0	0	3741	0	1781	3554	1585			
Grp Volume(v), veh/h	28	176	0	0	217	0	432	756	64			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	0	1781	1777	1585			
Q Serve(g_s), s	1.2	6.9	0.0	0.0	5.3	0.0	7.8	6.6	1.0			
Cycle Q Clear(g_c), s	1.2	6.9	0.0	0.0	5.3	0.0	7.8	6.6	1.0			
Prop In Lane	1.00	0.0	0.00	0.00	0.0	0.00	1.00	0.0	1.00			
Lane Grp Cap(c), veh/h	169	320	0	0	330	0.00	1299	2591	1156			
V/C Ratio(X)	0.17	0.55	0.00	0.00	0.66		0.33	0.29	0.06			
Avail Cap(c_a), veh/h	248	675	0	0	849		1299	2591	1156			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.59	0.59	0.00	0.00	1.00	0.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	32.9	26.8	0.0	0.0	39.4	0.0	4.4	4.2	3.4			
Incr Delay (d2), s/veh	0.3	0.9	0.0	0.0	2.2	0.0	0.1	0.1	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			
%ile BackOfQ(50%),veh/ln	0.5	2.8	0.0	0.0	2.4	0.0	2.3	1.9	0.3			
Unsig. Movement Delay, s/veh		2.0	0.0	0.0	۷.٦	0.0	2.0	1.5	0.0			
LnGrp Delay(d), s/veh	33.2	27.7	0.0	0.0	41.6	0.0	4.5	4.3	3.5			
LnGrp LOS	00.2 C	Z1.7	0.0	0.0	71.0 D	0.0	4.5 A	4.5 A	0.5 A			
Approach Vol, veh/h		204			217			1252	А			
Approach Delay, s/veh		28.4			41.6			4.3				
Approach LOS		20.4 C			41.0 D			4.3 A				
• •					ט		_					
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		70.1		19.9			7.0	12.9				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		48.5		32.5			6.5	21.5				
Max Q Clear Time (g_c+l1), s		9.8		8.9			3.2	7.3				
Green Ext Time (p_c), s		8.4		0.9			0.0	1.1				
Intersection Summary												
HCM 7th Control Delay, s/veh			12.1									
HCM 7th LOS			В									
Notes												

	**		•	_≠	•
Phase Number	2	4	5	7	8
Movement	NETL	EBTL	NEL	EBL	WBT
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	C-Max	None	None	None	None
Maximum Split (s)	53	37	53	11	26
Maximum Split (%)	58.9%	41.1%	58.9%	12.2%	28.9%
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7			7
Flash Don't Walk (s)	11	11			11
Dual Entry	Yes	Yes	No	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	8	61	8	61	72
End Time (s)	61	8	61	72	8
Yield/Force Off (s)	56.5	3.5	56.5	67.5	3.5
Yield/Force Off 170(s)	45.5	82.5	56.5	67.5	82.5
Local Start Time (s)	0	53	0	53	64
Local Yield (s)	48.5	85.5	48.5	59.5	85.5
Local Yield 170(s)	37.5	74.5	48.5	59.5	74.5
Intersection Summary					
Cycle Length			90		
Control Type	Actu	ated-Coo			

Offset: 8 (9%), Referenced to phase 2:NETL and 6:, Start of Green





	≭	→	•	•	×	/
Lane Group	EBL	EBT	WBT	NEL	NET	NER
Lane Group Flow (vph)	28	176	249	432	756	98
v/c Ratio	0.14	0.51	0.51	0.34	0.30	0.08
Control Delay (s/veh)	29.1	40.0	37.0	7.0	6.0	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.1	40.0	37.0	7.0	6.0	1.7
Queue Length 50th (ft)	14	90	63	67	59	0
Queue Length 95th (ft)	m13	m64	100	35	133	17
Internal Link Dist (ft)		393	753		562	
Turn Bay Length (ft)	100			300		300
Base Capacity (vph)	208	672	842	1263	2527	1158
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.26	0.30	0.34	0.30	0.08
Intersection Summary						

m Volume for 95th percentile queue is metered by upstream signal.

	_#	→	7	*	←	٤	•	×	/	6	×	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ሻ	†			↑ ₽		ሻ	^	7			
Traffic Volume (veh/h)	78	124	0	0	156	48	119	2047	110	0	0	0
Future Volume (veh/h)	78	124	0	0	156	48	119	2047	110	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	83	132	0	0	166	0	127	2178	77			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	216	339	0	0	267		1281	2555	1139			
Arrive On Green	0.02	0.06	0.00	0.00	0.08	0.00	0.72	0.72	0.72			
Sat Flow, veh/h	1781	1870	0	0	3741	0	1781	3554	1585			
Grp Volume(v), veh/h	83	132	0	0	166	0	127	2178	77			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	0	1781	1777	1585			
Q Serve(g_s), s	3.7	6.1	0.0	0.0	4.1	0.0	1.9	40.1	1.3			
Cycle Q Clear(g_c), s	3.7	6.1	0.0	0.0	4.1	0.0	1.9	40.1	1.3			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	216	339	0	0	267		1281	2555	1139			
V/C Ratio(X)	0.38	0.39	0.00	0.00	0.62		0.10	0.85	0.07			
Avail Cap(c_a), veh/h	225	592	0	0	730		1281	2555	1139			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.79	0.79	0.00	0.00	1.00	0.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	35.4	37.5	0.0	0.0	40.4	0.0	3.8	9.2	3.7			
Incr Delay (d2), s/veh	0.9	0.6	0.0	0.0	2.3	0.0	0.0	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			
%ile BackOfQ(50%),veh/ln	1.7	3.0	0.0	0.0	1.8	0.0	0.6	12.8	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.3	38.1	0.0	0.0	42.7	0.0	3.9	12.2	3.8			
LnGrp LOS	D	D			D		Α	В	Α			
Approach Vol, veh/h		215			166			2382				
Approach Delay, s/veh		37.4			42.7			11.5				
Approach LOS		D			D			В				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		69.2		20.8			9.5	11.3				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		52.5		28.5			5.5	18.5				
Max Q Clear Time (g_c+l1), s		42.1		8.1			5.7	6.1				
Green Ext Time (p_c), s		9.4		0.6			0.0	0.7				
Intersection Summary												
HCM 7th Control Delay, s/veh			15.4									
HCM 7th LOS			В									
Notes												

	**		•	- ≉	←
Phase Number	2	4	5	7	8
Movement	NETL	EBTL	NEL	EBL	WBT
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	C-Max	None	None	None	None
Maximum Split (s)	57	33	57	10	23
Maximum Split (%)	63.3%	36.7%	63.3%	11.1%	25.6%
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7			7
Flash Don't Walk (s)	11	11			11
Dual Entry	Yes	Yes	No	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	14	71	14	71	81
End Time (s)	71	14	71	81	14
Yield/Force Off (s)	66.5	9.5	66.5	76.5	9.5
Yield/Force Off 170(s)	55.5	88.5	66.5	76.5	88.5
Local Start Time (s)	0	57	0	57	67
Local Yield (s)	52.5	85.5	52.5	62.5	85.5
Local Yield 170(s)	41.5	74.5	52.5	62.5	74.5
Intersection Summary					
Cycle Length			90		

Offset: 14 (16%), Referenced to phase 2:NETL and 6:, Start of Green

Splits and Phases: 2: Diagonal Northbound & Niwot



	_#	→	←	•	×	/
Lane Group	EBL	EBT	WBT	NEL	NET	NER
Lane Group Flow (vph)	83	132	217	127	2178	117
v/c Ratio	0.40	0.35	0.52	0.10	0.88	0.10
Control Delay (s/veh)	22.9	21.3	34.5	5.6	17.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.9	21.3	34.5	5.6	17.8	1.4
Queue Length 50th (ft)	19	35	50	22	476	0
Queue Length 95th (ft)	45	73	82	46	#792	17
Internal Link Dist (ft)		393	753		562	
Turn Bay Length (ft)	100			300		300
Base Capacity (vph)	209	589	734	1237	2474	1141
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.22	0.30	0.10	0.88	0.10
Intersection Summary						

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		4	f)		W	
Traffic Vol, veh/h	28	226	233	4	8	16
Future Vol, veh/h	28	226	233	4	8	16
Conflicting Peds, #/hr		0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	· -	None .
Storage Length	-	_	-	-	0	-
Veh in Median Storag	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	266	274	5	9	19
				_	•	
Maina/Min	Materia		4-1-0		M:	
Major/Minor	Major1		/lajor2		Minor2	070
Conflicting Flow All	279	0	-	0	608	276
Stage 1	-	-	-	-	276	-
Stage 2	_	-	-	-	332	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1284	-	-	-	459	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	727	-
Platoon blocked, %		_	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	445	762
Mov Cap-2 Maneuver		-	-	-	445	-
Stage 1	-	-	-	-	747	-
Stage 2	_	-	-	-	727	-
3 -						
Approach	EB		WB		SW	
HCM Ctrl Dly, s/v	0.87		0		11.13	
HCM LOS	0.07		U		В	
I IOWI LOO					ט	
Minor Lane/Major Mvr	nt	EBL	EBT	WBT	WBRS	
Capacity (veh/h)		198	-	-	-	616
HCM Lane V/C Ratio		0.026	-	-	-	0.046
HCM Ctrl Dly (s/v)		7.9	0	-	-	11.1
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q(veh	۱)	0.1	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		र्स	î,		W	
Traffic Vol, veh/h	38	202	190	10	19	29
Future Vol, veh/h	38	202	190	10	19	29
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	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	210	198	10	20	30
Major/Minor	Major1	N	//ajor2	ı	Minor2	
Conflicting Flow All	208	0	- najoiz	0	493	203
Stage 1	200	-	-	-	203	203
Stage 2	-	_	-	-	290	_
Critical Hdwy	4.12	_	-	-	6.42	6.22
Critical Hdwy Stg 1	4.12	_	-	-	5.42	0.22
Critical Hdwy Stg 2	_	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	- 2 210
Pot Cap-1 Maneuver	1363	-	-	-	536	838
	1303	-	-	-	831	030
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	100	-
Platoon blocked, %	1262	-	-	-	E40	020
Mov Cap-1 Maneuver	1363	-	-	-	518 510	838
Mov Cap-2 Maneuver	-	-	-	-	518	-
Stage 1	-	-	-	-	804	-
Stage 2	-	-	-	-	760	-
Approach	EB		WB		SW	
HCM Ctrl Dly, s/v	1.22		0		10.78	
HCM LOS					В	
Minor Lane/Major Mvn	nt	EBL	EBT	WBT	WBRS	SWLn1
Capacity (veh/h)		285	-	-	-	673
HCM Lane V/C Ratio		0.029	_	_	_	0.074
HCM Ctrl Dly (s/v)		7.7	0	_	_	10.8
HCM Lane LOS		Α	Ä	_	_	В
HCM 95th %tile Q(veh	1)	0.1	-	_	_	0.2
2 22 /0o =\/1011	,					- ·-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		ર્ન	4î		W	
Traffic Vol, veh/h	4	228	224	60	9	0
Future Vol, veh/h	4	228	224	60	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	268	264	71	11	0
Major/Minor	Major1	N	//ajor2	ı	Minor2	
Conflicting Flow All	334	0	- najoiz	0	576	299
Stage 1	- -	-	_	-	299	
Stage 2	_	_	_	_	278	_
Critical Hdwy	4.12	_	_	_	6.42	6.22
Critical Hdwy Stg 1		_	_	_	5.42	-
Critical Hdwy Stg 2	_	_	_	_	5.42	_
Follow-up Hdwy	2.218	_	_	_		3.318
Pot Cap-1 Maneuver	1225	_	_	_	479	741
Stage 1		_	_	_	752	-
Stage 2	_	_	_	_	769	_
Platoon blocked, %		_	_	_		
Mov Cap-1 Maneuver	1225	_	_	_	477	741
Mov Cap-2 Maneuver		_	_	_	477	-
Stage 1	_	_	_	-	749	_
Stage 2	-	_	_	_	769	_
J -						
Approach	EB		WB		SE	
HCM Ctrl Dly, s/v	0.14		0		12.72	
HCM LOS	V. 1∃		J		В	
Minor Lane/Major Mvr	nt	EBL	FRT	WBT	WRR 9	SFI n1
Capacity (veh/h)		31		**D1	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	477
HCM Lane V/C Ratio		0.004	-	-	-	0.022
HCM Ctrl Dly (s/v)		7.9	0	-	-	12.7
HCM Lane LOS		7.9 A	A	-	-	12.7 B
HCM 95th %tile Q(veh	1)	0	-	-	-	0.1
	.,	Ū				J. 1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		4	î,		W	
Traffic Vol, veh/h	1	222	179	88	57	0
Future Vol, veh/h	1	222	179	88	57	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storag	je,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	231	186	92	59	0
Major/Minor	Major1	N	//ajor2	ľ	Minor2	
Conflicting Flow All	278	0	-	0	466	232
Stage 1	-	-	-	-	232	-
Stage 2	-	-	-	-	233	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	_	-	-	5.42	-
Critical Hdwy Stg 2	-	_	-	-	5.42	-
Follow-up Hdwy	2.218	_	-	-	3.518	3.318
Pot Cap-1 Maneuver	1285	_	-	-	555	807
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	805	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1285	-	-	-	555	807
Mov Cap-2 Maneuver	-	-	-	-	555	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	805	-
Approach	EB		WB		SE	
HCM Ctrl Dly, s/v	0.03		0		12.27	
HCM LOS					В	
Minor Lane/Major Mvi	mt	EBL	EBT	WBT	WBR S	SELn1
Capacity (veh/h)		8	-	-	-	555
HCM Lane V/C Ratio		0.001	-	-	_	0.107
HCM Ctrl Dly (s/v)		7.8	0	-	_	12.3
HCM Lane LOS		A	A	-	-	В
HCM 95th %tile Q(vel	h)	0	-	-	-	0.4
,						

Intersection						
Intersection Delay, s/veh	11.2					
Intersection LOS	В					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ĵ.			ર્ન	W	
Traffic Vol, veh/h	198	49	114	208	66	63
Future Vol., veh/h	198	49	114	208	66	63
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	233	58	134	245	78	74
Number of Lanes	1	0	0	1	1	0
	EB	·	WB	•	NB	·
Approach Opposing Approach	WB		EB		יאט	
Opposing Lanes	1		1		0	
Conflicting Approach Left	1		NB		EB	
Conflicting Lanes Left	0		1		1	
Conflicting Approach Right	NB		ı		WB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay, s/veh	10.5		12.4		9.8	
HCM LOS	В		В		3.0 A	
TIOWI LOO	b				Λ	
Lane		NBLn1	EBLn1	WBLn1		
		51%	0%	35%		
Vol Thru %		0%	80%	35% 65%		
Vol Pight %		49%	20%	0%		
Vol Right, %						
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		129	247	322		
LT Vol		66	100	114		
Through Vol		0	198	208		
RT Vol		63	49	0		
Lane Flow Rate		152	291	379		
Geometry Grp		1	1	1		
Degree of Util (X)		0.221	0.376	0.498		
Departure Headway (Hd)		5.244	4.652	4.733		
Convergence, Y/N		Yes	Yes	Yes		
Cap		678	767	758		
Service Time		3.32	2.712	2.79		
HCM Cantrol Delay a fund		0.224	0.379	0.5		
HCM Control Delay, s/veh		9.8	10.5	12.4		
HCM Lane LOS		A	В	В		
HCM 95th-tile Q		8.0	1.8	2.8		

Intersection						
Intersection Delay, s/veh	10.7					
Intersection LOS	В					
	_					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u> </u>	LDIT	*****	4	¥	HEIT
Traffic Vol, veh/h	183	93	64	134	133	100
Future Vol, veh/h	183	93	64	134	133	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow		102	70	147	146	110
	201					
Number of Lanes	1	0	0	1	1	0
Approach	EB		WB		NB	
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left			NB		EB	
Conflicting Lanes Left	0		1		1	
Conflicting Approach Right	NB				WB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay, s/veh	10.8		10.3		10.8	
HCM LOS	В		В		В	
Lane		NBLn1	EBLn1	WBLn1		
Vol Left, %		57%	0%	32%		
Vol Thru, %		0%	66%	68%		
Vol Right, %		43%	34%	0%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		233	276	198		
LT Vol		133	0	64		
Through Vol		0	183	134		
RT Vol		100	93	0		
Lane Flow Rate		256	303	218		
Geometry Grp		250	303	1		
		0.355	0.393	0.303		
Degree of Util (X)		4.99	4.66			
Departure Headway (Hd)				5.01		
Convergence, Y/N		Yes	Yes	Yes		
Cap		714	767	711		
Service Time		3.067	2.728	3.087		
HCM Lane V/C Ratio		0.359	0.395	0.307		
HCM Control Delay, s/veh		10.8	10.8	10.3		
HCM Lane LOS		В	В	В		
HCM 95th-tile Q		1.6	1.9	1.3		

APPENDIX D

	_#	→	7	*	←	٤	•	×	/*	4	×	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		1 >		1,1,4	†					ሻ	^	7
Traffic Volume (veh/h)	0	139	170	172	166	0	0	0	0	53	2016	20
Future Volume (veh/h)	0	139	170	172	166	0	0	0	0	53	2016	20
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	142	0	176	169	0				54	2057	6
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	189		246	416	0				1207	2408	1074
Arrive On Green	0.00	0.10	0.00	0.12	0.37	0.00				0.68	0.68	0.68
Sat Flow, veh/h	0	1870	0	3456	1870	0				1781	3554	1585
Grp Volume(v), veh/h	0	142	0	176	169	0				54	2057	6
Grp Sat Flow(s),veh/h/ln	0	1870	0	1728	1870	0				1781	1777	1585
Q Serve(g_s), s	0.0	6.6	0.0	4.4	6.0	0.0				0.9	39.9	0.1
Cycle Q Clear(g_c), s	0.0	6.6	0.0	4.4	6.0	0.0				0.9	39.9	0.1
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	189		246	416	0				1207	2408	1074
V/C Ratio(X)	0.00	0.75		0.72	0.41	0.00				0.04	0.85	0.01
Avail Cap(c_a), veh/h	0	405		288	655	0				1207	2408	1074
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.91	0.91	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	39.3	0.0	38.8	23.9	0.0				4.8	11.1	4.7
Incr Delay (d2), s/veh	0.0	5.8	0.0	6.3	0.6	0.0				0.0	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
%ile BackOfQ(50%),veh/ln	0.0	3.3	0.0	2.0	2.5	0.0				0.3	13.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	45.2	0.0	45.1	24.5	0.0				4.8	14.3	4.7
LnGrp LOS		D		D	С					Α	В	Α
Approach Vol, veh/h		142			345						2117	
Approach Delay, s/veh		45.2			35.0						14.0	
Approach LOS		D			С						В	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			10.9	13.6		65.5		24.5				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			4.5 7.5	4.5 19.5		4.5		31.5				
• ()			6.4	8.6		41.9		8.0				
Max Q Clear Time (g_c+l1), s			0.4	0.5		6.8		0.9				
Green Ext Time (p_c), s			0.1	0.5		0.0		0.9				
Intersection Summary			40.5									
HCM 7th Control Delay, s/veh HCM 7th LOS			18.5 B									
Notes			5									

	Ĺ	_	-	$\mathbb{K}_{\mathbb{R}}$	←
Phase Number	1	3	4	6	8
Movement	SWL	WBL	EBT	SWTL	WBT
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	None	None	None	C-Max	None
Maximum Split (s)	54	12	24	54	36
Maximum Split (%)	60.0%	13.3%	26.7%	60.0%	40.0%
Minimum Split (s)	9.5	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)			7	7	7
Flash Don't Walk (s)			11	11	11
Dual Entry	No	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	83	47	59	83	47
End Time (s)	47	59	83	47	83
Yield/Force Off (s)	42.5	54.5	78.5	42.5	78.5
Yield/Force Off 170(s)	42.5	54.5	67.5	31.5	67.5
Local Start Time (s)	0	54	66	0	54
Local Yield (s)	49.5	61.5	85.5	49.5	85.5
Local Yield 170(s)	49.5	61.5	74.5	38.5	74.5
Intersection Summary					
Cycle Length			90		
Cambral Tura	۸ م ۲۰۰۰	atad Caa	rdinatad		

Offset: 83 (92%), Referenced to phase 2: and 6:SWTL, Start of Green





1: Niwot & Diagonal Southbound

	→	_	←	6	×	</th
Lane Group	EBT	WBL	WBT	SWL	SWT	SWR
Lane Group Flow (vph)	315	176	169	54	2057	20
v/c Ratio	0.87	0.62	0.27	0.05	1.03	0.02
Control Delay (s/veh)	57.3	50.4	27.9	9.6	50.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.3	50.4	27.9	9.6	50.6	0.1
Queue Length 50th (ft)	164	53	58	13	~681	0
Queue Length 95th (ft)	#303	86	154	30	#819	0
Internal Link Dist (ft)	563		393		304	
Turn Bay Length (ft)		250		300		300
Base Capacity (vph)	384	286	652	996	1992	922
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.62	0.26	0.05	1.03	0.02
Intersection Summary						

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	_≉	→	7	*	•	٤	•	×	/	4	×	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		^		1,4	†					ሻ	^	7
Traffic Volume (veh/h)	0	119	120	82	215	0	0	0	0	55	1109	49
Future Volume (veh/h)	0	119	120	82	215	0	0	0	0	55	1109	49
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	125	0	86	226	0				58	1167	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	173		170	358	0				1262	2517	1123
Arrive On Green	0.00	0.09	0.00	0.10	0.38	0.00				0.71	0.71	0.71
Sat Flow, veh/h	0	1870	0	3456	1870	0				1781	3554	1585
Grp Volume(v), veh/h	0	125	0	86	226	0				58	1167	24
Grp Sat Flow(s),veh/h/ln	0	1870	0	1728	1870	0				1781	1777	1585
Q Serve(g_s), s	0.0	5.8	0.0	2.1	8.8	0.0				0.9	12.8	0.4
Cycle Q Clear(g_c), s	0.0	5.8	0.0	2.1	8.8	0.0				0.9	12.8	0.4
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	173		170	358	0				1262	2517	1123
V/C Ratio(X)	0.00	0.72		0.51	0.63	0.00				0.05	0.46	0.02
Avail Cap(c_a), veh/h	0	468		250	696	0				1262	2517	1123
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.93	0.93	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	39.7	0.0	39.5	25.2	0.0				4.0	5.7	3.9
Incr Delay (d2), s/veh	0.0	5.6	0.0	2.2	1.7	0.0				0.0	0.1	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
%ile BackOfQ(50%),veh/ln	0.0	2.9	0.0	0.9	3.5	0.0				0.3	3.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	45.3	0.0	41.7	26.9	0.0				4.0	5.8	3.9
LnGrp LOS		D		D	С					A	Α	Α
Approach Vol, veh/h		125			312						1249	
Approach Delay, s/veh		45.3			31.0						5.7	
Approach LOS		D			С						Α	
Timer - Assigned Phs		_	3	4		6		8				
Phs Duration (G+Y+Rc), s			8.9	12.8		68.3		21.7				
Change Period (Y+Rc), s			6.9 4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			4.5 6.5			4.5 47.5		33.5				
• ()			6.5 4.1	22.5 7.8		47.5 14.8		33.5 10.8				
Max Q Clear Time (g_c+l1), s			0.0	0.5		11.1		1.2				
Green Ext Time (p_c), s			0.0	0.5		11.1		1.2				
Intersection Summary			40.0									
HCM 7th Control Delay, s/veh			13.3									
HCM 7th LOS			В									
Notes												

	Ĺ	*	-	\mathbb{M}_{μ}	•
Phase Number	1	3	4	6	8
Movement	SWL	WBL	EBT	SWTL	WBT
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	None	None	None	C-Max	None
Maximum Split (s)	52	11	27	52	38
Maximum Split (%)	57.8%	12.2%	30.0%	57.8%	42.2%
Minimum Split (s)	9.5	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)			7	7	7
Flash Don't Walk (s)			11	11	11
Dual Entry	No	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	83	45	56	83	45
End Time (s)	45	56	83	45	83
Yield/Force Off (s)	40.5	51.5	78.5	40.5	78.5
Yield/Force Off 170(s)	40.5	51.5	67.5	29.5	67.5
Local Start Time (s)	0	52	63	0	52
Local Yield (s)	47.5	58.5	85.5	47.5	85.5
Local Yield 170(s)	47.5	58.5	74.5	36.5	74.5
Intersection Summary					
Cycle Length			90		

Offset: 83 (92%), Referenced to phase 2: and 6:SWTL, Start of Green





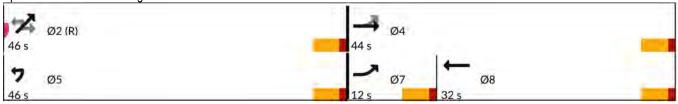
	→	*	←	6	×	~
Lane Group	EBT	WBL	WBT	SWL	SWT	SWR
Lane Group Flow (vph)	251	86	226	58	1167	52
v/c Ratio	0.71	0.36	0.44	0.05	0.53	0.05
Control Delay (s/veh)	38.0	52.9	33.5	9.0	12.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.0	52.9	33.5	9.0	12.0	1.6
Queue Length 50th (ft)	106	26	107	12	190	0
Queue Length 95th (ft)	172	51	101	33	297	11
Internal Link Dist (ft)	563		393		304	
Turn Bay Length (ft)		250		300		300
Base Capacity (vph)	474	247	693	1105	2210	1016
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.35	0.33	0.05	0.53	0.05
Intersection Summary						

	_#	→	7	*	+	٤	*	×	<i>></i>	6	×	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	7	†			∱ ∱		*	^	7			
Traffic Volume (veh/h)	28	178	0	0	219	34	113	762	100	0	0	0
Future Volume (veh/h)	28	178	0	0	219	34	113	762	100	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	29	185	0	0	228	0	452	794	70			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.25	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	174	332	0	0	351		1287	2568	1145			
Arrive On Green	0.06	0.35	0.00	0.00	0.10	0.00	0.72	0.72	0.72			
Sat Flow, veh/h	1781	1870	0	0	3741	0	1781	3554	1585			
Grp Volume(v), veh/h	29	185	0	0	228	0	452	794	70			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	0	1781	1777	1585			
Q Serve(g_s), s	1.3	7.2	0.0	0.0	5.6	0.0	8.5	7.2	1.2			
Cycle Q Clear(g_c), s	1.3	7.2	0.0	0.0	5.6	0.0	8.5	7.2	1.2			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	174	332	0	0	351		1287	2568	1145			
V/C Ratio(X)	0.17	0.56	0.00	0.00	0.65		0.35	0.31	0.06			
Avail Cap(c_a), veh/h	271	821	0	0	1086		1287	2568	1145			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.58	0.58	0.00	0.00	1.00	0.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	32.4	26.2	0.0	0.0	39.1	0.0	4.6	4.5	3.6			
Incr Delay (d2), s/veh	0.3	0.9	0.0	0.0	2.0	0.0	0.2	0.1	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			
%ile BackOfQ(50%),veh/ln	0.5	2.9	0.0	0.0	2.5	0.0	2.5	2.1	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.7	27.1	0.0	0.0	41.1	0.0	4.8	4.5	3.6			
LnGrp LOS	С	С			D		Α	Α	Α			
Approach Vol, veh/h		214			228			1316				
Approach Delay, s/veh		27.8			41.1			4.6				
Approach LOS		C			D			A				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		69.5		20.5			7.1	13.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		41.5		39.5			7.5	27.5				
Max Q Clear Time (g_c+l1), s		10.5		9.2			3.3	7.6				
Green Ext Time (p_c), s		8.6		1.1			0.0	1.3				
Intersection Summary												
HCM 7th Control Delay, s/veh			12.1									
HCM 7th LOS			В									
Notes												

	*		•	⊸ #	←
Phase Number	2	4	5	7	8
Movement	NETL	EBTL	NEL	EBL	WBT
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	C-Max	None	None	None	None
Maximum Split (s)	46	44	46	12	32
Maximum Split (%)	51.1%	48.9%	51.1%	13.3%	35.6%
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7			7
Flash Don't Walk (s)	11	11			11
Dual Entry	Yes	Yes	No	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	14	60	14	60	72
End Time (s)	60	14	60	72	14
Yield/Force Off (s)	55.5	9.5	55.5	67.5	9.5
Yield/Force Off 170(s)	44.5	88.5	55.5	67.5	88.5
Local Start Time (s)	0	46	0	46	58
Local Yield (s)	41.5	85.5	41.5	53.5	85.5
Local Yield 170(s)	30.5	74.5	41.5	53.5	74.5
Intersection Summary					
Cycle Length			90		

Offset: 14 (16%), Referenced to phase 2:NETL and 6:, Start of Green

Splits and Phases: 2: Diagonal Northbound & Niwot



	≠	→	•	•	×	/
Lane Group	EBL	EBT	WBT	NEL	NET	NER
Lane Group Flow (vph)	29	185	263	452	794	104
v/c Ratio	0.14	0.51	0.52	0.36	0.32	0.09
Control Delay (s/veh)	27.4	38.7	36.4	7.6	6.5	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.4	38.7	36.4	7.6	6.5	1.8
Queue Length 50th (ft)	14	93	66	74	65	0
Queue Length 95th (ft)	m12	m62	104	39	148	19
Internal Link Dist (ft)		393	753		562	
Turn Bay Length (ft)	100			300		300
Base Capacity (vph)	224	817	1073	1247	2494	1146
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.25	0.36	0.32	0.09
Intersection Summary						

m Volume for 95th percentile queue is metered by upstream signal.

	_#	→	7	*	+	٤	*	×	<i>></i>	6	×	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	J.	†			∱ ∱		7	^	7			
Traffic Volume (veh/h)	82	131	0	0	165	51	125	2149	117	0	0	0
Future Volume (veh/h)	82	131	0	0	165	51	125	2149	117	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	87	139	0	0	176	0	133	2286	84			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	220	348	0	0	279		1271	2537	1131			
Arrive On Green	0.12	0.37	0.00	0.00	0.08	0.00	0.71	0.71	0.71			
Sat Flow, veh/h	1781	1870	0	0	3741	0	1781	3554	1585			
Grp Volume(v), veh/h	87	139	0	0	176	0	133	2286	84			
Grp Sat Flow(s), veh/h/ln	1781	1870	0	0	1777	0	1781	1777	1585			
Q Serve(g_s), s	3.8	4.9	0.0	0.0	4.3	0.0	2.1	46.4	1.4			
Cycle Q Clear(g_c), s	3.8	4.9	0.0	0.0	4.3	0.0	2.1	46.4	1.4			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	220	348	0	0	279	0.00	1271	2537	1131			
V/C Ratio(X)	0.40	0.40	0.00	0.00	0.63		0.10	0.90	0.07			
Avail Cap(c_a), veh/h	245	613	0	0	730		1271	2537	1131			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.78	0.78	0.00	0.00	1.00	0.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	31.7	24.5	0.0	0.0	40.2	0.0	4.0	10.3	3.9			
Incr Delay (d2), s/veh	0.9	0.6	0.0	0.0	2.3	0.0	0.0	4.9	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.0	0.0	0.0	2.0	0.0	0.6	15.4	0.4			
Unsig. Movement Delay, s/veh		2.0	0.0	0.0	2.0	0.0	0.0	10.4	0.4			
LnGrp Delay(d), s/veh	32.6	25.1	0.0	0.0	42.6	0.0	4.0	15.3	3.9			
LnGrp LOS	02.0 C	23.1 C	0.0	0.0	т 2.0	0.0	4.0 A	В	3.5 A			
Approach Vol, veh/h		226			176			2503				
Approach Delay, s/veh		28.0			42.6			14.3				
Approach LOS		20.0 C			42.0 D			14.3 B				
• •					D		_					
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		68.7		21.3			9.7	11.6				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		51.5		29.5			6.5	18.5				
Max Q Clear Time (g_c+I1), s		48.4		6.9			5.8	6.3				
Green Ext Time (p_c), s		2.9		0.7			0.0	0.7				
Intersection Summary												
HCM 7th Control Delay, s/veh			17.1									
HCM 7th LOS			В									
Notes												

	**		•	_#	←
Phase Number	2	4	5	7	8
Movement	NETL	EBTL	NEL	EBL	WBT
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	C-Max	None	None	None	None
Maximum Split (s)	56	34	56	11	23
Maximum Split (%)	62.2%	37.8%	62.2%	12.2%	25.6%
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7			7
Flash Don't Walk (s)	11	11			11
Dual Entry	Yes	Yes	No	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	82	48	82	48	59
End Time (s)	48	82	48	59	82
Yield/Force Off (s)	43.5	77.5	43.5	54.5	77.5
Yield/Force Off 170(s)	32.5	66.5	43.5	54.5	66.5
Local Start Time (s)	0	56	0	56	67
Local Yield (s)	51.5	85.5	51.5	62.5	85.5
Local Yield 170(s)	40.5	74.5	51.5	62.5	74.5
Intersection Summary					
Cycle Length			90		
0 () =					

Offset: 82 (91%), Referenced to phase 2:NETL and 6:, Start of Green

Splits and Phases: 2: Diagonal Northbound & Niwot



	_#	→	←	•	*	/
Lane Group	EBL	EBT	WBT	NEL	NET	NER
Lane Group Flow (vph)	87	139	230	133	2286	124
v/c Ratio	0.39	0.35	0.53	0.11	0.94	0.11
Control Delay (s/veh)	43.0	42.0	34.8	6.1	24.2	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.0	42.0	34.8	6.1	24.2	1.5
Queue Length 50th (ft)	44	70	53	24	576	0
Queue Length 95th (ft)	m79	115	87	50	#878	19
Internal Link Dist (ft)		393	753		562	
Turn Bay Length (ft)	100			300		300
Base Capacity (vph)	226	610	734	1214	2427	1125
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.23	0.31	0.11	0.94	0.11
Intersection Summary						

^{# 95}th 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.

1					
EBL	EBT	WBT	WBR	SWL	SWR
	4	1		Y	
30	238	246	4	8	18
30	238	246	4	8	18
r 0	0	0	0	0	0
Free	Free	Free	Free	Stop	Stop
_	None	-	None	·-	None
_	-	-	-	0	-
ge,# -	0	0	-	0	-
-	0	0	-	0	-
85	85	85	85	85	85
					2
					21
			-		
Major1		/aior?		/linor?	
					292
	U	-			292
-	-	-	-		-
4 40	-	-	-		6.22
4.12	-	-	-		U.ZZ
-	-	-	-		-
- 0.040	-	-	-		-
	-	-	-		3.318
1267	-	-	-		747
-	-	-	-		-
-	-	-	-	713	-
	-	-	-		
	-	-	-		747
er -	-	-	-		-
-	-	-	-		-
-	-	-	-	713	-
EB		WB		SW	
0.89		0		11.26	
,		-			
				_	
ımt	EDI	ERT	\// D T	\\/\PDC	:\// n1
TITL			VVDI	WDRS	
		-	-	-	605
)		-	-		0.051
			-		11.3
\ h \		А	-		B 0.2
;ii)	U. I	-	-	-	0.2
	30 Free	30 238 30 238 30 238 7 0 0 Free Free - None 0 85 85 2 2 35 280 Major1 N 294 0 4.12 2.218 - 1267 7 1267	30 238 246 30 238 246 30 238 246 30 0 0 0 Free Free Free Free - None 0 0 85 85 85 2 2 2 2 35 280 289 Major1 Major2 294 0 2.218 2.218 1267	30 238 246 4 30 238 246 4 7 0 0 0 0 0 7 Free Free Free Free Free - None - None 0 0 85 85 85 85 2 2 2 2 2 35 280 289 5 Major1 Major2 N 294 0 - 0 2.218 2.218 1267	30 238 246 4 8 30 238 246 4 8 7 0 0 0 0 0 0 0 7 Free Free Free Free Stop - None - None 0 7 9e, # - 0 0 - 0 85 85 85 85 85 2 2 2 2 2 2 35 280 289 5 9 Major1 Major2 Minor2 292 351 - 4.12 5.42 5.42 5.42 - 2.218 5.42 758 758 758 713 713 713 713 713

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		ર્ન	ĵ.		W	
Traffic Vol, veh/h	41	213	201	11	19	31
Future Vol, veh/h	41	213	201	11	19	31
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	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	222	209	11	20	32
Major/Minor	Major1	N	//ajor2	1	Minor2	
Conflicting Flow All	221	0	-	0	522	215
Stage 1		_	_	-	215	
Stage 2	_	_	_	_	307	_
Critical Hdwy	4.12	_	_	_	6.42	6.22
Critical Hdwy Stg 1	-	_	_	_	5.42	-
Critical Hdwy Stg 2	_	_	_	_	5.42	_
Follow-up Hdwy	2.218	_	_	_		3.318
Pot Cap-1 Maneuver	1348	_	_	_	515	825
Stage 1	_	_	_	_	821	_
Stage 2	_	_	_	_	746	_
Platoon blocked, %		_	_	_		
Mov Cap-1 Maneuver	1348	_	_	_	496	825
Mov Cap-2 Maneuver	-	_	_	_	496	-
Stage 1	_	_	_	_	791	_
Stage 2	_	_	_	_	746	_
y - –						
Approach	EB		WB		SW	
HCM Ctrl Dly, s/v	1.25		0		10.93	
HCM LOS	1.20		J		В	
Minor Lane/Major Mvr	nt	EBL	FRT	WBT	WRRS	\$\\\ n1
Capacity (veh/h)		291		**D1	-	659
HCM Lane V/C Ratio		0.032	-	-		0.079
HCM Ctrl Dly (s/v)		7.8	0	-	-	10.9
HCM Lane LOS		7.0 A	A	-	-	10.3 B
HCM 95th %tile Q(veh	1)	0.1		-	-	0.3
TOW JOHN JOHN &(VEI	'/	J. I				0.0

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		र्स	î,		¥	
Traffic Vol, veh/h	5	239	235	78	24	1
Future Vol, veh/h	5	239	235	78	24	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	· -	Stop
Storage Length	-	_	-	_	0	-
Veh in Median Storage	e,# -	0	0	-	0	-
Grade, %	_	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	281	276	92	28	1
					-	
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	368	0	viajoiz -	0	615	322
•		U	-	-	322	322
Stage 1	-	-	-		293	-
Stage 2	4.12	-	-	-		6.22
Critical Hdwy		-	-	-	6.42	0.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	- 0.40	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-		3.318
Pot Cap-1 Maneuver	1190	-	-	-	454	719
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1190	-	-	-	452	719
Mov Cap-2 Maneuver	-	-	-	-	452	-
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	757	-
Approach	EB		WB		SE	
HCM Ctrl Dly, s/v	0.16		0		13.17	
HCM LOS	.		•		В	
, = - -					_	
Minor Lanc/Major Mys	nt	EBL	EBT	WBT	\\/PD (2EI n1
Minor Lane/Major Mvn	IL			VVDI	WDR	
Capacity (veh/h)		37	-	-	-	470
HCM Carl Div (a/v)		0.005	-	-		0.063
HCM Ctrl Dly (s/v)		8	0	-	-	13.2
HCM Lane LOS	١	A	Α	-	-	В
HOIVI YOUT WITHE W(Ven)	U	-	-	-	0.2
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		ર્ન	4Î		W	
Traffic Vol, veh/h	2	233	188	110	71	1
Future Vol, veh/h	2	233	188	110	71	1
Conflicting Peds, #/hr		0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storag		0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	106	2	2	2
Mvmt Flow	2	243	196	115	74	1
Major/Minor	Major1	N	//ajor2		Minor2	
Conflicting Flow All	310	0	-	0	500	253
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	247	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	
Pot Cap-1 Maneuver	1250	-	-	-	530	786
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	794	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver		-	-	-	529	786
Mov Cap-2 Maneuver	-	-	-	-	529	-
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	794	-
Approach	EB		WB		SE	
HCM Ctrl Dly, s/v	0.07		0		12.8	
HCM LOS					В	
Minor Lane/Major Mv	mt	EBL	EBT	WBT	WBR S	SEL _{n1}
Capacity (veh/h)		15	-	-	-	537
HCM Lane V/C Ratio		0.002	-	-	-	0.14
HCM Ctrl Dly (s/v)		7.9	0	-	-	12.8
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q(vel	h)	0	-	-	-	0.5

Intersection						
Intersection Delay, s/veh	12.2					
Intersection LOS	В					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>			4	W	
Traffic Vol, veh/h	219	55	120	229	73	66
Future Vol., veh/h	219	55	120	229	73	66
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	65	141	269	86	78
Number of Lanes	1	0	0	1	1	0
Approach	EB		WB		NB	
Opposing Approach	WB		EB		110	
Opposing Lanes	1		1		0	
Conflicting Approach Left	'		NB		EB	
Conflicting Lanes Left	0		1		1	
Conflicting Approach Right	NB				WB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay, s/veh	11.3		13.7		10.3	
HCM LOS	В		В		В	
110111 200						
Lane		NBLn1	EBLn1	WBLn1		
Vol Left, %		53%	0%	34%		
Vol Thru, %		0%	80%	66%		
Vol Right, %		47%	20%	0%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		139	274	349		
LT Vol		73	0	120		
Through Vol		0	219	229		
RT Vol		66	55	0		
Lane Flow Rate		164	322	411		
Geometry Grp		104	1	1		
Degree of Util (X)		0.245	0.424	0.549		
• , ,		5.397	4.737	4.815		
Departure Headway (Hd) Convergence, Y/N		Yes	Yes	Yes		
Cap		657	754	743		
Service Time		3.493	2.81	2.884		
HCM Lane V/C Ratio		0.25	0.427	0.553		
HCM Control Delay, s/veh		10.3	11.3	13.7		
HCM Lane LOS		10.3 B	11.3 B	13.7 B		
HCM 95th-tile Q		1	2.1	3.4		
HOW BUILTING Q		1	۷.۱	J. 4		

Intersection						
Intersection Delay, s/veh	11.4					
Intersection LOS	В					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>			ર્ન	¥	
Traffic Vol, veh/h	200	101	67	154	145	105
Future Vol, veh/h	200	101	67	154	145	105
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	220	111	74	169	159	115
Number of Lanes	1	0	0	1	1	0
	EB	·	WB		NB	•
Approach Opposing Approach	WB		EB		IND	
Opposing Approach					٥	
Opposing Lanes	1		1 NB		0 EB	
Conflicting Approach Left	0					
Conflicting Lanes Left	0 ND		1		1 WD	
Conflicting Approach Right	NB		0		WB 1	
Conflicting Lanes Right	1		10.0		=	
HCM Control Delay, s/veh	11.6		10.9		11.5	
HCM LOS	В		В		В	
Lane		NBLn1	EBLn1	WBLn1		
Vol Left, %		58%	0%	30%		
Vol Thru, %		0%	66%	70%		
Vol Right, %		42%	34%	0%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		250	301	221		
LT Vol		145	0	67		
Through Vol		0	200	154		
RT Vol		105	101	0		
Lane Flow Rate		275	331	243		
Geometry Grp		1	1	1		
Degree of Util (X)		0.391	0.438	0.345		
Departure Headway (Hd)		5.128	4.762	5.11		
Convergence, Y/N		Yes	Yes	Yes		
Cap		692	748	695		
Service Time		3.223	2.847	3.205		
HCM Lane V/C Ratio		0.397	0.443	0.35		
HCM Control Delay, s/veh		11.5	11.6	10.9		
HCM Lane LOS		В	В	В		
HCM 95th-tile Q		1.9	2.2	1.5		
		•	_	-		

APPENDIX E

	_#	→	7	*	←	٤	•	×	/	6	×	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		ĵ.		1,6	†					7	^	7
Traffic Volume (veh/h)	0	160	200	200	165	0	0	0	0	60	2340	25
Future Volume (veh/h)	0	160	200	200	165	0	0	0	0	60	2340	25
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	163	0	204	168	0				61	2388	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	199		268	414	0				1253	2500	1115
Arrive On Green	0.00	0.11	0.00	0.13	0.37	0.00				0.70	0.70	0.00
Sat Flow, veh/h	0	1870	0	3456	1870	0				1781	3554	1585
Grp Volume(v), veh/h	0	163	0	204	168	0				61	2388	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1728	1870	0				1781	1777	1585
Q Serve(g_s), s	0.0	10.2	0.0	6.8	8.0	0.0				1.3	72.9	0.0
Cycle Q Clear(g_c), s	0.0	10.2	0.0	6.8	8.0	0.0				1.3	72.9	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	199		268	414	0				1253	2500	1115
V/C Ratio(X)	0.00	0.82		0.76	0.41	0.00				0.05	0.96	0.00
Avail Cap(c_a), veh/h	0	351		562	725	0				1253	2500	1115
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.87	0.87	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	52.5	0.0	51.2	31.9	0.0				5.5	16.1	0.0
Incr Delay (d2), s/veh	0.0	8.0	0.0	3.9	0.6	0.0				0.0	9.7	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.2	0.0	3.0	3.4	0.0				0.4	28.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	60.5	0.0	55.0	32.5	0.0				5.5	25.7	0.0
LnGrp LOS		Е		Ε	С					Α	С	
Approach Vol, veh/h		163			372						2449	
Approach Delay, s/veh		60.5			44.9						25.2	
Approach LOS		Ε			D						С	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			13.8	17.3		88.9		31.1				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			19.5	22.5		64.5		46.5				
Max Q Clear Time (g_c+l1), s			8.8	12.2		74.9		10.0				
Green Ext Time (p_c), s			0.5	0.5		0.0		1.0				
. ,			0.0	0.0		0.0		1.0				
Intersection Summary HCM 7th Control Delay, s/veh			29.6									
HCM 7th LOS			29.0 C									
Notes												

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

	Ĺ	*	→	\mathbb{Z}_{p}^{\prime}	←
Phase Number	1	3	4	6	8
Movement	SWL	WBL	EBT	SWTL	WBT
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	None	None	None	C-Max	None
Maximum Split (s)	69	24	27	69	51
Maximum Split (%)	57.5%	20.0%	22.5%	57.5%	42.5%
Minimum Split (s)	9.5	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)			7	7	7
Flash Don't Walk (s)			11	11	11
Dual Entry	No	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	69	93	0	69
End Time (s)	69	93	0	69	0
Yield/Force Off (s)	64.5	88.5	115.5	64.5	115.5
Yield/Force Off 170(s)	64.5	88.5	104.5	53.5	104.5
Local Start Time (s)	0	69	93	0	69
Local Yield (s)	64.5	88.5	115.5	64.5	115.5
Local Yield 170(s)	64.5	88.5	104.5	53.5	104.5
Intersection Summary					
Cycle Length			120		
Control Type	Actu	ated-Coo	rdinated		

Natural Cycle

Offset: 0 (0%), Referenced to phase 2: and 6:SWTL, Start of Green

Splits and Phases: 1: Niwot & Diagonal Southbound



1: Niwot & Diagonal Southbound

	-	*	•	6	×	</th
Lane Group	EBT	WBL	WBT	SWL	SWT	SWR
Lane Group Flow (vph)	367	204	168	61	2388	26
v/c Ratio	0.81	0.58	0.24	0.06	1.24	0.03
Control Delay (s/veh)	53.3	65.6	26.4	13.6	141.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.3	65.6	26.4	13.6	141.6	0.7
Queue Length 50th (ft)	237	81	83	22	~1218	0
Queue Length 95th (ft)	#423	121	133	44	#1352	4
Internal Link Dist (ft)	563		393		304	
Turn Bay Length (ft)		250		300		300
Base Capacity (vph)	451	557	721	960	1920	884
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.37	0.23	0.06	1.24	0.03
Intersection Summary						

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	_#	→	7	*	←	٤	•	×	/	6	×	•
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		₽		ሻሻ	^					ሻ	^	7
Traffic Volume (veh/h)	0	140	140	95	215	0	0	0	0	60	1290	55
Future Volume (veh/h)	0	140	140	95	215	0	0	0	0	60	1290	55
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	147	0	100	226	0				63	1358	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	186		151	338	0				1326	2646	1180
Arrive On Green	0.00	0.10	0.00	0.09	0.36	0.00				0.74	0.74	0.74
Sat Flow, veh/h	0	1870	0	3456	1870	0				1781	3554	1585
Grp Volume(v), veh/h	0	147	0	100	226	0				63	1358	30
Grp Sat Flow(s),veh/h/ln	0	1870	0	1728	1870	0				1781	1777	1585
Q Serve(g_s), s	0.0	9.2	0.0	3.4	12.2	0.0				1.1	19.0	0.6
Cycle Q Clear(g_c), s	0.0	9.2	0.0	3.4	12.2	0.0				1.1	19.0	0.6
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	186		151	338	0				1326	2646	1180
V/C Ratio(X)	0.00	0.79		0.66	0.67	0.00				0.05	0.51	0.03
Avail Cap(c_a), veh/h	0	491		245	694	0				1326	2646	1180
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.89	0.89	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	52.8	0.0	53.9	35.3	0.0				4.1	6.3	4.0
Incr Delay (d2), s/veh	0.0	7.4	0.0	4.4	2.0	0.0				0.0	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.7	0.0	1.5	4.9	0.0				0.4	6.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	60.2	0.0	58.3	37.4	0.0				4.1	6.5	4.0
LnGrp LOS		Ε		Ε	D					Α	Α	Α
Approach Vol, veh/h		147			326						1451	
Approach Delay, s/veh		60.2			43.8						6.4	
Approach LOS		Ε			D						Α	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			9.7	16.4		93.8		26.2				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			8.5	31.5		66.5		44.5				
Max Q Clear Time (g_c+l1), s			5.4	11.2		21.0		14.2				
Green Ext Time (p_c), s			0.1	0.7		15.4		1.3				
Intersection Summary												
HCM 7th Control Delay, s/veh			16.8									
HCM 7th LOS			В									
Notes												

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

	Ĺ	*	→	$-2f_{\rm b}$	←
Phase Number	1	3	4	6	8
Movement	SWL	WBL	EBT	SWTL	WBT
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	None	None	None	C-Max	None
Maximum Split (s)	71	13	36	71	49
Maximum Split (%)	59.2%	10.8%	30.0%	59.2%	40.8%
Minimum Split (s)	9.5	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)			7	7	7
Flash Don't Walk (s)			11	11	11
Dual Entry	No	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	71	84	0	71
End Time (s)	71	84	0	71	0
Yield/Force Off (s)	66.5	79.5	115.5	66.5	115.5
Yield/Force Off 170(s)	66.5	79.5	104.5	55.5	104.5
Local Start Time (s)	0	71	84	0	71
Local Yield (s)	66.5	79.5	115.5	66.5	115.5
Local Yield 170(s)	66.5	79.5	104.5	55.5	104.5
Intersection Summary					
Cycle Length			120		
Control Type	Actu	ated-Coo	rdinated		

Cycle Length 120
Control Type Actuated-Coordinated
Natural Cycle 65

Offset: 0 (0%), Referenced to phase 2: and 6:SWTL, Start of Green

Splits and Phases: 1: Niwot & Diagonal Southbound



	→	_	•	6	×	1
Lane Group	EBT	WBL	WBT	SWL	SWT	SWR
Lane Group Flow (vph)	294	100	226	63	1358	58
v/c Ratio	0.80	0.44	0.41	0.06	0.61	0.06
Control Delay (s/veh)	55.5	75.8	31.9	10.5	16.0	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.5	75.8	31.9	10.5	16.0	3.1
Queue Length 50th (ft)	190	41	85	18	315	0
Queue Length 95th (ft)	269	71	116	43	460	19
Internal Link Dist (ft)	563		393		304	
Turn Bay Length (ft)		250		300		300
Base Capacity (vph)	485	243	690	1112	2224	1016
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.41	0.33	0.06	0.61	0.06
Intersection Summary						

	_#	→	7	*	←	٤	•	×	/	6	×	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	7	↑			ተ ኈ		7	^	7			
Traffic Volume (veh/h)	35	205	0	0	255	40	130	885	100	0	0	0
Future Volume (veh/h)	35	205	0	0	255	40	130	885	100	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	36	214	0	0	266	0	520	922	70			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.25	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	145	317	0	0	365		1346	2686	1198			
Arrive On Green	0.06	0.34	0.00	0.00	0.10	0.00	0.76	0.76	0.76			
Sat Flow, veh/h	1781	1870	0	0	3741	0	1781	3554	1585			
Grp Volume(v), veh/h	36	214	0	0	266	0	520	922	70			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	0	1781	1777	1585			
Q Serve(g_s), s	2.1	11.8	0.0	0.0	8.7	0.0	12.1	10.3	1.4			
Cycle Q Clear(g_c), s	2.1	11.8	0.0	0.0	8.7	0.0	12.1	10.3	1.4			
Prop In Lane	1.00	-	0.00	0.00	-	0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	145	317	0	0	365		1346	2686	1198			
V/C Ratio(X)	0.25	0.68	0.00	0.00	0.73		0.39	0.34	0.06			
Avail Cap(c_a), veh/h	190	662	0	0	933		1346	2686	1198			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.64	0.64	0.00	0.00	1.00	0.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	43.5	36.9	0.0	0.0	52.2	0.0	5.1	4.8	3.7			
Incr Delay (d2), s/veh	0.6	1.6	0.0	0.0	2.8	0.0	0.2	0.1	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			
%ile BackOfQ(50%),veh/ln	0.9	4.8	0.0	0.0	4.0	0.0	3.9	3.3	0.4			
Unsig. Movement Delay, s/veh	0.5	4.0	0.0	0.0	4.0	0.0	0.0	0.0	0.4			
LnGrp Delay(d), s/veh	44.1	38.5	0.0	0.0	55.0	0.0	5.2	4.9	3.8			
LnGrp LOS	т т .1	D	0.0	0.0	55.0 E	0.0	3.2 A	4.5 A	Α			
Approach Vol, veh/h		250			266		- , ,	1512	- ,,			
Approach Delay, s/veh		39.3			55.0			5.0				
Approach LOS		55.5 D			55.0 E			3.0 A				
				4	L		7					
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		95.2		24.8			8.0	16.8				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		68.5		42.5			6.5	31.5				
Max Q Clear Time (g_c+l1), s		14.1		13.8			4.1	10.7				
Green Ext Time (p_c), s		11.8		1.2			0.0	1.6				
Intersection Summary			45.0									
HCM 7th Control Delay, s/veh HCM 7th LOS			15.8 B									
Notes												

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

	**		•	_#	•
Phase Number	2	4	5	7	8
Movement	NETL	EBTL	NEL	EBL	WBT
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	C-Max	None	None	None	None
Maximum Split (s)	73	47	73	11	36
Maximum Split (%)	60.8%	39.2%	60.8%	9.2%	30.0%
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7			7
Flash Don't Walk (s)	11	11			11
Dual Entry	Yes	Yes	No	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	4	77	4	77	88
End Time (s)	77	4	77	88	4
Yield/Force Off (s)	72.5	119.5	72.5	83.5	119.5
Yield/Force Off 170(s)	61.5	108.5	72.5	83.5	108.5
Local Start Time (s)	0	73	0	73	84
Local Yield (s)	68.5	115.5	68.5	79.5	115.5
Local Yield 170(s)	57.5	104.5	68.5	79.5	104.5
Intersection Summary					
Cycle Length			120		<u> </u>
Control Type	Actu	ated-Coo	rdinated		

Control Type
Natural Cycle

Offset: 4 (3%), Referenced to phase 2:NETL and 6:, Start of Green

Splits and Phases: 2: Diagonal Northbound & Niwot



	_#	→	←	•	×	/
Lane Group	EBL	EBT	WBT	NEL	NET	NER
Lane Group Flow (vph)	36	214	308	520	922	104
v/c Ratio	0.22	0.60	0.64	0.40	0.36	0.09
Control Delay (s/veh)	57.5	68.6	52.8	8.1	7.0	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.5	68.6	52.8	8.1	7.0	1.4
Queue Length 50th (ft)	24	142	115	152	134	0
Queue Length 95th (ft)	m37	m186	158	47	191	18
Internal Link Dist (ft)		393	753		562	
Turn Bay Length (ft)	100			300		300
Base Capacity (vph)	168	659	920	1298	2596	1189
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.32	0.33	0.40	0.36	0.09
Intersection Summary						

m Volume for 95th percentile queue is metered by upstream signal.

	_#	→	7	*	←	٤	•	×	/*	6	×	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ሻ	†			↑ ↑		7	^	7			
Traffic Volume (veh/h)	95	150	0	0	190	60	145	2495	135	0	0	0
Future Volume (veh/h)	95	150	0	0	190	60	145	2495	135	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	101	160	0	0	202	0	154	2654	104			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	170	305	0	0	283		1357	2708	1208			
Arrive On Green	0.09	0.33	0.00	0.00	0.08	0.00	0.76	0.76	0.76			
Sat Flow, veh/h	1781	1870	0	0	3741	0	1781	3554	1585			
Grp Volume(v), veh/h	101	160	0	0	202	0	154	2654	104			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	0	1781	1777	1585			
Q Serve(g_s), s	5.5	8.3	0.0	0.0	6.7	0.0	2.7	84.3	2.0			
Cycle Q Clear(g_c), s	5.5	8.3	0.0	0.0	6.7	0.0	2.7	84.3	2.0			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	170	305	0	0	283		1357	2708	1208			
V/C Ratio(X)	0.59	0.52	0.00	0.00	0.71		0.11	0.98	0.09			
Avail Cap(c_a), veh/h	170	491	0	0	637		1357	2708	1208			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.69	0.69	0.00	0.00	1.00	0.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	45.9	36.6	0.0	0.0	53.9	0.0	3.7	13.4	3.6			
Incr Delay (d2), s/veh	3.8	1.0	0.0	0.0	3.3	0.0	0.0	13.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.8	3.5	0.0	0.0	3.1	0.0	0.9	31.3	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.6	37.6	0.0	0.0	57.2	0.0	3.8	26.4	3.7			
LnGrp LOS	D	D			Е		Α	С	Α			
Approach Vol, veh/h		261			202			2912				
Approach Delay, s/veh		42.3			57.2			24.4				
Approach LOS		D			Е			С				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		95.9		24.1			10.0	14.1				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		79.5		31.5			5.5	21.5				
Max Q Clear Time (g_c+l1), s		86.3		10.3			7.5	8.7				
Green Ext Time (p_c), s		0.0		0.8			0.0	0.9				
Intersection Summary												
HCM 7th Control Delay, s/veh			27.8									
HCM 7th LOS			С									
Notes												

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

	1		•	_#	←
Phase Number	2	4	5	7	8
Movement	NETL	EBTL	NEL	EBL	WBT
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	C-Max	None	None	None	None
Maximum Split (s)	84	36	84	10	26
Maximum Split (%)	70.0%	30.0%	70.0%	8.3%	21.7%
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7			7
Flash Don't Walk (s)	11	11			11
Dual Entry	Yes	Yes	No	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	114	78	114	78	88
End Time (s)	78	114	78	88	114
Yield/Force Off (s)	73.5	109.5	73.5	83.5	109.5
Yield/Force Off 170(s)	62.5	98.5	73.5	83.5	98.5
Local Start Time (s)	0	84	0	84	94
Local Yield (s)	79.5	115.5	79.5	89.5	115.5
Local Yield 170(s)	68.5	104.5	79.5	89.5	104.5
Intersection Summary					
Cycle Length			120		
Control Type	Actu	ated-Coo	rdinated		
Matural Cyala			110		

Natural Cycle

Offset: 114 (95%), Referenced to phase 2:NETL and 6:, Start of Green

Splits and Phases: 2: Diagonal Northbound & Niwot



	≭	-	•	•	×	/
Lane Group	EBL	EBT	WBT	NEL	NET	NER
Lane Group Flow (vph)	101	160	266	154	2654	144
v/c Ratio	0.62	0.44	0.65	0.12	1.03	0.12
Control Delay (s/veh)	66.6	55.3	53.1	5.5	43.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.6	55.3	53.1	5.5	43.7	1.7
Queue Length 50th (ft)	64	102	94	31	~1157	5
Queue Length 95th (ft)	m105	154	136	59	#1337	25
Internal Link Dist (ft)		393	753		562	
Turn Bay Length (ft)	100			300		300
Base Capacity (vph)	164	489	632	1289	2576	1185
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.33	0.42	0.12	1.03	0.12
Intersection Summary						

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th 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.

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		ની	î,		, A	
Traffic Vol, veh/h	45	245	230	15	25	35
Future Vol, veh/h	45	245	230	15	25	35
Conflicting Peds, #/hi	. 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 Storag	ge,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	255	240	16	26	36
Major/Minor	Major1	N	//ajor2	N	Minor2	
Conflicting Flow All	255	0	-	0	596	247
Stage 1	-	-	_	-	247	
Stage 2	_	_	_	_	349	_
Critical Hdwy	4.12	_	_	_	6.42	6.22
Critical Hdwy Stg 1		_	_	_	5.42	-
Critical Hdwy Stg 2	_	_	_	_	5.42	_
Follow-up Hdwy	2.218	_	_	_	3.518	3 318
Pot Cap-1 Maneuver		_		_	466	791
Stage 1	1310	-	-	-	794	131
	-	-	-	-	794 714	-
Stage 2	-	-	-	-	114	-
Platoon blocked, %	r 1210	-	-	-	117	704
Mov Cap-1 Maneuve		-	-	-	447 447	791
Mov Cap-2 Maneuve	r -	-	-	-	447	-
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	714	-
Approach	EB		WB		SW	
HCM Ctrl Dly, s/v	1.22		0		11.71	
HCM LOS					В	
Minor Lane/Major Mv	mt	EBL	EBT	WBT	WBRS	SWLn1
Capacity (veh/h)		279	-	_	_	599
HCM Lane V/C Ratio		0.036	_	_	_	0.104
HCM Ctrl Dly (s/v)		7.9	0	_	_	11.7
HCM Lane LOS		Α	Ā	_	_	В
HCM 95th %tile Q(ve	h)	0.1	-	_	_	0.3
	,					

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		र्स	4Î		, AA	
Traffic Vol, veh/h	5	280	275	90	25	5
Future Vol, veh/h	5	280	275	90	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storag	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	329	324	106	29	6
Major/Minor	Major1	N	//ajor2		Minor2	
Conflicting Flow All	429	0	-	0	718	376
Stage 1		-	_	-	376	570
Stage 2	_	_	_		341	_
Critical Hdwy	4.12	_	_		6.42	6.22
Critical Hdwy Stg 1	7.12	_	_		5.42	0.22
Critical Hdwy Stg 2	_	_	-	_	5.42	-
Follow-up Hdwy	2.218	_	-	_		3.318
Pot Cap-1 Maneuver	1130	_	-	_	396	670
•	1130	_	-	_	694	070
Stage 1 Stage 2	-	-	-	-	720	-
Platoon blocked, %	-	-	-	-	120	-
Mov Cap-1 Maneuver	1130	-	-		393	670
		-	-	-	393	0/0
Mov Cap-2 Maneuver	-	-	-	-	393 689	-
Stage 1	-	-	-	-		-
Stage 2	-	-	-	-	720	-
Approach	EB		WB		SE	
HCM Ctrl Dly, s/v	0.14		0		13.39	
HCM LOS					В	
Minor Lane/Major Mvr	mt	EBL	EBT	WBT	WBR S	SELn1
Capacity (veh/h)		32	_	_	_	465
HCM Lane V/C Ratio		0.005	_	_	_	0.076
HCM Ctrl Dly (s/v)		8.2	0	_	_	13.4
HCM Lane LOS		A	Ä	_	_	В
HCM 95th %tile Q(veh	n)	0	-	_	_	0.2
	,					

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		र्स	î,		W	
Traffic Vol, veh/h	5	270	220	125	80	5
Future Vol, veh/h	5	270	220	125	80	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage	e,# -	0	0	-	0	-
Grade, %	_	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	281	229	130	83	5
Major/Minor	Major1		Majara		MinorO	
	Major1 359	0	Major2		Minor2 586	294
Conflicting Flow All	359	U	-	0		294
Stage 1	_	-	-	-	294	-
Stage 2	4.40	-	-	-	292	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	
Pot Cap-1 Maneuver	1199	-	-	-	473	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1199	-	-	-	470	745
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	752	-
Stage 2	_	-	-	-	758	-
•						
Approach	EB		WB		SE	
HCM Ctrl Dly, s/v	0.15		0		13.78	
HCM LOS	0.13		U		13.76 B	
TIOWI LOG					D	
Minor Lone/Maior M.	~.t	EDI	CDT	WDT	WDD (OFL 4
Minor Lane/Major Mvr	TIC	EBL	FRI	WBT	MRK :	
Capacity (veh/h)		33	-	-	-	498
HCM Lane V/C Ratio		0.004	-	-	-	0.178
HCM Ctrl Dly (s/v)		8	0	-	-	13.8
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q(veh	1)	0	-	-	-	0.6

Intersection Delay alveh	4E 4					
Intersection Delay, s/veh Intersection LOS	15.1 C					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1•			ર્ન	NA.	
Traffic Vol, veh/h	250	65	140	265	85	75
Future Vol, veh/h	250	65	140	265	85	75
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	294	76	165	312	100	88
Number of Lanes	1	0	0	1	1	0
Approach	EB		WB		NB	
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left			NB		EB	
Conflicting Lanes Left	0		1		1	
Conflicting Approach Right	NB				WB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay, s/veh	13.3		18		11.4	
HCM LOS	В		С		В	
Lane		NBLn1	EBLn1	WBLn1		
Vol Left, %		53%	0%	35%		
Vol Thru, %		0%	79%	65%		
Vol Right, %		47%	21%	0%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		160	315	405		
LT Vol		85	0	140		
Through Vol		0	250	265		
RT Vol		75	65	0		
Lane Flow Rate		188	371	476		
Geometry Grp		1	1	1		
Degree of Util (X)		0.303	0.517	0.675		
Departure Headway (Hd)		5.802	5.024	5.099		
Convergence, Y/N		Yes	Yes	Yes		
Сар		619	719	715		
Service Time		3.846	3.056	3.099		
HCM Lane V/C Ratio		0.304	0.516	0.666		
HCM Control Delay, s/veh		11.4	13.3	18		
HCM Lane LOS		В	В	C		
HCM 95th-tile Q		1.3	3	5.3		

Intersection						
Intersection Delay, s/veh	13.6					
Intersection LOS	В					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			ર્ની	W	
Traffic Vol, veh/h	235	120	80	180	165	120
Future Vol, veh/h	235	120	80	180	165	120
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	132	88	198	181	132
Number of Lanes	1	0	0	1	1	0
Approach	EB		WB		NB	
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left			NB		EB	
Conflicting Lanes Left	0		1		1	
Conflicting Approach Right	NB				WB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay, s/veh	14.2		12.7		13.6	
HCM LOS	В		В		В	
Lane		NBLn1	EBLn1	WBLn1		
Vol Left, %		58%	0%	31%		
Vol Thru, %		0%	66%	69%		
Vol Right, %		42%	34%	0%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		285	355	260		
LT Vol		165	0	80		
Through Vol		0	235	180		
RT Vol		120	120	0		
Lane Flow Rate		313	390	286		
Geometry Grp		1	1	1		
Degree of Util (X)		0.48	0.551	0.435		
Departure Headway (Hd)		5.517	5.089	5.475		
Convergence, Y/N		Yes	Yes	Yes		
Сар		651	706	657		
Service Time		3.557	3.127	3.515		
HCM Lane V/C Ratio		0.481	0.552	0.435		
HCM Control Delay, s/veh		13.6	14.2	12.7		
HCM Lane LOS		В	В	В		
HCM 95th-tile Q		2.6	3.4	2.2		



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.gov

Building Safety & Inspection Services Team

M E M O

TO: Pete L'Orange, Senior Planner

FROM: Michelle Huebner, Plans Examiner Supervisor

DATE: June 24, 2025

RE: Referral Response, SPR-25-0054: 291 2nd Ave LLC Mixed Use Development: Site

Plan Review for construction of a new 9,426-square-foot Mixed Use development.

Location: 291 2nd Avenue

Thank you for the referral. We have the following comments for the applicants:

Building Permit. A building permit, plan review, inspection approvals, and a Certificate of Occupancy ("C.O.") are required for the new mixed use commercial building. A separate building permit is required to deconstruct the existing building.

Boulder County Building Code Amendments

The Commercial Plan Submittal Checklist: B70 Commercial Plan Checklist

From the submitted application documents:

- Is the goal to limit the proposed use by listing the first-floor occupancy as only "B."
- 1. **Minimum Plumbing Fixtures.** The plumbing fixtures count needs to meet or exceed the requirements of IBC Chapter 29, including the need for accessible restrooms and fixtures.
- 2. **Accessibility**. Chapter 11 of the IBC and referenced standard ICC A117.1-17 provide for accessibility for persons with disabilities. Any building permit submittals are to include any applicable accessibility requirements, including accessible parking, signage, accessible routes and accessible fixtures and features.
- 3. **Design Wind and Snow Loads.** The design wind and ground snow loads for the property are 150 mph (Vult) and 40 psf, respectively.

Claire Levy County Commissioner Marta Loachamin County Commissioner Ashley Stolzmann County Commissioner

- 4. **Ignition-Resistant Construction and Defensible Space.** Please refer to Section R390 of the Boulder County Building Code for wildfire hazard mitigation requirements, including ignition-resistant construction and defensible space.
- Colorado Model Electric Ready and Solar Ready Code.
 See requirements in the Colorado Model Electric Ready and Solar Ready Code, as adopted with these amendments.
- 6. **Fire Department.** It appears that the site is served by Mountain View Fire Rescue. A separate referral response from the fire department should also be forthcoming. The fire department may have additional requirements in accordance with their International Fire Code ("IFC") adoption. Also, the Fire Protection District must provide written documentation to Boulder County Building Safety and Inspection Services approving the building permit plans and specifications of projects before the building permit can be issued.
- 7. **Plan Review.** The items listed above are a general summary of some of the county's building code requirements. A much more detailed plan review will be performed at the time of building permit application, when full details are available for review, to assure that all applicable minimum building codes requirements are to be met. Our Residential Plan Check List and other <u>Building Publications</u>, <u>Applications and Forms Boulder County</u>

If the applicants should have questions or need additional information, we'd be happy to work with them toward solutions that meet minimum building code requirements. Please call us at (720) 564-2640.



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 303-441-3930 • www.BoulderCounty.gov

July 1, 2025

TO: Pete L'Orange, Senior Planner; Community Planning & Permitting,

Development Review Team - Zoning

FROM: Tim Oliver, Planner II; Community Planning & Permitting, Development

Review Team - Access & Engineering

SUBJECT: Docket # SPR-25-0054: 291 2nd Ave LLC Mixed Use Development

The Development Review Team – Access & Engineering staff have reviewed the above referenced docket and have the following comments:

- 1. The subject property is accessed via 2nd Avenue, an asphalt Boulder County owned and maintained right-of-way (ROW) with a Functional Classification of Collector. Legal access has been demonstrated via adjacency to this public ROW.
- 2. The driveway design as proposed complies with the Multimodal Transportation Standards (the Standards) for residential development.

At final inspection, the Community Planning & Permitting Department must verify that the access and driveway has been constructed to comply with the Standards.

- 3. The parking area must meet the requirements in the Standards, including, but not limited to:
 - a. MMTS Section 5.6.2 Parking Lot Design Standards and Standard Drawing
 - i. Compliance with the Standards, including parking stall dimensions, must be demonstrated at building permit.
 - b. MMTS Section 5.6.4 Accessible Parking
 - i. The number of one van-accessible space complies with the 2010 ADA Standards for Accessible Design.
 - ii. Compliance with all relevant requirements in the 2010 ADA Standards for Accessible Design, including parking space and access aisle dimensions and signage, must be demonstrated at building permit.

- c. MMTS Section 5.6.5 Bicycle Parking
 - The applicant should consult with Alexandra Phillips

 (aphillips@bouldercounty.org), the County's Bicycle Planner, on the appropriate location and rack style for this site
- 4. The number of seventeen parking spaces complies with Section 4-116A.D.1 of the Boulder County Land Use Code (hereafter referred to as "the Code") for the Niwot Rural Community District.
 - **At building permit,** a site plan must be submitted that demonstrates compliance with all relevant parking requirements.
- 5. Staff agrees with the conclusions reached in the Transportation System Impact Study submitted with the application materials.
- 6. Drainage and stormwater comments will be provided by the Boulder County Public Works Department.
- 7. **At building permit,** submit information regarding the following stormwater control measures: stockpiling locations, concrete washout location, port-apotty location and staking, and perimeter control around the limits of disturbance.
- 8. The sidewalk must not be blocked during construction.
- No staging of equipment, materials, or debris may occur in the alley right-of-way.
 The alley must be kept free and clear at all times, except during the construction of improvements in the alley.
- 10. No staging of materials or debris may occur in the 2nd Avenue right-of-way.
- 11. The contractor must work must provide a traffic control plan, from a certified traffic supervisor, to the Traffic Operations Engineer in the Public Works Department for review and approval, prior to any work, if any equipment staging in 2nd Avenue is required during construction.

This concludes our comments at this time.



Public Works Department

Memorandum

Date: July 9, 2025

To: Pete L'Orange, Senior Planner

From: Jennifer Keyes, Boulder County Stormwater Quality Coordinator

Subject: SPR-25-0054: 291 2nd Ave LLC Mixed Use Development at 291 2nd Avenue

Boulder County Public Works Department has reviewed the above-mentioned project, and has the following comments:

- 1. New development and redevelopment must adhere to Boulder County Storm Drainage Criteria Manual (SDCM), Section 1200.
- 2. SDCM Section 1200 requires new development and redevelopment to minimize directly connected impervious area using low impact development principles. One method of minimizing directly connected impervious area is to have at least 20 percent of the total impervious area drain to a pervious area equal to at least 10 percent of the total impervious surface area of the development prior to discharging from the site.
- 3. Permanent water quality may be met by using low impact development outlined in comment #2 or it may be met using other means (e.g., underground proprietary system, permeable pavers).
- 4. Due to existing capacity in the local storm sewer system, on site detention is not required for the project as determined by the County Engineer.

This concludes our comments at this time, but we welcome questions at stormwater@bouldercounty.gov and invite applicants to review the Boulder County Storm Drainage Criteria Manual: https://bouldercounty.gov/transportation/floodplain-management/storm-drainage-criteria-manual/

Commissioner Claire Levy • Commissioner Marta Loachamin • Commissioner Ashley Stolzmann

Boulder County Courthouse • 1325 Pearl Street • Boulder, Colorado 80302

Mailing Address: P.O. Box 471 • Boulder, CO 80306 • www.BoulderCounty.gov

Commissioners@bouldercounty.gov • Telephone: 303.441.3500 • Fax: 303.441.4525

From: <u>Grimm, Denise</u>
To: <u>L"Orange, Pete</u>

Subject: FW: DRAFT SPR-25-0054 determination letter Date: Wednesday, July 9, 2025 12:03:52 PM

Attachments: SPR-25-0054 DL DRAFT.docx

Hi Pete,

Can you please place the docket on hold to allow for some extra time to schedule this with the Niwot Design Review Committee?

Thanks,

Denise Grimm, AICP (*Pronouns: She/her/hers*) | **Principal Planner-Historic Preservation**

Boulder County Community Planning & Permitting

720-564-2611| dgrimm@bouldercounty.gov

From: Sanchez, Kimberly <ksanchez@bouldercounty.gov>

Sent: Tuesday, July 8, 2025 12:06 PM

To: Grimm, Denise <dgrimm@bouldercounty.gov> **Subject:** FW: DRAFT SPR-25-0054 determination letter

From: L'Orange, Pete < <u>plorange@bouldercounty.gov</u>>

Sent: Tuesday, July 8, 2025 12:04 PM

To: #LandUseReferralDL < LandUseReferralDL@bouldercounty.gov>

Subject: DRAFT SPR-25-0054 determination letter

Good afternoon, all!

Attached, please find the draft DL for SPR-25-0054: 291 2nd Avenue LLC Mixed Use Development at 291 2nd Avenue in Niwot. Please review and get any comments/edits back to me by 10:00 am on Monday, July 14th, for issuance that afternoon.

Thanks!

Pete L'Orange | Senior Planner
Boulder County Community Planning & Permitting

Pronouns: he/him/his

Courthouse Annex | 2045 13th Street | Boulder, CO 80302

Mailing address: PO Box 471 | Boulder, CO 80306

Direct: 303-441-1418 | Main: 303-441-3930

plorange@bouldercounty.gov

From: <u>Grimm, Denise</u>
To: <u>L"Orange, Pete</u>

Subject: Niwot Design Review Committee-July 22, 2025 5:30 pm - REFERRAL COMMENTS

Date: Wednesday, July 23, 2025 9:01:22 AM

Pete,

The Niwot Design Review Committee met last evening to provide comments on:

Docket SPR-25-0054: 291 2nd Ave LLC Mixed Use Development

Request: Site Plan Review for construction of a new 9,426-square-foot Mixed Use

development at 291 2nd Avenue.

Location: 291 2nd Avenue, Section 25, Township 2N, Range 70W Zoning: Niwot Rural Community (NRCDI) Zoning District I

Owner: 291 2nd Avenue LLC

Applicant: John Richard Fischer C/O 291 2nd Avenue LLC

Agent: Tucker Huey C/O Osmosis Architecture

They felt that the project was approvable and only had one thing they wanted to verify related to the brick being used. They wanted to make sure that the brick was a darker more historically compatible brick color. (A few examples were mentioned including the brick used at 198, 263 and 290 2nd Avenue as appropriate.)

Denise Grimm, AICP (*Pronouns: She/her/hers*) | **Principal Planner-Historic Preservation**

Boulder County Community Planning & Permitting

720-564-2611 dgrimm@bouldercounty.gov



Parks & Open Space

5201 St. Vrain Road • Longmont, CO 80503 303-678-6200 • POSinfo@bouldercounty.org www.BoulderCountyOpenSpace.org

TO: Pete L'Orange, Community Planning & Permitting Department

FROM: Ron West, Natural Resource Planner

DATE: July 13, 2025

SUBJECT: Docket SPR-24-0054, 291 2nd Avenue LLC, 291 2nd Avenue

Staff has reviewed the submitted materials, and has no natural resource concerns with the proposal. The parcel is in "urban" Niwot, and no significant resource impacts are expected.



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 303-441-3930 • www.BoulderCounty.gov

MEMO TO: County Health and Parks Departments, FPD

FROM:

Pete L'Orange, Senior Planner

DATE:

June 10, 2025

RE:

Site Plan Review application SPR-25-0054

Docket SPR-25-0054: 291 2nd Ave LLC Mixed Use Development

Request: Site Plan Review for construction of a new 9,426-square-foot Mixed

Use development at 291 2nd Avenue.

Location:

291 2nd Avenue, Section 25, Township 2N, Range 70W

Niwot Rural Community (NRCDI) Zoning District I

Zoning: Owner:

291 2nd Avenue LLC

Applicant:

John Richard Fischer C/O 291 2nd Avenue LLC

Agent: Tucker Huey C/O Osmosis Architecture

Site Plan Review by the Boulder County Community Planning & Permitting Director is required for new building/grading/access or floodplain development permits in the plains and mountainous areas of unincorporated Boulder County. The subject review process considers potential significant impact to the ecosystem, surrounding land uses and infrastructure, and safety concerns due to natural hazards.

The Community Planning & Permitting staff values comments from individuals and referral agencies. Please check the appropriate response below or send a letter to the Community Planning & Permitting Department at P.O. Box 471, Boulder, Colorado 80306 or via email to planner@bouldercounty.gov. All comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to call the Community Planning & Permitting Department at 303-441-1418 or email plorange@bouldercounty.gov to request more information.

Please return responses by July 1, 2025.

We have reviewed the proposal and have no confline. Letter is enclosed.	cts.
Signed Name Wight Junk Printed Nam	e Michele Funk
Agency or Address Niwot Sanitation D	istrict
Date 6 10 2025	

Niwot SANITATION DISTRICT

June 10, 2025

Boulder County Community Planning & Permitting P.O. Box 421 Boulder, CO 80306

RE: Docket SPR-25-0054: 291 2nd Ave LLC Mixed Use Development Site Plan Review

To Whom This May Concern:

This property currently has one sewer tap. Due to this request consisting of four residential and four commercial properties, an additional seven sewer tap purchases will be required.

As per Section 4.3.1 of the Niwot Sanitation District Rules and Regulations, all rates for sanitary sewer service shall be based on the single-family equivalent (SFE) where all private dwellings and small businesses are one SFE (one sewer tap).

The Niwot Sanitation District conducts an annual commercial water audit using the water usage from November through March. Commercial properties that are found to be discharging more water than the number of taps purchased for that property (7800 gallons per month per tap) will be required to purchase additional sewer taps.

Sincerely,

Michele Funk Office Manager

Michel Frak



Right of Way & Permits

1123 West 3rd Avenue Denver, Colorado 80223 Telephone: **303.571.3306** Facsimile: 303.571.3284 Donna.L.George@xcelenergy.com

July 1, 2025

Boulder County Community Planning and Permitting PO Box 471 Boulder, CO 80306

Attn: Pete L'Orange

RE: 291 2nd Ave LLC, Case # SPR-25-0054

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the site plan for **291 2nd Ave LLC**. Please be aware PSCo owns and operates existing overhead electric distribution facilities along 2nd Avenue and near the west corner at the rear of the lot. The property owner/developer/contractor must complete the application process for any new natural gas or electric service, or modification to existing facilities via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details.

If additional easements need to be acquired by separate PSCo document, a Right-of-Way Agent will need to be contacted by the Designer.

As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.

Donna George
Right of Way and Permits

Public Service Company of Colorado dba Xcel Energy

Office: 303-571-3306 – Email: Donna.L.George@xcelenergy.com



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 303-441-3930 • www.BoulderCounty.gov

MEMO TO: County Health and Parks Departments, FPD

FROM: Pete L'Orange, Senior Planner

DATE: June 10, 2025

RE: Site Plan Review application SPR-25-0054

Docket SPR-25-0054: 291 2nd Ave LLC Mixed Use Development

Request: Site Plan Review for construction of a new 9,426-square-foot Mixed

Use development at 291 2nd Avenue.

Location: 291 2nd Avenue, Section 25, Township 2N, Range 70W

Zoning: Niwot Rural Community (NRCDI) Zoning District I

Owner: 291 2nd Avenue LLC

Applicant: John Richard Fischer C/O 291 2nd Avenue LLC

Agent: Tucker Huey C/O Osmosis Architecture

Site Plan Review by the Boulder County Community Planning & Permitting Director is required for new building/grading/access or floodplain development permits in the plains and mountainous areas of unincorporated Boulder County. The subject review process considers potential significant impact to the ecosystem, surrounding land uses and infrastructure, and safety concerns due to natural hazards.

The Community Planning & Permitting staff values comments from individuals and referral agencies. Please check the appropriate response below or send a letter to the Community Planning & Permitting Department at P.O. Box 471, Boulder, Colorado 80306 or via email to planner@bouldercounty.gov. All comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to call the Community Planning & Permitting Department at 303-441-1418 or email plorange@bouldercounty.gov to request more information.

Please return responses by July 1, 2025.	
We have reviewed the proposal and I	nave no conflicts.
Signed Name Word Wack	Printed Name Marka Handers
Agency or Address Left Hand Water	District
Date_ 6/27/2025	



June 27, 2025

Pete L'Orange Boulder County Community Planning & Permitting PO Box 471 Boulder, CO 80306

RE: SPR-25-0054 291 2nd Ave LLC Mixed Use Development at 291 2nd Avenue

Mr. L'Orange:

The applicant at 291 2nd Avenue currently has an existing commercial account associated with the property. Based on the information provided in the application the district requires that the applicant must submit a new Tap Availability Review Request Form and Commercial Supplemental Form to Left Hand Water District prior to the start of any new construction. The forms are available online at lefthandwater.gov. Improvements to existing infrastructure may be necessary to support the proposed facility.

Feel free to contact me if you have any questions or require further information.

Sincerely,

District Engineer Left Hand Water District (303) 530-4200

Martin Harders

Martin Harders, P.E.



MOUNTAIN VIEW FIRE RESCUE

TRUST • TEAMWORK • PROFESSIONALISM

Boulder County Planning

Re: 291 2nd Ave LLC mixed use building SPR-25-0054

June 11, 2025

Mountain View Fire has reviewed the submitted SPR. The building will require fire sprinklers, fire alarm and will be subject to the currently adopted IFC at time of permit submission. Access for FDC and aerial access must be maintained.

Regards,

Michelle Kelly Deputy Fire Marshal 720-881-6527 mkelly@mvfpd.org