

June 3, 2024

Bryce Bishop, Senior Planner  
City of Salem Community Development Planning Division  
555 Liberty Street SE, Room 305  
Salem, OR 97301



**RE: 1105 Front Street NE – The Cannery (Reference No. 24-106451-PLN) Completeness Response**

Mr. Bishop,

Please accept this letter and the accompanying materials as Applicant’s response to the City’s April 20, 2024, determination that application 24-106451-PLN was incomplete as originally submitted (Attachment A) and April 22, 2024, Supplemental Item letter (Attachment B). We believe the materials provided here fully respond to the items outlined in the City’s letter and establish the necessary basis to deem the application complete. We look forward to continuing to work with City staff on any issues, as necessary, during the review and approval process.

Our responses to the incompleteness items are as follows:

#### **Completeness Items**

1. **Application Form.** SRC 300.210(a)(1)(G) requires land use applications to be signed by the applicant, owner of the property, and/or the duly authorized representative. The land use application form submitted is signed by Trent Michels. Per SRC 300.210(a)(1)(G), land use applications are required to be signed by the applicant and owner, or an authorized representative thereof.

*Because the subject properties are owned by Front Street Properties LLC and Truitt Properties LLC, authorized representatives of these two companies are also required to sign the application form authorizing its submittal.*

**Response:** The application form, signed by the authorized representatives of Front Street Properties, LLC, and Truitt Properties, LLC, is included as Attachment C. This item is complete.

2. **Application Fee.**  
*Site Plan Review Fee: In review of the application fee paid for the Site Plan Review component of the application, it appears that the “Type of Plan Check” selected during the folder creation process was Multi-Family. However, because the proposal is for a mixed-use development, the Multi-Family plan check is incorrect and the applicable Site Plan Review application fees were incorrectly billed. The correct total Site Plan Review fee should be \$93,484.00. The site plan review fee that was paid (\$68,148.00) was for a multi-family project and is therefore less than the full required amount. An additional application fee of \$25,336.00 is therefore required for the site plan review application.*

**Response:** The difference in the site plan review fee will be paid once loaded into the City’s Permit Application Center (PAC) Portal folder for this application. This item will be completed.

*Class 2 Adjustment Fee: Based on review of the application materials submitted for the application a Class 2 Adjustment was requested in order to approve an alternative street standard for the*

*planned design of Front Street NE. A Class 2 Adjustment is not required, however, for alternative street standards. As such, there is one less Class 2 Adjustment required with the application and the Class 2 Adjustment component of the application was overpaid by \$250.00.*

**Response:** Additional Class 1 and Class 2 Adjustments are requested as a part of this completeness response. The overpayment on the Class 2 Adjustment component can be applied to the additional Class 1 and Class 2 Adjustments requested. Applicant will pay the additional fees once loaded into the PAC Portal folder for this application. This item will be completed.

3. **Recorded Deed.** *SRC 300.210(a)(2) requires copies of the recorded deeds, with legal descriptions, to be submitted for the properties included in a land use application. A title report has been provided, but copies of the current recorded deeds for the properties have not yet been submitted.*

**Response:** Copies of the recorded deeds are included as Attachment D. This item is complete.

4. **Proof of Signature Authority.** *The subject properties are owned by Front Street Properties LLC and Truitt Properties LLC. The application form is required to be signed by the authorized representatives of both companies and proof of signature authority is required for whomever signs the application demonstrating they have signature authority to sign the application on behalf of the companies.*

**Response:** Proof of signing authority for the authorized representatives of Front Street Properties, LLC, And Truitt Properties, LLC, is provided in Attachment E. This item is complete.

5. **List of LLC Members.** *SRC 300.210(a)(3) requires the submittal of any information that would give rise to an actual or potential conflict of interest under state or local ethics laws for any member of a Review Authority that will or could make a decision on the application.*

*In order to implement this submittal requirement applicants are required to submit a list of the names of all of the members of the company, LLC, or organization that is involved with a land use application request as either an owner or applicant. This allows the members of any potential Review Authority at the City who may end up reviewing the application to be able to identify whether any potential conflict of interest exists with the applicant and/or property owner.*

*Because the subject properties are owned by Front Street Properties LLC and Truitt Properties LLC, a list of all of the members of these companies is needed.*

**Response:** A list of all the members of Front Street Properties, LLC, and Truitt Properties, LLC, is provided in Attachment E. This item is complete.

6. **Tree Preservation & Removal Plan.** *The Tree Preservation and Removal Plan needs to be revised to address the following:*

*Riparian Corridor Boundaries: The subject property is located adjacent to both the Willamette River and Mill Creek. The Tree Preservation and Removal Plan needs to be revised to show the 75-foot-wide riparian corridor of the Willamette River and the 50-foot-wide riparian corridor of Mill*

*Creek in order to determine which trees and native vegetation on the site are within a riparian corridor boundary and therefore protected under SRC 808.020.*

**Response:** The 75-foot-wide riparian corridor of the Willamette River and the 50-foot-wide riparian corridor of Mill Creek have been added to the Tree Preservation and Removal Plan in the revised Preliminary Land Use Plans provided as Attachment F. This item is complete.

*Riparian Corridor Vegetation: Per SRC 808.020, both trees and native vegetation are protected within riparian corridors. The Tree Preservation and Removal Plan appears to inventory trees with a dbh of 10 inches or greater. The application materials provided do not, however, identify whether an inventory of existing native vegetation was conducted. Confirmation is needed whether there is any existing native vegetation located within the riparian corridors of either the Willamette River or Mill Creek present on the property and, if so, whether the native vegetation is proposed to be preserved or removed. Within riparian corridors, native vegetation includes trees less than 10 inches dbh.*

**Response:** On May 30, 2024, an inventory of native vegetation near the planned improvements was conducted by the Applicant's natural resources consultant. The inventory identified California laurel and rhododendron shrubs behind Building 5, and maple trees and saplings two to three feet west of the current developed area designated for the Willamette Greenway path at the project's north end.

The native vegetation behind Building 5 conflicts with the Willamette Greenway path and will likely require removal for path construction and associated grading, as permitted by SRC 808.030(a)(2)(G). Any shrubs outside the conflict area will be preserved. Similarly, the maple trees and saplings along the Willamette Greenway path at the project's north end will be preserved.

This item is complete.

*Tree Removal Permit Exemption: SRC 808.030(a)(2)(G) exempts the removal of trees and native vegetation within a riparian corridor from the requirement to obtain a tree removal permit when the removal of the tree or native vegetation is necessary for public trail or public park development and maintenance. It doesn't appear, however, that all of the trees identified for removal need to be removed to accommodate the construction of the Willamette Greenway path. See tree removal comments included with arborist's report identifying those trees which appear as though they can be preserved based on their assessed health and the minimal amount of disturbance to their critical root zones.*

**Response:** The Applicant's Certified Arborist revisited the site to determine which trees identified for removal need to be removed to accommodate the construction of the Willamette Greenway path and which ones can be preserved if the additional elements to enhance the Willamette Greenway path are modified in those areas. The Tree Preservation and Removal Plan in Attachment F and the Preliminary Landscape Plans in Attachment H have been revised to reflect the preservation of these trees that the Willamette Greenway path itself does not necessitate removing. This item is complete.

*Trees & Vegetation on Proposed Lots 5 & 6: The Tree Preservation and Removal Plan does not include proposed Lots 5 and 6 of the subdivision. If any required improvements associated with*

*the approval of the subdivision (such as utility lines, bike paths, etc..) will be required to cross through Lots 5 and 6 and such improvements will result in the need to remove existing trees and vegetation on that portion of the site, the Tree Preservation and Removal Plan will need to be revised to show the riparian corridor boundary of the Willamette River and existing trees and native vegetation on Lots 5 & 6 that that will be proposed for removal.*

**Response:** No improvements to Lots 5 and 6 are planned in areas that would result in the need to remove existing trees and vegetation. As detailed in the written narrative in the original submittal, Lots 5 and 6 are planned to be permitted separately at a later date. The improvements on these lots will consist of only stubbing utilities during the construction of Front Street NE. This completeness item is not applicable.

7. ***Approved Subdivision Name.*** For subdivision applications, SRC 205.030(j)(3) requires submittal of a name for the subdivision that's been approved by the County Surveyor. The Marion County Subdivision/Condominium Name Request Form that's required to be completed and submitted with the subdivision application can be found on the Marion County Surveyor's Office website at the following location:

<https://www.co.marion.or.us/PW/Survey/Documents/subcondonamerequest.pdf>.

**Response:** The Marion County Subdivision/Condominium Name Request Form was submitted to the County Surveyor for approval. The submitted form is provided in Attachment I. This item is complete.

8. ***New CFEC Standards for Large Parking Lots.*** The total size of the new surface parking lot area included with the development is more than one-half acre in size. Therefore, the additional new large parking lot landscaping standards adopted in response to the State's Climate Friendly & Equitable Communities (CFEC) administrative rules apply. The additional parking lot standards are included under SRC 806.035(n).

**Response:** Responses to the additional parking lot standards included under SRC 806.035(n) are provided in Attachment J. Revised Preliminary Landscape Plans showing conformance are provided in Attachment H. This item is complete.

9. ***Additional Comments on Plans.***

*Tentative Plat*

**Response:** The Willamette Greenway Compatibility Review Boundary has been added to the Tentative Plat in the revised Preliminary Land Use Plans in Attachment F. Applicant's surveyor coordinated with the County assessor to confirm that the reserve strip mentioned is incorrectly mapped on the tax map, and Applicant's plat is correct (Attachment G). This item is complete.

*Preliminary Tree Preservation and Removal Plan & Tree Table*

**Response:** As detailed above, the 75-foot-wide riparian corridor of the Willamette River and the 50-foot-wide riparian corridor of Mill Creek have been added to the Tree Preservation and Removal Plan in the revised Preliminary Land Use Plans provided in Attachment F. Additionally, Applicant's Certified Arborist revisited the site to determine which trees

identified for removal need to be removed to accommodate the construction of the Willamette Greenway path and which ones can be preserved if the additional elements to enhance the Willamette Greenway path are modified in those areas. The Tree Preservation and Removal Plan and Preliminary Tree Table have been revised to reflect the preservation of these trees that the Willamette Greenway path itself does not necessitate removing. A letter from Applicant's arborist is included in Attachment Q. These items are complete.

### Preliminary Site Plan

#### *Willamette Greenway Compatibility Review Boundary*

**Response:** Staff requested that the Willamette Greenway Compatibility Review Boundary be added to the Preliminary Site Plan. The boundary has been added to the revised Preliminary Site Plan provided in Attachment F. This item is complete.

#### *Planned Subdivision Lot Lines*

**Response:** Staff requested that the new subdivision lot lines are difficult to distinguish. The planned subdivision lot lines have been revised to be easily distinguishable on the revised Preliminary Site Plan provided in Attachment F. This item is complete.

#### *Unit Count*

**Response:** Staff requested that the total number of dwelling units be confirmed. The unit count has been confirmed as 371 and is noted on the revised Preliminary Site Plan provided in Attachment F and the revised Preliminary Building Elevations and Floor Plans in Attachment K. This item is complete.

#### *Belmont Alley*

**Response:** Staff clarified that Belmont Alley is not an alley, but rather a one-way driveway. The standards for a one-way driveway have been applied to Belmont Alley rather than alley standards including vehicle use area setback and vision clearance triangles. This item is complete.

#### *Loading Zone*

**Response:** The loading space along Belmont Alley has been revised to be outside of the required five-foot setback and, as noted on the Preliminary Site Plan (Exhibit A of the original application submittal and Attachment F of this completeness response), the loading spaces will be scheduled and coned off by the site operator when necessary. The location of the spaces each meet all standards in SRC 806.080; however, it is understood that Staff believe that SRC 806.080(d) is not met as the loading spaces extend into the driveways. With the loading spaces managed by the site operator, the safe operation of a delivery vehicle and other site users will be achieved. Furthermore, this interpretation of SRC 806.080(d) is not practicable for, and does not anticipate the unique conditions of high-density infill development such as The Cannery. This item is complete.

### *Trash Collection Vehicle Operation Area – Belmont Alley*

**Response:** Staff indicated that Belmont Alley is only 13 feet in width and will not meet the minimum required 15-foot width for a trash collection vehicle operation area (SRC 800.055(f)(1)(A)). As detailed in the written narrative of the original application, Applicant has consulted with Republic Services on the planned design for solid waste service on the site, including the trash collection vehicle operation area along Belmont Alley, and Republic Services has consented to the planned approach (see Exhibit M of the original application submittal). Belmont Alley is planned with mountable curbs as shown in the Belmont Alley cross section on Sheet P11 of the original Preliminary Land Use plans (see Exhibit A of the original application submittal) and the revised Preliminary Land Use Plans in Attachment F. Mountable curbs widen the usable area for trash collection vehicle operation to greater than 15 feet in width therefore meeting the applicable standard. This item is complete.

### *Parking Garage Setback*

**Response:** Staff indicated that a 5-foot landscape setback is required for the portion of the parking garages in Building 1, Building 2, and Building 3 that abut the interior property lines along the site's driveways. A Class 2 Adjustment to the parking garage setback standard in SRC 806.035(c)(5) is included with this completeness response to decrease the setback to 0-feet. Refer to the adjustment criteria responses in Attachment J for more detail. With the requested adjustment, this item is complete.

### *5-foot Setbacks*

**Response:** Staff indicated that a 5-foot landscape setback is required for all vehicle use areas abutting interior property lines (SRC 806.035(c)(3)). Staff clarified that this setback cannot be fulfilled by a pedestrian walkway, unlike vehicle use areas abutting buildings within the site. The interior western property lines for planned Lot 4 were adjusted to meet this standard as shown on the revised Preliminary Site Plan in Attachment F. A Class 2 Adjustment to the 5-foot setback standard along the north and south interior property lines of planned Lot 4 is included with this completeness response. Refer to the adjustment criteria responses in Attachment J for more detail. With the requested adjustment, this item is complete.

### *Parking Stall Overhang*

**Response:** Staff identified that the overhang of the vehicle parking stalls planned near Building 6 (the Market) would interfere with the trees planned along the front of the stalls. To address this, the vehicle parking stalls were adjusted to compact parking stalls with wheel barriers. This item is complete.

### *Parking Garage Entrances and Turnaround*

**Response:** Staff indicated that the parking garage entrances for Buildings 1, 2, and 3 are required to be increased to 22 feet for two-way driveways (SRC Table 806-8). All parking garage entrances have been enlarged to meet this dimensional requirement. Please note that the parking garage entrances for Buildings 1 and 2 are intended for one-way traffic as noted on the revised Preliminary Site Plan provided in Attachment F and the revised

Preliminary Building Elevations and Floor Plans in Attachment K. Nevertheless, all entrances are now 22 feet in width.

Staff also indicated that a turnaround area is required at the dead-end of the parking lot drive aisle in Building 3 per SRC 806.035(f)(2). A turnaround area meeting the dimensional requirements is shown on the revised Preliminary Site Plan provided in Attachment F and the revised Preliminary Building Elevations and Floor Plans in Attachment K.

These items are complete.

#### Landscape Land Use Diagram

**Response:** Staff noted that the new surface parking lot areas are greater than one-half acre in size; therefore, the State's Climate Friendly and Equitable Communities (CFEC) administrative rules, specified in SRC 806.035(n), apply. These additional landscape standards are responded to in the responses to additional SRC standards in Attachment J and noted on the revised Preliminary Landscape Plans in Attachment H. This item is complete.

#### Preliminary Building Elevations and Floor Plans

##### *Ground Floor Building Height*

**Response:** Staff noted that per SRC Table 536-6, the ground floor building height is measured from the floor to the ceiling. The ground floor building height from floor to ceiling for Buildings 1, 2, and 3 has been added to the elevations in the revised Preliminary Building Elevations and Floor Plans in Attachment K. The planned ground floor height is 12-feet which exceeds the required minimum ground floor height of 10-feet. This item is complete.

##### *Parking Garage Entrances, Drive Aisles, and Turnaround*

**Response:** Responses to Staff's comments regarding the parking garage entrances and turnaround area are addressed in the responses to the Preliminary Site Plan comments above. Staff also indicated that the minimum parking lot drive-aisle is 24 feet. The drive aisles have been increased to meet this dimensional standard as shown on the revised Preliminary Site Plan provided in Attachment F and the revised Preliminary Building Elevations and Floor Plans in Attachment K. These items are complete.

##### *Bicycle Parking*

**Response:** Staff provided multiple comments on the various bicycle parking locations. These comments included a request for more detailed drawings to ensure the locations meet all standards, such as access dimensions and locational requirements.

The bicycle parking plan for Buildings 1, 2, and 3 has been modified to have all long-term bicycle parking located in the automated system in the parking garage. The automated parking system will include automated bicycle parking platforms to be accessed from a lockable/access restricted parking bay. The bicycle parking platforms meet all dimensional standards as shown on the enlarged bike plan included in the revised Preliminary Building Elevations and Floor Plans in Attachment K. Additional detail has been added to the short-term bicycle parking spaces outside Buildings 1, 2, and 3.

The bicycle parking for the Food Hall has been revised to include short-term bicycle parking spaces within a convenient distance of, clearly visible from, and no more than 50 feet from the primary building entrances. Due to the mix of uses within the building, including the food hall and various retail spaces, the bicycle parking spaces have been divided to be within close proximity to the multiple primary entrances for the different uses as shown on the revised Preliminary Building Elevations and Floor Plans in Attachment K.

Bicycle parking for the Market has been revised to be located within a convenient distance of, clearly visible from, and no more than 50 feet from the primary building entrance as shown on the revised Preliminary Building Elevations and Floor Plans in Attachment K.

These items are complete.

#### *Property Lines*

**Response:** Staff requested that property lines be shown on all floor plans. Property lines have been added to all floor plan sheets as shown in the revised Preliminary Building Elevations and Floor Plans in Attachment K. This item is complete.

#### *Building Height*

**Response:** Staff noted that the Market building height does not meet the minimum building height of 20-feet in the Mixed-Use Riverfront (MU-R) zone (as measured per SRC 112.035(c)(2)). The height of the Market has been adjusted to meet the minimum building height standard as shown in the revised Preliminary Building Elevations and Floor Plans in Attachment K. This item is complete.

### **Development Services Comments**

1. ***Traffic Impact Analysis.*** Pursuant to SRC 220.005(e)(2)(I) and 803.015(b)(1), a Traffic Impact Analysis (TIA) is required. The applicant's traffic engineer is advised to contact Tony Martin, Assistant City Traffic Engineer, at 503-588-6211 or [tmartin@cityofsalem.net](mailto:tmartin@cityofsalem.net) to discuss the scope needed and if there are any questions about the TIA requirements.

**Response:** A Traffic Impact Analysis (TIA) is included as Attachment L. This item is complete.

2. ***Class 2 Driveway Approach Permit.*** The applicant applied for three (3) Class 2 Driveway Approach Permits; however, one additional may be required. There is a driveway on the plans that extends towards Shipping Street NE. It is unclear if this will be constructed as part of this development or in the future. If constructed with this development, the proposed driveway approach will be subject to the Class 2 Driveway Approach requirements described in SRC 804.025. The applicant shall submit the applicable application and fee.

**Response:** The driveway that was shown as extending into planned Lots 5 and 6 towards Shipping Street NE has been revised to be stubbed at the end of planned Lot 4. A future phase(s) of development on Lot 5 and Lot 6 will include the necessary driveway approach permits. An additional Driveway Approach Permit is not required at this time. This item is not applicable.

3. ***Stormwater Management.*** *The application does not provide sufficient details to identify how the site is compliant with SRC 71, it does not appear based on the information provided that adequate area has been provided for GSI pursuant to Public Works Design Standards (PWDS) Appendix 4E. Comments on the stormwater report will be provided to the applicant's engineer. The applicant should indicate if stormwater management for lots 5 and 6 will be deferred until development on those lots.*

**Response:** The stormwater basin map has been updated to indicate how existing pier buildings are currently draining and how they will continue to drain. Additionally, the map has been updated for planned Lots 5 and 6 to demonstrate compliance with Design Standards by setting aside 10 percent of the developable area of Lots 5 and 6. A stormwater report will be included with submittal for the future development phase(s) when such improvements are known, to further demonstrate compliance with applicable standards. Additional responses to City comments on the stormwater report from Applicant's engineer are included in Attachment M. This item is complete.

4. ***Street Trees Required.*** *Existing and proposed street trees shall be shown on the applicants site plan per SRC 220.005(e)(1)(A)(ix).*

**Response:** All existing street trees are identified on the Existing Conditions Plan in Attachment F. One street tree is located just south of the site along Front Street NE and is not planned for removal at this time. Proposed street trees are identified on the Preliminary Landscape Plans in Attachment H and the revised Preliminary Land Use Plans in Attachment F. Please note that the final design of Front Street NE is still being coordinated between the Applicant, the City, and affected rail stakeholders and the ultimate design for Front Street NE may change. Therefore, the street tree locations are preliminary and subject to change. This item is complete.

5. ***Tentative Subdivision Plan.*** *The tentative plan does not include all required items listed under SRC 205.030(a).*

- *The Shipping Street right-of-way is not shown on the tentative plat. Required cul-de-sac right-of-way is not shown on the plan (see below comments).*

**Response:** An alternative design for the requested Shipping Street cul-de-sac right-of-way is included in Attachment R. This alternative design has been provided to City Staff for review. Applicant requests that the final design and right-of-way dedication of the Shipping Street cul-de-sac be a condition of approval to be finalized when Phase 2 improvements are known.

6. ***Utility Plan (Subdivision).*** *The application shall include a preliminary utility plan demonstrating how proposed lots 5 and 6 will be served pursuant to SRC 205.030(f).*

**Response:** The revised Preliminary Land Use Plans in Attachment F include a Conceptual Lot 5 and 6 Utility Plan demonstrating how planned Lots 5 and 6 can be served. This item is complete.

7. **Title Report.** *Submit a current title report for the subject property for review by the Survey Section pursuant to SRC 205.030(b). A title report dated 30-days from time of application is required.*

*Note: A revised title report was submitted on 04/19, so this item may be resolved unless issues arise upon review of the revised report.*

**Response:** Applicant will submit a current title report if the City indicates that the title report submitted on April 19, 2024, has issues that need to be resolved. The submitted title report is also included as Attachment N. This item is complete.

8. **Deed History.** *Survey is not able to determine lot legality at this time. The hyper-links in the 'Survey Memo' are expired; therefore Survey is unable to review the deed history.*

**Response:** Applicant provided an updated deed history and the title report with hyperlinks on April 30, 2024. This deed history is also provided as Attachment O. This item is complete.

#### Items of Concern

1. **Street Tree Removal.** *The applicant's plans show removal of City-owned trees. The applicant is advised that a street tree removal application is required for the trees proposed for removal prior to issuance of Public Construction or Building Permits. The applicant may contact Zach Diehl in Development Services with any questions regarding the street tree removal process at 503-588-6211 ext.7435, or via email at Zdiehl@cityofsalem.net.*

**Response:** Applicant understands that any street tree removal will require a street tree removal application approval prior to issuance of Public Construction or Building Permits. No street trees are planned for removal at this time, as shown on the Preliminary Tree Preservation and Removal Plan in Attachment F. This item will be completed, as necessary. A final tree removal application cannot be completed until the Front Street NE ultimate section is established with the City, ODOT Rail, PNWR, and BNSF.

2. **Floodplain Development Comments.**

*LOMR – Staff understands a LOMR is pending for the floodway portion of the property. The applicant should provide the LOMR upon approval from FEMA.*

**Response:** Applicant provided City Staff with the LOMR-FW approval from FEMA (Attachment S) This item is complete.

*Substantial Improvements – It appears the applicant is proposing to construct two new buildings on existing pier systems. The applicants plans should indicate the finished floor elevation of the existing pier systems. The proposal appears to constitute a Substantial Improvement per SRC Chapter 601.*

**Response:** The Preliminary Onsite Grading and Drainage Plan included in the original application identifies the finished floor elevations of each building including the two noted buildings on existing pier systems (see Exhibit A of the original application submittal). The finished floor elevation of Building 4 is 144.20 feet, and the finished floor elevation of Building 6 is 145.00 feet. The base flood elevation, as noted on the Existing Conditions Plan is 141.10

feet. Therefore, these buildings on the existing pier systems are not below the floodplain elevation. This item is complete.

3. ***TSP/Parks Path Alignment.*** *The Willamette River Greenway Path, an off-street shared use path, is identified on the subject property. The applicant's plans do not demonstrate how the path provides connectivity to Front Street along the Southern property Boundary or to Shipping Street along the northern property boundary.*

*The plan for the path should be shown throughout the entire subdivision boundary to ensure that alternative connectivity requirements are met. Additionally, a 15-foot-wide easement and 10-foot-wide minimum constructed path is required.*

*If the path is not completed throughout the entire subdivision with completion of the first phase of development, the applicant will need to provide a temporary connectivity plan.*

**Response:** The Willamette River Greenway path will not be completed through Lots 5 and 6 at this time. A 15-foot easement for the Willamette River Greenway Path is noted on the revised Preliminary Land Use Plans in Attachment F and Preliminary Landscape Plans in Attachment H for Lots 1 through 4. Additionally, the revised Preliminary Land Use / Landscape Plans identify the temporary connectivity plan to Front Street NE. As requested by City staff, these temporary access routes will be provided within temporary access easements which will not be included on the final plat. These items are complete.

4. ***Existing Easements for Public Utilities.*** *There are existing easements on the subject property for public infrastructure. The applicant is advised that no new structures are permitted within existing/proposed easements. Conditions of approval will require dedication of new easements to meet current Public Works Design Standards (PWDS) for minimum easements widths pursuant to SRC 802.020. The applicants revised utility plan should indicate which mains will remain in easements and which shall be abandoned/relocated.*

**Response:** The Preliminary Utility Plan within the revised Preliminary Land Use Plans in Attachment F has been revised as requested above. Additionally, the Tentative Plan in Exhibit A of the original submittal, and Attachment F of this completeness response identify which easements are planned to be quitclaimed/vacated. Please confirm if there are any identified issues that the City has with the proposed parking infrastructure, landscaping, etc. planned within the easement areas. This item is complete.

5. ***Common Private Sewer.*** *SRC 802.040 allows private common sewer systems if the criteria of this section are met. The applicant is advised that a common private sewer may be an option for the development rather than multiple individual service lines.*

**Response:** Applicant will provide a common private sewer rather than multiple individual service lines. See the revised utility plan in Attachment F. This item is complete.

6. ***Alternative Street Standard.*** *The applicant is proposing a street design that does not conform to minor arterial street standards. The application shall include findings for alternative street standards pursuant to SRC 803.065(a) or be revised to comply with the standards. Please note that an Alternative Street Request is included under the applicant's requests for adjustments; however,*

*the application should include an analysis of SRC 803.065 as justification for Alternative Street Standards.*

*Staff notes the following alternatives:*

- *Block spacing – Front Street NE exceeds the 600-foot block spacing standard.*
  - *Staff supports this request with a with 10-foot shared path consistently throughout the site that provides connectivity, discussed above.*
- *30-foot half width ROW where 36 is required along the southern portion of front street.*
  - *Staff supports this request if consistent with the ultimate design of Front Street NE.*
- *Front Street NE Design does not conform to minor arterial standards.*
  - *Staff acknowledges that an alternative is required for the design of Front Street; however, additional discussions are needed in order to specify a cross section in the subdivision decision. A meeting will be scheduled with the City Engineer for discussion of Front Street NE.*

**Response:** Applicant included findings for alternative street standards pursuant to SRC 803.065(a) in the written narrative of the original submittal. Additional clarification on the three alternatives listed above is included in the responses to additional SRC standards in Attachment J. This item is complete.

7. **Boundary Street Improvements.** *The applicant should be aware that Shipping Street NE is considered a “Boundary Street” for the subdivision and will require improvements. These improvements could be deferred until Site Plan Review for Lot 6. Right-of-way dedication will be required to be shown on the tentative plan.*

*Streets shall terminate as a cul-de-sac, as such, the applicant will be required to dedicate a half-width cul-de-sac at the terminus of Shipping Street NE and construct a half street improvement along the frontage and within the cul-de-sac.*

**Response:** An alternative design for the requested Shipping Street cul-de-sac right-of-way is included in Attachment R. This alternative design has been provided to City Staff for review. Applicant requests that the final design and right-of-way dedication of the Shipping Street cul-de-sac be a condition of approval to be finalized when Phase 2 improvements are known.

8. **Adjustment for Driveway Width.** *The applicant has requested an adjustment to maximum driveway width for the Gaines Street Entrance, which is planned to be one-way. The applicant is advised that mitigation measures should be included to ensure one-way travel is maintained and that pedestrian conflicts are reduced (stop bar, “NO Entrance signs”, double arrows).*

**Response:** The Gaines Street Entrance is now noted as a two-way driveway with a width of 24 feet. The minimum driveway width for two-way traffic is 22 feet. Therefore, this driveway now meets the standard in SRC Table 806-8, and the adjustment requested is no longer applicable. The difference in adjustment fees will be determined at the time of this completeness submittal. The \$250 application fee which was paid may be applied to one of the additional adjustments requested. This item is complete.

9. **Vision Clearance.** *The driveway entrances labeled as “Belmont Alley” and “Market Street Entrance” do not meet vision clearance standards established in SRC 805.005. The applicant is advised to revise the plans to meet the vision clearance standards in SRC Chapter 805.005 or submit a request for an adjustment to the vision clearance standard per SRC 805.015, including the analysis required under SRC 805.015.*

*Note that the applicant has requested an adjustment for the Market Street Entrance; however, has not included the analysis required under SRC 805.015. It is recommended that the applicant’s Traffic Engineer review and recommend mitigation for the adjustment as part of the required TIA.*

**Response:** An alternative vision clearance standard (Class 2 Adjustment), per SRC 805.005, was requested for the Market Street Entrance. Applicant originally believed Belmont Alley to be classified as an alley, which requires a reduced vision clearance area. Staff have determined that Belmont Alley is a one-way driveway, not an alley, thus necessitating the larger vision clearance area. Therefore, an additional request for an alternative vision clearance standard for Belmont Alley is included in this completeness response. The analysis required under SRC 805.015 is provided in the responses to additional SRC standards in Attachment J and the TIA in Attachment L. With the requested alternative vision clearance standards, this item is complete.

#### Supplemental Completeness Items

1. **Willamette Greenway Boundary & Compatibility Review Boundary.**

**Willamette Greenway Boundary:** *The site plan submitted identifies the boundary of the Willamette River Greenway as of September 10, 1979. However, in comparison of the location of the Greenway Boundary identified on the site plan to that of City records it appears the location of the two boundary lines are different. Please see the attached site plan with an indication of the location of the Willamette Greenway Boundary per City data. The location of the Willamette Greenway Boundary on the site plan needs to be revised to show the correct location.*

**Response:** The Willamette River Greenway Overlay Zone boundary is defined as the line “mapped by the Oregon Department of Transportation (ODOT)”. Applicant utilized the legal description of the Willamette River Greenway per ODOT’s Willamette River Greenway Plan for the City of Salem from September 10, 1979. However, the legal description provided within the document is vague and the boundary’s location could be interpreted in a variety of ways. For simplicity, the Willamette Greenway Boundary per City data has been added to the pertinent plans within the revised Preliminary Land Use Plans in Attachment F.

**Compatibility Review Boundary:** *The site plan submitted identifies the Willamette Greenway Boundary, but it does not show the Willamette Greenway Compatibility Review Boundary. The site plan needs to be revised to also show the Compatibility Review Boundary.*

**Response:** The Willamette Greenway Compatibility Review Boundary, as defined in SRC 600.010(b), has been added to the pertinent plans in the revised Preliminary Land Use Plans in Attachment F. This item is complete.

2. **Willamette Greenway Development Permit.** *Per SRC 600.015(a)(1), a Willamette Greenway Development Permit is required for any intensification, change of use, or development with the Willamette Greenway Overlay Zone unless exempt under SRC 600.015(a)(2). Based on the location of the Willamette Greenway Boundary and the associated Compatibility Review Boundary in relation to the proposed development, it appears the proposal will include new buildings and site improvements within both the Greenway Boundary and the Compatibility Review Boundary. As such, the proposal will require a Class 2 Greenway Development Permit in addition to the Class 3 Site Plan Review, Subdivision, Class 1 & 2 Adjustment, and Class 2 Driveway Approach Permit.*

**Response:** A Willamette Greenway development permit application for those improvements which are located within the Willamette Greenway Boundary (per City data) is included with this completeness response. Narrative responses to the additional criteria and standards are included in Attachment J. This item is complete.

Please note that the Compatibility Review Boundary does not determine whether a project must apply for a Willamette Greenway Development Permit. Per SRC 600.015(a)(1), "Except as provided under subsection (a)(2) of this section, no intensification, change of use, or development within the Willamette Greenway Overlay Zone shall occur unless a greenway development permit has been issued pursuant to this chapter." The definition of Willamette Greenway Overlay Zone, per SRC 600.010(a) is, "The boundary of the Willamette Greenway Overlay Zone shall be the Willamette Greenway Boundary, as mapped by the Oregon Department of Transportation." This definition does not include the Compatibility Review Boundary.

3. **Willamette Greenway Riparian Buffer.** *The site plan shows the location of the Willamette Greenway Riparian Buffer and the written statement provided with the application indicates that the boundary was determined using Method 2. In order to verify that the location/width of the identified riparian buffer meets the requirements of SRC 600.025(c)(2), a version of the plan is needed showing where the required bank slope measurements were made and the resulting corresponding bank slope measurements.*

**Response:** A Willamette River Riparian Buffer Map identifying the requested information above is provided as Attachment P. This item is complete.

4. **Willamette Greenway Landscaping Standards.** *Shrubs: The written statement provided by the applicant indicates that 556 new shrubs are planned to be provided within the Willamette Greenway Boundary. In review of the plant list included in the landscape plan it appears that some of the plants listed may be considered ground cover rather than shrubs. In order to verify conformance with the shrub planting requirement of SRC 600.025(b)(3)(B), the plant list provided needs to distinguish between plants that are ground cover and those which are shrubs. A shrub is defined under SRC Chapter 807 (Landscaping) as, "...deciduous or evergreen woody plant, smaller than a tree, which consists of a number of small stems from the ground or small branches near the ground."*

**Response:** The plant schedule, included in the revised Preliminary Landscape Plans in Attachment H, has been revised to distinguish between plants that are ground cover and those which are shrubs. This item is complete.

5. **Screening of Parking & Loading Areas.** SRC 600.025(f) requires parking and loading areas to be screened from the Willamette River and adjacent properties by a sight-obscuring berm or a sight-obscuring hedge that is a minimum of 6 feet in height at maturity.

*The written statement provided from the applicant indicates that all parking areas are internal to the site or within parking garages and therefore screened from the Willamette River and adjacent properties. Staff concurs that the spaces within the parking garage are enclosed and therefore obscured from view from the river and adjacent properties, but the surface parking areas on the site do not meet the standard and are required to be screened.*

**Response:** Minimal parking is provided within the Willamette Greenway Boundary (per City data). Those parking areas that are within or abut the boundary are screened from the Willamette River and adjacent properties with a sight obscuring hedge as detailed on the revised Preliminary Landscape Plans in Attachment H. This item is complete.

Thank you for reviewing our application. We believe these additional clarifications and plan revisions completely respond to the items included in your April 20 and 22, 2024, incompleteness letter. Please contact me if you require any additional information.

Sincerely,

**AKS ENGINEERING & FORESTRY, LLC**



Grace Wolff

3700 River Road N, Suite 1

Keizer, OR 97303

(503) 400-6028 | wolffg@aks-eng.com

**Attachments:**

- A. Land Use Application Completeness Review (April 20, 2024)
- B. Land Use Application Completeness Review – Supplemental Items (April 22, 2024)
- C. Application Form
- D. Recorded Deeds
- E. Proof of Signing Authority and List of LLC Members
- F. Revised Preliminary Land Use Plans
- G. County Surveyor Correspondence
- H. Revised Preliminary Landscape Plans
- I. Marion County Subdivision/Condominium Name Request Forms
- J. Responses to Additional SRC Standards
- K. Revised Preliminary Building Elevations and Floor Plans
- L. Traffic Impact Analysis
- M. Engineer Responses
- N. Current Title Report
- O. Deed History
- P. Willamette River Riparian Buffer Map
- Q. Arborist Letter
- R. Shipping Street Improvements
- S. LOMR-FW Approval

# **Attachment A: Land Use Application Completeness Review (April 20, 2024)**

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**Community Planning and Development**

555 Liberty St. SE / Room 305 • Salem, OR 97301-3503 • 503-588-6173 • [www.cityofsalem.net](http://www.cityofsalem.net)

**April 20, 2024**

**LAND USE APPLICATION COMPLETENESS REVIEW**

**Subject Property:** 1105 Front Street NE

**Reference Nos.:** 24-106451-PLN (Class 3 Site Plan Review, Tentative Subdivision Plan, Class 1 & 2 Adjustment, Class 2 Driveway Approach Permit)

**Applicant:** Trent Michels **Phone:**  
 The Future of Neighborhood Development, LLC **E-Mail:** [trent.michels@gmail.com](mailto:trent.michels@gmail.com)

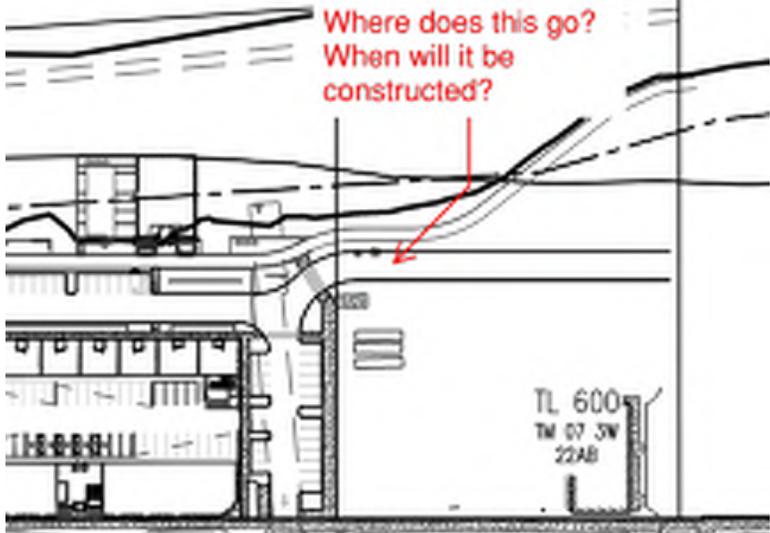
**Agent:** Grace Wolff **Phone:** 503-400-6028  
 AKS Engineering & Forestry, LLC **E-Mail:** [wolffg@aks-eng.com](mailto:wolffg@aks-eng.com)  
 3700 River Road N  
 Keizer, OR 97303

The Planning Division has conducted its completeness review of the proposed Class 3 Site Plan Review, Tentative Subdivision Plan, Class 1 and 2 Adjustment, and Class 2 Driveway Approach Permit for property located at 1105 Front Street NE. In order to deem the application complete and to continue processing the application, modifications/and or additional information is needed to address the following item(s):

Item:	Description:
<b>Application Form</b>	<p>SRC 300.210(a)(1)(G) requires land use applications to be signed by the applicant, owner of the property, and/or the duly authorized representative. The land use application form submitted is signed by Trent Michels. Per SRC 300.210(a)(1)(G), land use applications are required to be signed by the applicant and owner, or an authorized representative thereof.</p> <p>Because the subject properties are owned by Front Street Properties LLC and Truitt Properties LLC, authorized representatives of these two companies are also required to sign the application form authorizing its submittal.</p>
<b>Application Fee</b>	<p><u>Site Plan Review Fee:</u> In review of the application fee paid for the Site Plan Review component of the application, it appears that the "Type of Plan Check" selected during the folder creation process was Multi-Family. However, because the proposal is for a mixed-use development, the Multi-Family plan check is incorrect and the applicable Site Plan Review application fees were incorrectly billed. The correct total Site Plan Review fee should be <b>\$93,484.00</b>. The site plan review fee that was paid (<i>\$68,148.00</i>) was for a multi-family project and is therefore less than the full required amount. An additional application fee of <b>\$25,336.00</b> is therefore required for the site plan review application.</p> <p><u>Class 2 Adjustment Fee:</u> Based on review of the application materials submitted for the application a Class 2 Adjustment was requested in order to approve an</p>

Item:	Description:
	<p>alternative street standard for the planned design of Front Street NE. A Class 2 Adjustment is not required, however, for alternative street standards. As such, there is one less Class 2 Adjustment required with the application and the Class 2 Adjustment component of the application was <b>overpaid by \$250.00</b>.</p>
<b>Recorded Deed</b>	<p>SRC 300.210(a)(2) requires copies of the recorded deeds, with legal descriptions, to be submitted for the properties included in a land use application. A title report has been provided, but copies of the current recorded deeds for the properties have not yet been submitted.</p>
<b>Proof of Signature Authority</b>	<p>The subject properties are owned by Front Street Properties LLC and Truitt Properties LLC. The application form is required to be signed by the authorized representatives of both companies and proof of signature authority is required for whomever signs the application demonstrating they have signature authority to sign the application on behalf of the companies.</p>
<b>List of LLC Members</b>	<p>SRC 300.210(a)(3) requires the submittal of any information that would give rise to an actual or potential conflict of interest under state or local ethics laws for any member of a Review Authority that will or could make a decision on the application.</p> <p>In order to implement this submittal requirement applicants are required to submit a list of the names of all of the members of the company, LLC, or organization that is involved with a land use application request as either an owner or applicant. This allows the members of any potential Review Authority at the City who may end up reviewing the application to be able to identify whether any potential conflict of interest exists with the applicant and/or property owner.</p> <p>Because the subject properties are owned by Front Street Properties LLC and Truitt Properties LLC, a list of all of the members of these companies is needed.</p>
<b>Tree Preservation &amp; Removal Plan</b>	<p>The Tree Preservation and Removal Plan needs to be revised to address the following:</p> <ul style="list-style-type: none"> <li>▪ <b>Riparian Corridor Boundaries:</b> The subject property is located adjacent to both the Willamette River and Mill Creek. The Tree Preservation and Removal Plan needs to be revised to show the 75-foot-wide riparian corridor of the Willamette River and the 50-foot-wide riparian corridor of Mill Creek in order to determine which trees and native vegetation on the site are within a riparian corridor boundary and therefore protected under SRC 808.020.</li> <li>▪ <b>Riparian Corridor Vegetation:</b> Per SRC 808.020, both trees and native vegetation are protected within riparian corridors. The Tree Preservation and Removal Plan appears to inventory trees with a dbh of 10 inches or greater. The application materials provided do not, however, identify whether an inventory of existing native vegetation was conducted. Confirmation is needed whether there is any existing native vegetation located within the riparian corridors of either the Willamette River or Mill Creek present on the property and, if so, whether the native vegetation is proposed to be preserved or removed. Within riparian corridors, native vegetation includes trees less than 10 inches dbh.</li> <li>▪ <b>Tree Removal Permit Exemption:</b> SRC 808.030(a)(2)(G) exempts the removal of trees and native vegetation within a riparian corridor from the requirement</li> </ul>

Item:	Description:
	<p>to obtain a tree removal permit when the removal of the tree or native vegetation is necessary for public trail or public park development and maintenance. It doesn't appear, however, that all of the trees identified for removal need to be removed to accommodate the construction of the Willamette Greenway path. See tree removal comments included with arborist's report identifying those trees which appear as though they can be preserved based on their assessed health and the minimal amount of disturbance to their critical root zones.</p> <ul style="list-style-type: none"> <li>▪ <b>Trees &amp; Vegetation on Proposed Lots 5 &amp; 6:</b> The Tree Preservation and Removal Plan does not include proposed Lots 5 and 6 of the subdivision. If any required improvements associated with the approval of the subdivision (<i>such as utility lines, bike paths, etc.</i>) will be required to cross through Lots 5 and 6 and such improvements will result in the need to remove existing trees and vegetation on that portion of the site, the Tree Preservation and Removal Plan will need to be revised to show the riparian corridor boundary of the Willamette River and existing trees and native vegetation on Lots 5 &amp; 6 that that will be proposed for removal.</li> </ul>
<b>Approved Subdivision Name</b>	<p>For subdivision applications, SRC 205.030(j)(3) requires submittal of a name for the subdivision that's been approved by the County Surveyor. The <i>Marion County Subdivision/Condominium Name Request Form</i> that's required to be completed and submitted with the subdivision application can be found on the Marion County Surveyor's Office website at the following location:  <a href="https://www.co.marion.or.us/PW/Survey/Documents/subcondonamerequest.pdf">https://www.co.marion.or.us/PW/Survey/Documents/subcondonamerequest.pdf</a></p>
<b>New CFEC Standards for Large Parking Lots</b>	<p>The total size of the new surface parking lot area included with the development is more than one-half acre in size. Therefore, the additional new large parking lot landscaping standards adopted in response to the State's Climate Friendly &amp; Equitable Communities (CFEC) administrative rules apply. The additional parking lot standards are included under <b>SRC 806.035(n)</b>.</p>
<b>Additional Comments on Plans</b>	<p>Please see the additional staff comments included on the attached plans.</p>
<p><b><u>Development Services Comments</u></b>  <b><i>Submittal Requirements</i></b> - <i>The following items have been identified as required material to be provided by the applicant prior to deeming the application "complete".</i></p>	
<b>Traffic Impact Analysis</b>	<p>Pursuant to <a href="#">SRC 220.005(e)(2)(l)</a> and <a href="#">803.015(b)(1)</a>, a Traffic Impact Analysis (TIA) is required. The applicant's traffic engineer is advised to contact Tony Martin, Assistant City Traffic Engineer, at 503-588-6211 or <a href="mailto:tmartin@cityofsalem.net">tmartin@cityofsalem.net</a> to discuss the scope needed and if there are any questions about the TIA requirements.</p>
<b>Class 2 Driveway Approach Permit</b>	<p>The applicant applied for three (3) Class 2 Driveway Approach Permits; however, one additional may be required. There is a driveway on the plans that extends towards Shipping Street NE. It is unclear if this will be constructed as part of this development or in the future. If constructed with this development, the proposed driveway approach will be subject to the Class 2 Driveway Approach requirements described in <a href="#">SRC 804.025</a>. The applicant shall submit the applicable application and fee.</p>

Item:	Description:
	
<b>Stormwater Management</b>	<p>The application does not provide sufficient details to identify how the site is compliant with <a href="#">SRC 71</a>, it does not appear based on the information provided that adequate area has been provided for GSI pursuant to <a href="#">Public Works Design Standards (PWDS) Appendix 4E</a>. Comments on the stormwater report will be provided to the applicant's engineer. The applicant should indicate if stormwater management for lots 5 and 6 will be deferred until development on those lots.</p>
<b>Street Trees Required</b>	<p>Existing and proposed street trees shall be shown on the applicants site plan per <a href="#">SRC 220.005(e)(1)(A)(ix)</a>.</p>
<b>Tentative Subdivision Plan</b>	<p>The tentative plan does not include all required items listed under <a href="#">SRC 205.030(a)</a>.</p> <ul style="list-style-type: none"> <li>▪ The Shipping Street right-of-way is not shown on the tentative plat. Required cul-de-sac right-of-way is not shown on the plan (see below comments).</li> </ul>
<b>Utility Plan (Subdivision)</b>	<p>The application shall include a preliminary utility plan demonstrating how proposed lots 5 and 6 will be served pursuant to <a href="#">SRC 205.030(f)</a>.</p>
<b>Title Report</b>	<p>Submit a current title report for the subject property for review by the Survey Section pursuant to <a href="#">SRC 205.030(b)</a>. A title report dated 30-days from time of application is required.</p> <p><u>Note:</u> A revised title report was submitted on 04/19, so this item may be resolved unless issues arise upon review of the revised report.</p>
<b>Deed History</b>	<p>Survey is not able to determine lot legality at this time. The hyper-links in the 'Survey Memo' are expired; therefore Survey is unable to review the deed history.</p>
<p><b><i>Items of Concern</i></b> - The following items are not listed in the SRC as specific requirements for a complete application; however, are advisories that address areas of concern on the application. <b>Failure to address advisory comments could result in condition of approval or denial of the application(s).</b></p>	
<b>Street Tree Removal</b>	<p>The applicant's plans show removal of City-owned trees. The applicant is advised that a street tree removal application is required for the trees proposed for removal prior to issuance of Public Construction or Building Permits. The applicant may contact Zach Diehl in Development Services with any questions regarding the street tree removal process at 503-588-6211 ext.7435, or via</p>

Item:	Description:
	email at <a href="mailto:Zdiehl@cityofsalem.net">Zdiehl@cityofsalem.net</a> .
<b>Floodplain Development Comments</b>	<p><u>LOMR</u> – Staff understands a LOMR is pending for the floodway portion of the property. The applicant should provide the LOMR upon approval from FEMA.</p> <p><u>Substantial Improvements</u> – It appears the applicant is proposing to construct two new buildings on existing pier systems. The applicants plans should indicate the finished floor elevation of the existing pier systems. The proposal appears to constitute a Substantial Improvement per SRC Chapter 601.</p>
<b>TSP/Parks Path Alignment</b>	<p>The Willamette River Greenway Path, an off-street shared use path, is identified on the subject property. The applicant’s plans do not demonstrate how the path provides connectivity to Front Street along the Southern property Boundary or to Shipping Street along the northern property boundary.</p> <p>The plan for the path should be shown throughout the entire subdivision boundary to ensure that alternative connectivity requirements are met. Additionally, a 15-foot-wide easement and 10-foot-wide minimum constructed path is required.</p> <p>If the path is not completed throughout the entire subdivision with completion of the first phase of development, the applicant will need to provide a temporary connectivity plan.</p>
<b>Existing Easements for Public Utilities</b>	<p>There are existing easements on the subject property for public infrastructure. The applicant is advised that no new structures are permitted within existing/proposed easements. Conditions of approval will require dedication of new easements to meet current <a href="#">Public Works Design Standards (PWDS)</a> for minimum easements widths pursuant to <a href="#">SRC 802.020</a>. The applicants revised utility plan should indicate which mains will remain in easements and which shall be abandoned/relocated.</p>
<b>Common Private Sewer</b>	<p>SRC 802.040 allows private common sewer systems if the criteria of this section are met. The applicant is advised that a common private sewer may be an option for the development rather than multiple individual service lines.</p>
<b>Alternative Street Standard</b>	<p>The applicant is proposing a street design that does not conform to minor arterial street standards. The application shall include findings for alternative street standards pursuant to <a href="#">SRC 803.065(a)</a> or be revised to comply with the standards. Please note that an Alternative Street Request is included under the applicant’s requests for adjustments; however, the application should include an analysis of SRC 803.065 as justification for Alternative Street Standards.</p> <p>Staff notes the following alternatives:</p> <ul style="list-style-type: none"> <li>▪ Block spacing – Front Street NE exceeds the 600-foot block spacing standard. <ul style="list-style-type: none"> <li>➢ Staff supports this request with a with 10-foot shared path consistently throughout the site that provides connectivity, discussed above.</li> </ul> </li> <li>▪ 30-foot half width ROW where 36 is required along the southern portion of front street. <ul style="list-style-type: none"> <li>➢ Staff supports this request if consistent with the ultimate design of Front Street NE.</li> </ul> </li> <li>▪ Front Street NE Design does not conform to minor arterial standards. <ul style="list-style-type: none"> <li>➢ Staff acknowledges that an alternative is required for the design of Front Street; however, additional discussions are needed in order to specify a cross section in the subdivision decision. A meeting will be scheduled with</li> </ul> </li> </ul>

Item:	Description:
	the City Engineer for discussion of Front Street NE.
<b>Boundary Street Improvements</b>	<p>The applicant should be aware that Shipping Street NE is considered a “Boundary Street” for the subdivision and will require improvements. These improvements could be deferred until Site Plan Review for Lot 6. Right-of-way dedication will be required to be shown on the tentative plan.</p> <p>Streets shall terminate as a cul-de-sac, as such, the applicant will be required to dedicate a half-width cul-de-sac at the terminus of Shipping Street NE and construct a half street improvement along the frontage and within the cul-de-sac.</p>
<b>Adjustment for Driveway Width</b>	The applicant has requested an adjustment to maximum driveway width for the Gaines Street Entrance, which is planned to be one-way. The applicant is advised that mitigation measures should be included to ensure one-way travel is maintained and that pedestrian conflicts are reduced (stop bar, “NO Entrance signs”, double arrows).
<b>Vision Clearance</b>	<p>The driveway entrances labeled as “Belmont Alley” and “Market Street Entrance” do not meet vision clearance standards established in <a href="#">SRC 805.005</a>. The applicant is advised to revise the plans to meet the vision clearance standards in <a href="#">SRC Chapter 805.005</a> or submit a request for an adjustment to the vision clearance standard per <a href="#">SRC 805.015</a>, including the analysis required under <a href="#">SRC 805.015</a>.</p> <p>Note that the applicant has requested an adjustment for the Market Street Entrance; however, has not included the analysis required under <a href="#">SRC 805.015</a>. It is recommended that the applicant’s Traffic Engineer review and recommend mitigation for the adjustment as part of the required TIA.</p>

Your application, which is incomplete, will be deemed complete upon receipt of one of the following:

- 1) All of the missing information;
- 2) Some of the missing information and written notice from you (the applicant) that no other information will be provided; or
- 3) Written notice from you (the applicant) that none of the missing information will be provided.

**You have 180 days from the date the application was first submitted to respond in one of the three ways listed above, or the application will be deemed void.**

For questions regarding any of the above requirements, please feel free to contact me directly by calling (503) 540-2399 or via e-mail at [bbishop@cityofsalem.net](mailto:bbishop@cityofsalem.net).

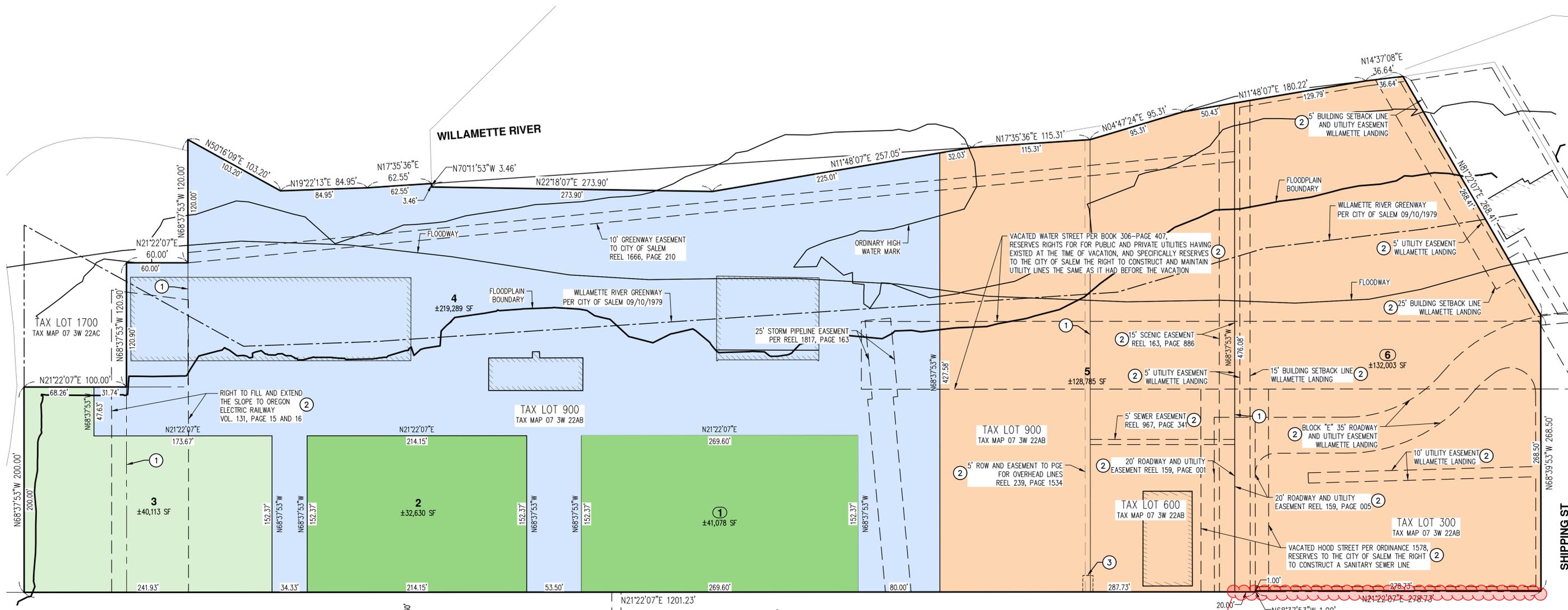
**The Salem Revised Code may be accessed online at the following location:**

<https://www.cityofsalem.net/government/laws-rules/salem-revised-code>

Sincerely,

Bryce Bishop  
Planner III

PROPERTY DESCRIPTION  
 TAX MAP 07.3W.22AB  
 TAX LOTS 300, 600, 900  
 CONTRACT PURCHASER:  
 FUND  
 15017 THOMAS RD,  
 CHARLOTTE, NC 28278

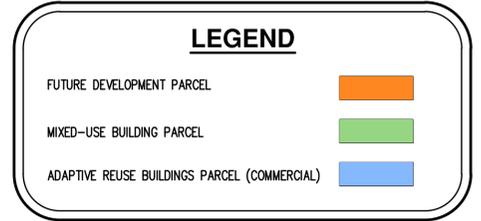


FROM There's a 1-foot reserve strip along this portion of the site. Based on what's shown on the Assessor's map, it appears that the reserve strip extends for a distance of 298.55 ft. along Front Street rather than 278.73 ft.

**Willamette Greenway Compatibility Review Boundary:**  
 -Tentative subdivision plan needs to be revised to also show the Willamette Greenway Compatibility Review Boundary.

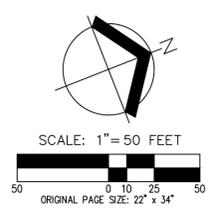
- KEYED NOTES:** (1)
- EXISTING TAX LOT LINE TO BE REMOVED.
  - EXISTING EASEMENT OR ROW TO BE QUITCLAIMED/VACATED.
  - PROPOSED EASEMENT FOR EXISTING POWER POLE BETWEEN HOOD AND GAINES STREETS, SEE PLAN VIEW.

- EASEMENT NOTES:**
- CROSS ACCESS, DRAINAGE AND UTILITY EASEMENTS AMONG ALL PARCELS TO BE RECORDED PRIOR TO FINAL PLAT.
  - 10' WILLAMETTE RIVER GREENWAY PATH EASEMENT DEDICATED TO FOLLOW PATHWAY ALIGNMENT. FINAL CONFIGURATION TO BE DETERMINED AT TIME OF BUILDING PERMITS.



NOTE: THIS SHEET IS PRINTED WITH COLOR

THE PURPOSE OF THIS PRELIMINARY PLAT IS TO SHOW PLANNED LOT DIMENSIONS AND AREAS FOR PLANNING PURPOSES. THIS IS NOT AN OFFICIAL PLAT AND IS NOT TO BE USED FOR SURVEY PURPOSES.

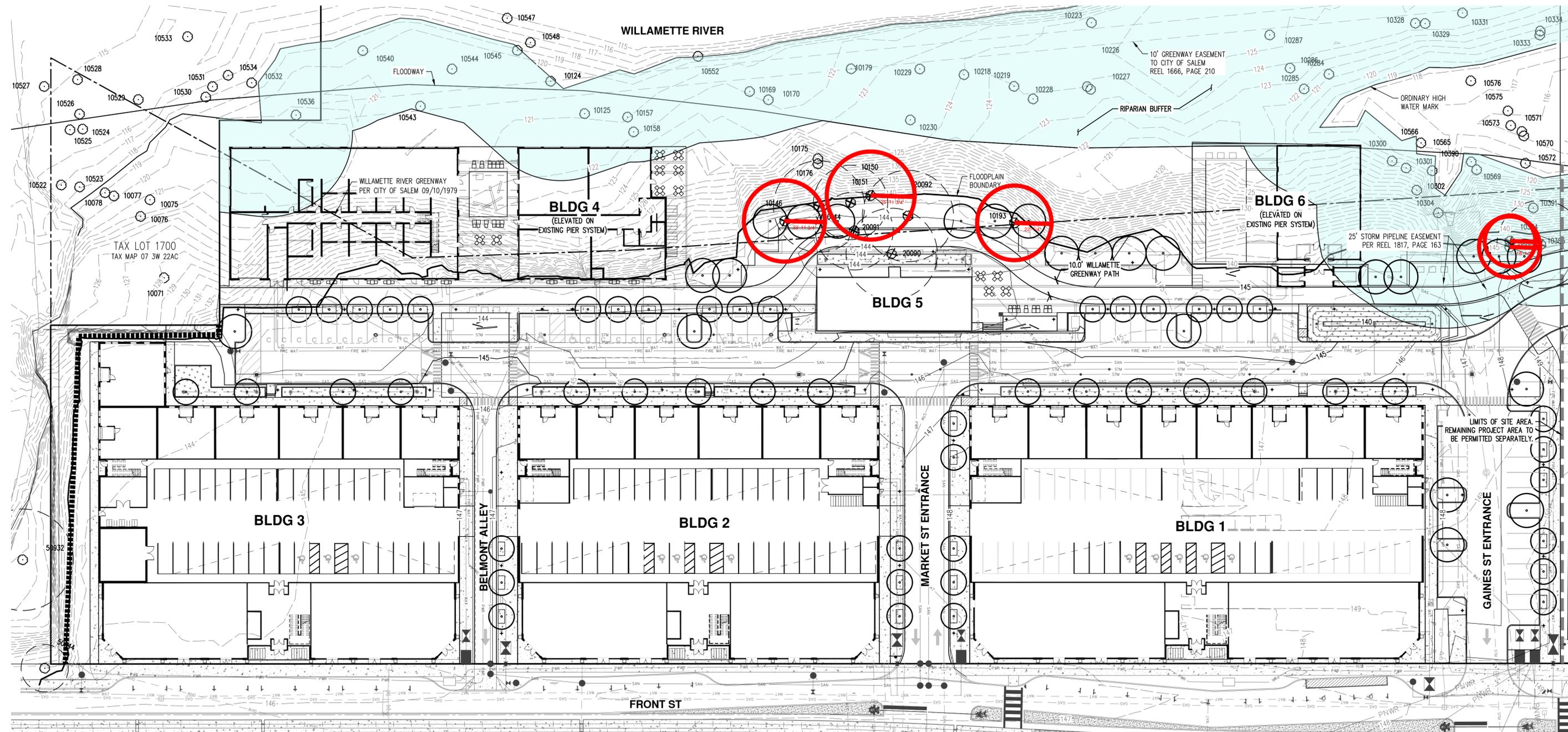


TENTATIVE PLAT  
 THE CANNERY  
 FUND  
 SALEM, OREGON



RENEWS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 03/15/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

AKS DRAWING FILE: 5968-01 PRELIM TREE PLANNING LAYOUT: P6



**Riparian Corridor Boundaries**  
 Tree Removal & Preservation Plan needs to be revised to show the 75-foot-wide riparian corridor of the Willamette River and the 50-foot-wide riparian corridor of Mill Creek.

**TREE SUMMARY:**

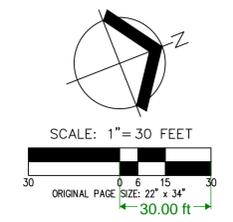
TREES REMOVED FOR GREENWAY TRAIL = 11

**GENERAL NOTES:**

1. CRITICAL ROOT ZONES SHOWN ARE FOR ANTICIPATED TREE IMPACTS ONLY.
2. TREES BELOW TOP OF BANK ARE NOT ANTICIPATED TO BE IMPACTED.
3. REFER TO ARBORIST LETTER FOR TREE SPECIES AND MORE INFORMATION REGARDING TREE REMOVAL.
4. NO SIGNIFICANT TREES PER CITY OF SALEM REQUIREMENTS ARE PROPOSED TO BE REMOVED.

**LEGEND**

EXISTING GROUND CONTOUR (1 FT)	---	149
EXISTING GROUND CONTOUR (5 FT)	---	150
FINISHED GRADE CONTOUR (1 FT)	---	149
FINISHED GRADE CONTOUR (5 FT)	---	150
EXISTING TREE TO REMAIN	○	
EXISTING TREE TO BE REMOVED	⊗	
CRITICAL TREE ROOT ZONE 1" DBH = 1'-0" RADIUS	○	
PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)	○	



**Tree Removal Comments:**

**-Tree 10144:** Not clear why this tree is proposed for removal. Tree is in good condition with good health rating and good structure rating. It doesn't appear that more than 30% of the critical root zone will be disturbed with the construction of the path.

**-Tree 10151:** Not clear why this tree is proposed for removal. Tree only has a slight lean and is identified as having a good health rating and good structure rating. It doesn't appear that more than 30% of the critical root zone of this tree will be disturbed with the construction of the path.

**-Tree 10193:** Not clear why this tree is proposed for removal. Tree is in good condition with good health and good structure rating. It doesn't appear that more than 30% of the critical root zone of this tree will be disturbed with the construction of the path.

**-Tree 10383:** Not clear why this tree is proposed for removal. Tree not evaluated by arborist but it doesn't look like more than 30% of the critical root zone of the tree will be disturbed with the construction of the path.

**-Tree 10384:** Not clear why this tree is proposed for removal. Tree not evaluated by arborist but it doesn't look like more than 30% of the critical root zone of the tree will be disturbed with the construction of the path.

SRC 808.030(a)(2)(G) exempts the removal of trees and native vegetation within a riparian corridor from the requirement to obtain a tree removal permit but only when the removal of the tree or native vegetation is necessary for public trail or public park development and maintenance. It doesn't appear, however, that all of the trees identified for removal need to be removed for the construction of the Willamette Greenway path.

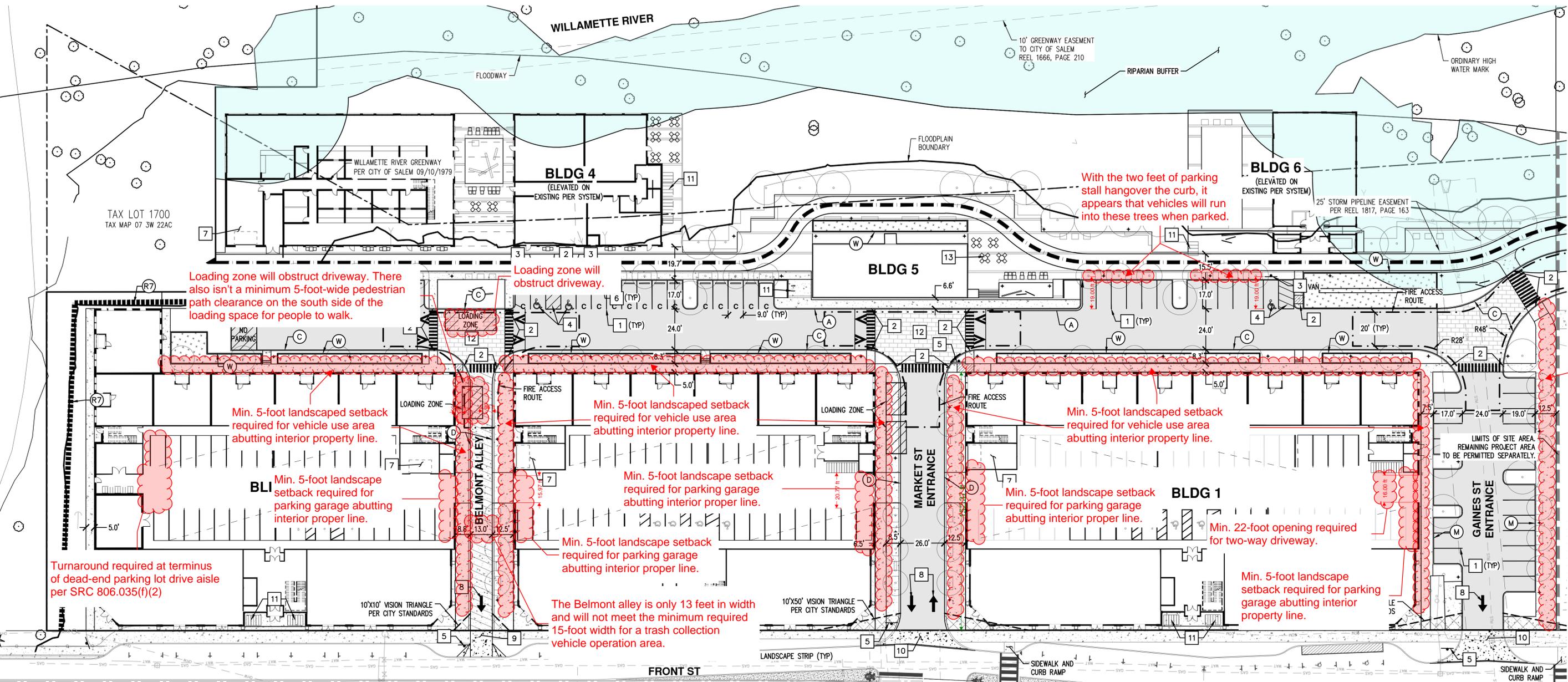
TREE TABLE			
TREE NUMBER	TYPE	DBH (IN.)	PRESERVE/REMOVE
10071	DECIDUOUS	19 18	PRESERVE
10075	DECIDUOUS	12	PRESERVE
10076	DECIDUOUS	24	PRESERVE
10077	DECIDUOUS	30	PRESERVE
10078	DECIDUOUS	34	PRESERVE
10124	DECIDUOUS	13	PRESERVE
10125	DECIDUOUS	16	PRESERVE
*10144	DECIDUOUS	27	REMOVE
*10146	DECIDUOUS	24	REMOVE
*10150	DECIDUOUS	22	REMOVE
*10151	DECIDUOUS	26	REMOVE
10157	DECIDUOUS	15 11	PRESERVE
10158	DECIDUOUS	59	PRESERVE
10169	DECIDUOUS	15	PRESERVE
10170	DECIDUOUS	47	PRESERVE
10175	DECIDUOUS	12	PRESERVE
10176	DECIDUOUS	13 11	PRESERVE
10179	DECIDUOUS	12	PRESERVE
*10193	DECIDUOUS	22	REMOVE
10218	DECIDUOUS	12	PRESERVE
10219	DECIDUOUS	41	PRESERVE
10223	DECIDUOUS	11 10	PRESERVE
10226	DECIDUOUS	15	PRESERVE
10227	DECIDUOUS	12	PRESERVE
10228	DECIDUOUS	12 10	PRESERVE
10229	DECIDUOUS	14	PRESERVE
10230	DECIDUOUS	11	PRESERVE
10284	DECIDUOUS	39	PRESERVE
10285	DECIDUOUS	17	PRESERVE
10286	DECIDUOUS	10	PRESERVE
10287	DECIDUOUS	13	PRESERVE
10300	DECIDUOUS	52	PRESERVE
10301	DECIDUOUS	54	PRESERVE
10302	DECIDUOUS	19	PRESERVE
10304	DECIDUOUS	20 18	PRESERVE
10328	DECIDUOUS	16 12	PRESERVE
10329	DECIDUOUS	15	PRESERVE
10331	DECIDUOUS	42	PRESERVE
10333	DECIDUOUS	43	PRESERVE
10334	DECIDUOUS	10	PRESERVE
*10383	DECIDUOUS	18 17	REMOVE

TREE TABLE			
TREE NUMBER	TYPE	DBH (IN.)	PRESERVE/REMOVE
*10384	DECIDUOUS	15	REMOVE
*10385	DECIDUOUS	26 21	REMOVE
10390	DECIDUOUS	UNK	PRESERVE
10391	DECIDUOUS	13	PRESERVE
10522	DECIDUOUS	28 23 16	PRESERVE
10523	DECIDUOUS	34	PRESERVE
10524	DECIDUOUS	32	PRESERVE
10525	DECIDUOUS	36	PRESERVE
10526	DECIDUOUS	44	PRESERVE
10527	DECIDUOUS	15 14	PRESERVE
10528	DECIDUOUS	11	PRESERVE
10529	DECIDUOUS	40	PRESERVE
10530	DECIDUOUS	17	PRESERVE
10531	DECIDUOUS	42	PRESERVE
10532	DECIDUOUS	41	PRESERVE
10533	DECIDUOUS	12	PRESERVE
10534	DECIDUOUS	10	PRESERVE
10536	DECIDUOUS	44	PRESERVE
10540	DECIDUOUS	14 11	PRESERVE
10543	DECIDUOUS	40	PRESERVE
10544	DECIDUOUS	28 22 21 19 16 11	PRESERVE
10545	DECIDUOUS	11	PRESERVE
10547	DECIDUOUS	13 10	PRESERVE
10548	DECIDUOUS	11 11	PRESERVE
10552	DECIDUOUS	16	PRESERVE
10565	DECIDUOUS	19 14 14 13 12 12	PRESERVE
10566	DECIDUOUS	52	PRESERVE
10569	DECIDUOUS	73	PRESERVE
10570	DECIDUOUS	17	PRESERVE
10571	DECIDUOUS	17	PRESERVE
10572	DECIDUOUS	10	PRESERVE
10573	DECIDUOUS	15	PRESERVE
10576	DECIDUOUS	11	PRESERVE
*20090	DECIDUOUS	27	REMOVE
*20091	DECIDUOUS	23	REMOVE
*20092	DECIDUOUS	27	REMOVE
50844	DECIDUOUS	8 12 14	PRESERVE
50932	DECIDUOUS	30	PRESERVE

**NOTE:**  
 \* REMOVAL NECESSARY TO ACCOMMODATE PUBLIC WILLAMETTE RIVER GREENWAY TRAIL, EXEMPT PER SRC 808.030(a)(2)(G).

PRELIMINARY TREE TABLE  
 THE CANNERY  
 FUND  
 SALEM, OREGON  
 PRELIMINARY  
 NOT FOR  
 CONSTRUCTION

JOB NUMBER: 5968-01  
 DATE: 03/15/2024  
 DESIGNED BY: TDR  
 DRAWN BY: M.M.  
 CHECKED BY: TDR



With the two feet of parking stall hangover the curb, it appears that vehicles will run into these trees when parked.

Loading zone will obstruct driveway. There also isn't a minimum 5-foot-wide pedestrian path clearance on the south side of the loading space for people to walk.

Min. 5-foot landscaped setback required for vehicle use area abutting interior property line.

Min. 5-foot landscaped setback required for vehicle use area abutting interior property line.

Min. 5-foot landscaped setback required for parking garage abutting interior proper line.

Min. 5-foot landscaped setback required for vehicle use area abutting interior property line.

Min. 5-foot landscaped setback required for parking garage abutting interior proper line.

Min. 5-foot landscaped setback required for parking garage abutting interior proper line.

Min. 5-foot landscaped setback required for parking garage abutting interior proper line.

Min. 22-foot opening required for two-way driveway.

Min. 5-foot landscape setback required for parking garage abutting interior property line.

Turnaround required at terminus of dead-end parking lot drive aisle per SRC 806.035(f)(2)

The Belmont alley is only 13 feet in width and will not meet the minimum required 15-foot width for a trash collection vehicle operation area.

Min. 5-foot landscaped setback required for vehicle use area abutting interior property line.

**CURB KEYED NOTES:** (TR)

- (A) TYPE 'A' CURB AND GUTTER
- (C) TYPE 'C' CURB
- (D) TYPE 'D' MOUNTABLE CURB
- (M) MONOLITHIC CURB AND SIDEWALK
- (W) PLANTER WALL
- (R7) EXISTING RETAINING WALL. STRUCTURAL IMPROVEMENTS REQUIRED TO BE DETERMINED AT TIME OF BUILDING PERMIT

**SITE KEYED NOTES:** (#)

1. PAINT 4-INCH WIDE WHITE STRIPE PER CITY STANDARDS.
2. ACCESSIBLE CURB RAMP AND DETECTABLE WARNING SURFACE.
3. ACCESSIBLE PARKING SIGN. "VAN" INDICATES VAN ACCESSIBLE SIGN.
4. ACCESSIBLE PARKING STALLS AND AISLE STRIPING.
5. INSTALL 30"x30" STOP SIGN AND STOP BAR. (36"x36" WHEN ENTERING PUBLIC ROW)
6. CONCRETE WHEEL STOP.
7. TRASH ENCLOSURE. SEE ARCHITECTURAL PLANS FOR DETAILS.
8. DIRECTIONAL ARROW STRIPE.
9. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.302.
10. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.315.
11. BIKE RACK. SEE ARCHITECTURAL PLANS FOR DETAILS.
12. RAISED SPEED TABLE PEDESTRIAN CROSSING.
13. OUTDOOR SEATING. SEE LANDSCAPE PLANS FOR DETAILS.

**SITE PLAN DATA:**

ZONING = MU-R  
 SUBJECT PROPERTY AREA = ±593,899 SF (±13.6 ACRES)  
 SITE AREA = ±333,110 SF (±7.6 ACRE)

DENSITY:  
 MULTI-FAMILY = 371 UNITS  
 \*RETAIL = 12,149 SF  
 \*OFFICE = 5,880 SF  
 \*EATING/DRINKING ESTABLISHMENT = 30,859 SF

\*DISTRIBUTION OF RETAIL, OFFICE, AND EATING/DRINKING ESTABLISHMENTS SQUARE FOOTAGE ARE SUBJECT TO CHANGE.

**PARKING SUMMARY:**

MAXIMUM VEHICLE PARKING:  
 MULTI-FAMILY = 649 SPACES (1.75/UNIT)  
 RETAIL = 61 SPACES (1/200 SF)  
 OFFICE = 24 SPACES (1/250 SF)  
 EATING/DRINKING ESTABLISHMENT = 176 SPACES (1/175 SF)

VEHICLE PARKING PROVIDED:  
 GARAGE PARKING  
 • AUTOMATED = 276 SPACES  
 • SURFACE = 10 SPACES  
 • ACCESSIBLE = 12 SPACES  
 OFF-STREET PARKING  
 • STANDARD = 31 SPACES  
 • COMPACT = 24 SPACES  
 • ACCESSIBLE = 3 SPACES  
 TOTAL PARKING = 356 SPACES

**BICYCLE PARKING REQUIRED:**

MULTI-FAMILY = 371 SPACES (1/UNIT)  
 RETAIL = 4 SPACES (GREATER OF 4 OR 1/10,000 SF)  
 OFFICE = 4 SPACES (GREATER OF 4 OR 1/3,500 SF)  
 CES (GREATER OF 4 OR 1/1,000 SF)  
 ACES  
 ACES

TOTAL = 402 SPACES

**LOADING ZONE REQUIRED/PROVIDED:**

MULTI-FAMILY REQUIRED = 3 SPACES (12'WX19'L)  
 RETAIL SALES AND SERVICES REQUIRED = 1 SPACE (12'WX30'L)  
 OFFICE REQUIRED = 1 SPACE (OFF-STREET PARKING AREA USED FOR LOADING PER SRC 806.075(a))  
 TOTAL REQUIRED = 4 SPACES  
 TOTAL PROVIDED = 3 SPACES (12'WX19'L)  
 1 SPACE (12'WX30'L)

NOTE: SPACES TO BE SCHEDULED AND CONED OFF WITH SITE OPERATOR FOR LOADING AND UNLOADING.

**SETBACKS:**

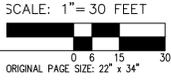
ALONG FRONT ST  
 BUILDINGS = 0 FT OR MAX 10 FT (IF SETBACK AREA IS USED FOR PEDESTRIAN AMENITIES)  
 VEHICLE USE AREA = 10 FT  
 SIDE/REAR YARD  
 BUILDINGS = NONE  
 VEHICLE USE AREA = 5 FT (NOT REQUIRED ABUTTING AN ALLEY)

**GENERAL NOTES:**

1. BUILDINGS 1, 2, AND 3 ARE ON SEPARATE PROPERTIES REFER TO SHEET P4 FOR THE PROPOSED PROPERTY LINES.
2. THE FRONT STREET NE IMPROVEMENTS SHOWN ARE PRELIMINARY AND BASED ON CONCEPTUAL DESIGN WORK PROVIDED BY THE CITY'S RETAINED RAIL ENGINEER. REFINED FRONT STREET NE IMPROVEMENTS ARE ANTICIPATED AND WILL BE CONSTRUCTED IN ACCORDANCE WITH FEEDBACK RECEIVED FROM THE FINAL RAIL DIAGNOSTIC AND COORDINATION WITH THE CITY.

**EV READY NOTE:**

40% OF PARKING STALLS ARE REQUIRED TO BE EV READY PER STATE REQUIREMENTS. FINAL EV READY STALL LOCATION AND CONDUIT PLACEMENT WILL BE COORDINATED WITH PROJECT ELECTRICIAN AT THE TIME OF BUILDING PERMIT SUBMITTAL.



**LEGEND**

- 10' WILLAMETTE GREENWAY CONCRETE PATH (WITHIN 10' EASEMENT TO CITY OF SALEM)
- ASPHALT PAVEMENT SECTION
- CONCRETE SIDEWALK (4" MIN THICKNESS)
- CONCRETE PAVEMENT SECTION (8" MIN THICKNESS)
- CONCRETE PAVERS (REFER TO PLANS BY OTHERS)
- STORMWATER FACILITY
- PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)

**Willamette Greenway Compatibility Review Boundary:**  
 -Site plan needs to be revised to also show the Willamette Greenway Compatibility Review Boundary.

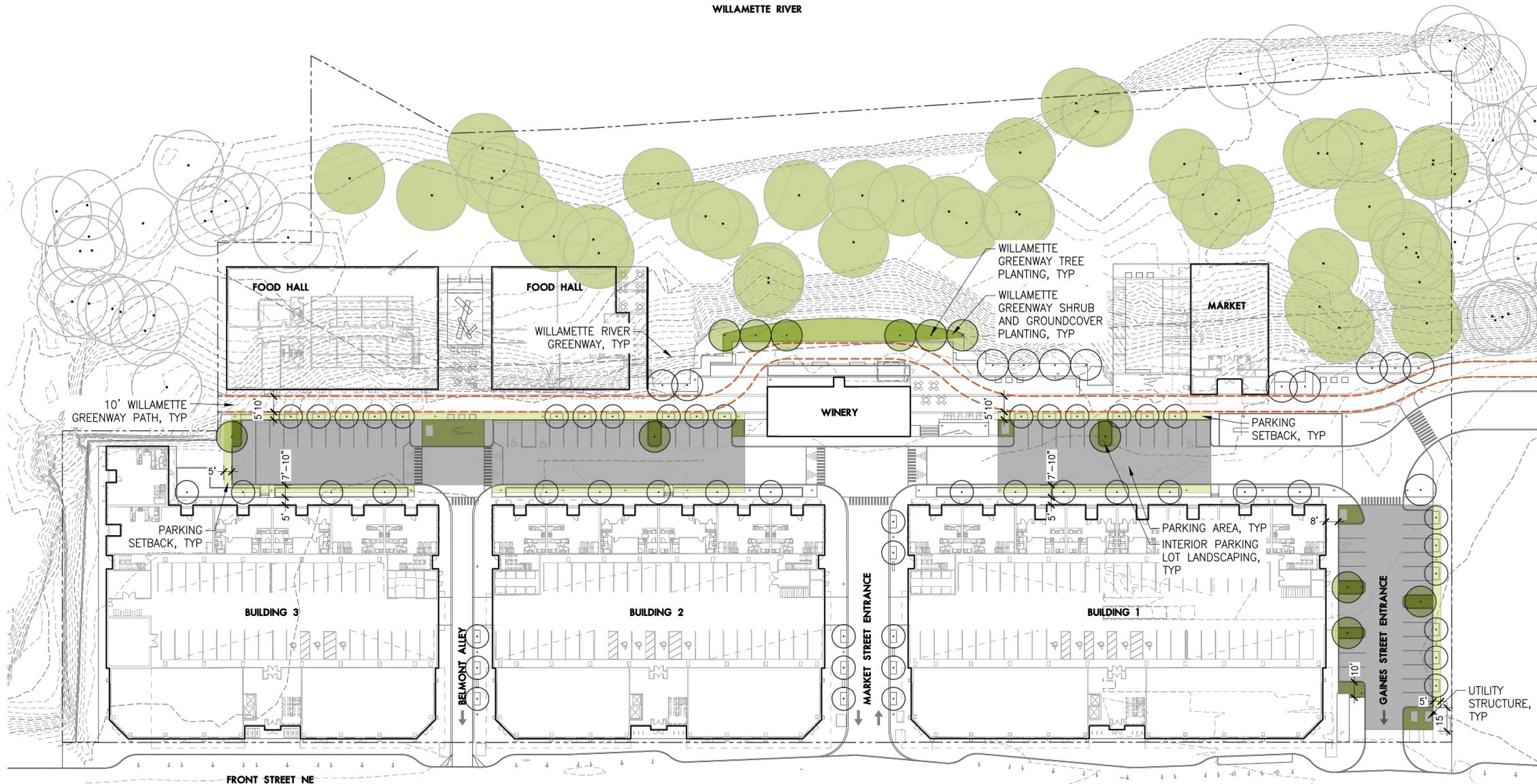
**Proposed Subdivision Lot Lines:**  
 -Site plan needs to be revised to clearly show the proposed new subdivision lot lines. The proposed lot lines are very difficult to distinguish on the plan due to their color being black. A different color is recommended so the proposed lot lines can be clearly seen in relation to the the building and site improvements.

PRELIMINARY SITE PLAN  
 THE CANNERY FUND  
 SALEM, OREGON



JOB NUMBER: 5968-01  
 DATE: 03/15/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

WILLAMETTE RIVER



**SITE LANDSCAPE DATA**

SEC. 600.025.B WILLAMETTE RIVER GREENWAY LANDSCAPING  
TOTAL LINEAR FEET OF RIVER FRONTAGE: 894 LF

TREES REQUIRED (1 PER 20LF): 45 TREES  
TREES EXISTING: 43 TREES  
TREES PROPOSED: 6 TREES  
SHRUBS REQUIRED (1 PER 2LF): 447 SHRUBS  
SHRUBS PROPOSED: 556 SHRUBS

SEC. 806.035.D.2 INTERIOR PARKING LOT LANDSCAPING  
TOTAL PARKING AREA: 28,050 SF  
INTERIOR LANDSCAPING REQUIRED: 5.0% (1,403 SF)  
INTERIOR LANDSCAPING PROPOSED: 7.3% (2,049 SF)

SEC. 806.035.D.3 INTERIOR PARKING LOT TREES  
TOTAL PARKING STALLS: 58 STALLS  
INTERIOR TREES REQUIRED: 5 TREES (1 TREE PER 12 STALLS)  
INTERIOR TREES PROPOSED: 6 TREES

**Additional Standards for New Surface Parking More than One-Half Acre in Size:**  
-The new surface parking lot area is more than one-half acre in size. Therefore, the additional new large parking lot landscaping standards adopted in response to the State's Climate Friendly & Equitable Communities (CFEC) administrative rules apply.

The additional landscaping standards are included under **SRC 806.035(n)**.

**1 LANDSCAPE LAND USE DIAGRAM**

Plan  
SCALE: 1" = 40'



LANDSCAPE ARCHITECTS PC  
**lango.hansen**  
1100 nw glisan #3A portland OR 97209 T 503.295.2437

**THE CANNERY**

1105 FRONT ST NE,  
SALEM, OR 97301

LAND USE SUBMITTAL  
LANDSCAPE LAND USE  
DIAGRAM

REVISIONS

SCALE  
DRAWN BY  
DATE 2024.01.29  
PROJECT NO. 2346-SAC

SHEET

**L104**

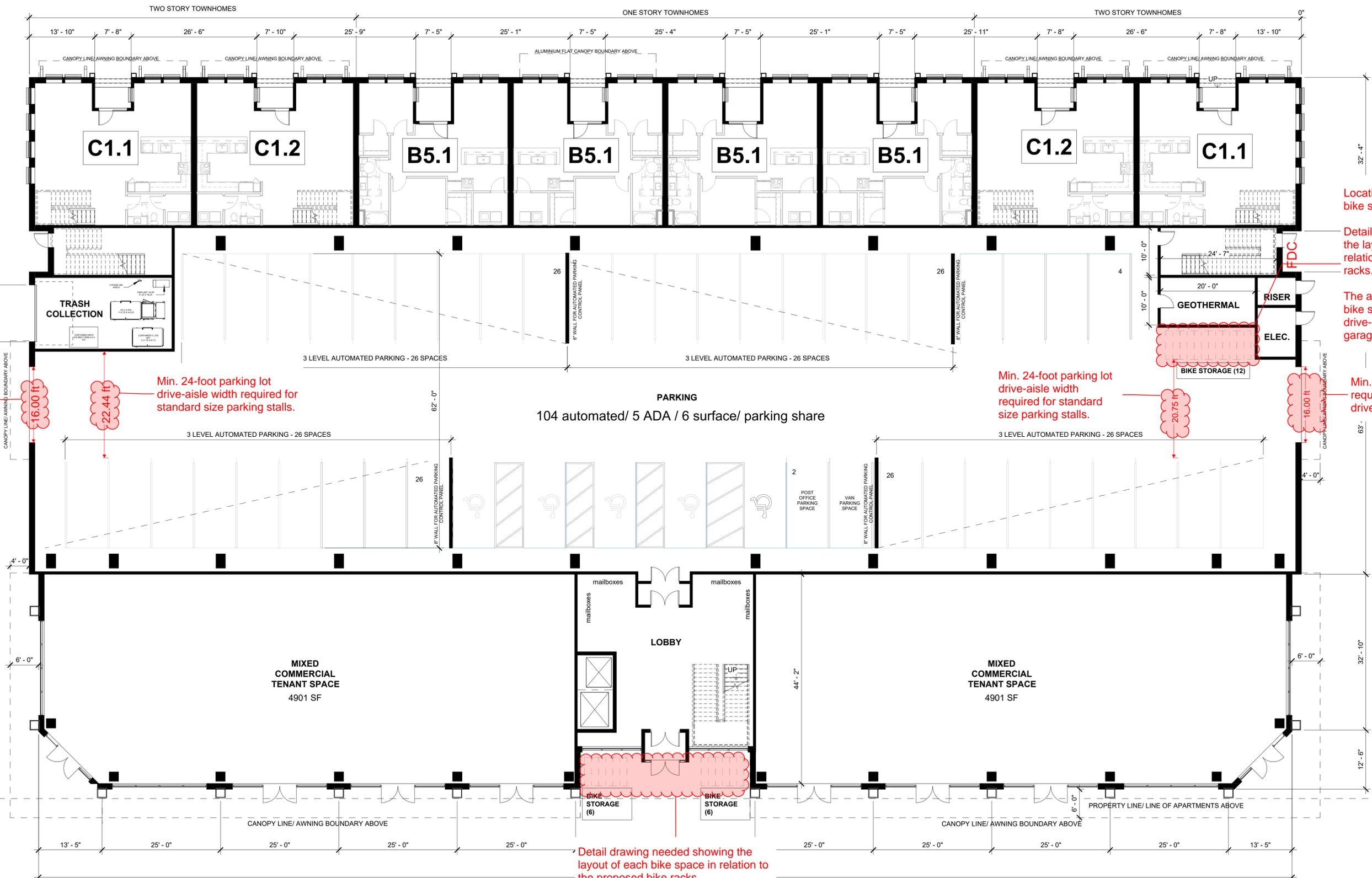


STOREFRONT ENTRANCES  
 RECESSED BALCONY  
 ARCHITECTURAL FIBERGLASS CORNICE  
 COVERED RETAIL ENTANCES  
 BRICK OR MANUFACTURED STONE PILASTER  
 RECESSED AND COVERED MAIN ENTRANCE TO APARTMENT LOBBY  
 BOARD AND BATTEN FIBER CEMENT SIDING  
 6' WIDE METAL CANOPY  
 OVERSIZED BRICK FIRST FLOOR

**Ground Floor Building Height**  
 SRC 536.015(g) - Table 536-6 requires buildings with ground floors on primary streets to have a minimum ground floor height of 10 ft. For purposes of this stand ground floor height is measured from the floor to the ceiling of the first floor. The applicant's written statement indicates that the ground floor height of the building is 18 feet. However, in review of the building elevations it looks like the 18-foot height is measured from the floor of the first floor to the floor of the second floor. Confirmation is needed regarding the ground floor height of Buildings 1, 2, and 3 measured from floor to ceiling of the first floor.

81% GLAZING\*  
 91% WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)



Min. 22-foot opening required for two-way driveway.

Min. 24-foot parking lot drive-aisle width required for standard size parking stalls.

Min. 24-foot parking lot drive-aisle width required for standard size parking stalls.

Location of bike racks don't meet bike standards of SRC 806.060.

Detail drawing needed showing the layout of each bike space in relation to the proposed bike racks.

The access aisle to get to the bike spaces is located in the drive-aisle into the parking garage.

Min. 22-foot opening required for two-way driveway.

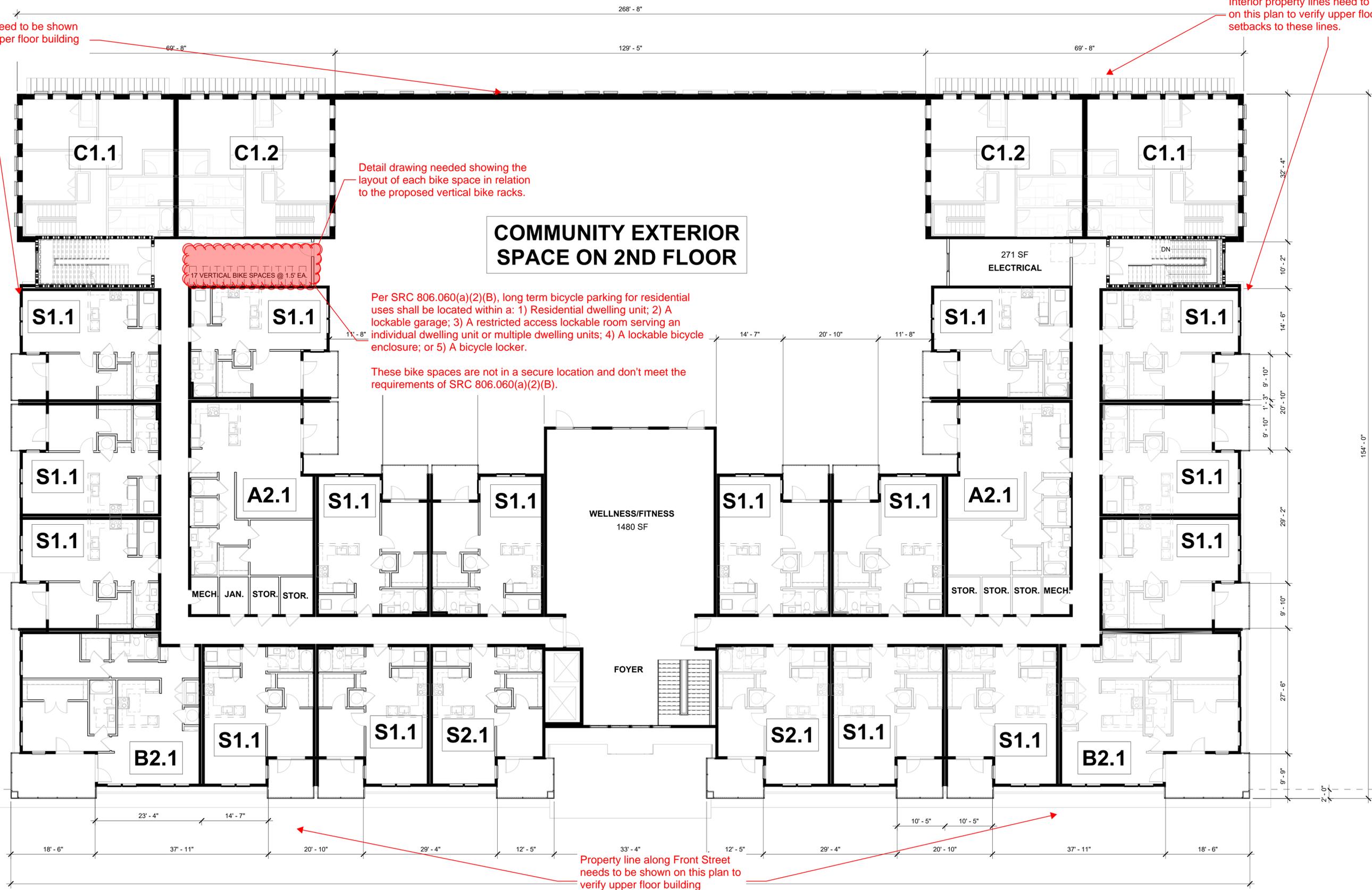
Detail drawing needed showing the layout of each bike space in relation to the proposed bike racks.



INSIGHT ARCHITECTS

Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.

Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.



17 VERTICAL BIKE SPACES @ 1.5' EA.

### COMMUNITY EXTERIOR SPACE ON 2ND FLOOR

Detail drawing needed showing the layout of each bike space in relation to the proposed vertical bike racks.

Per SRC 806.060(a)(2)(B), long term bicycle parking for residential uses shall be located within a: 1) Residential dwelling unit; 2) A lockable garage; 3) A restricted access lockable room serving an individual dwelling unit or multiple dwelling units; 4) A lockable bicycle enclosure; or 5) A bicycle locker.

These bike spaces are not in a secure location and don't meet the requirements of SRC 806.060(a)(2)(B).

WELLNESS/FITNESS  
1480 SF

FOYER

271 SF  
ELECTRICAL

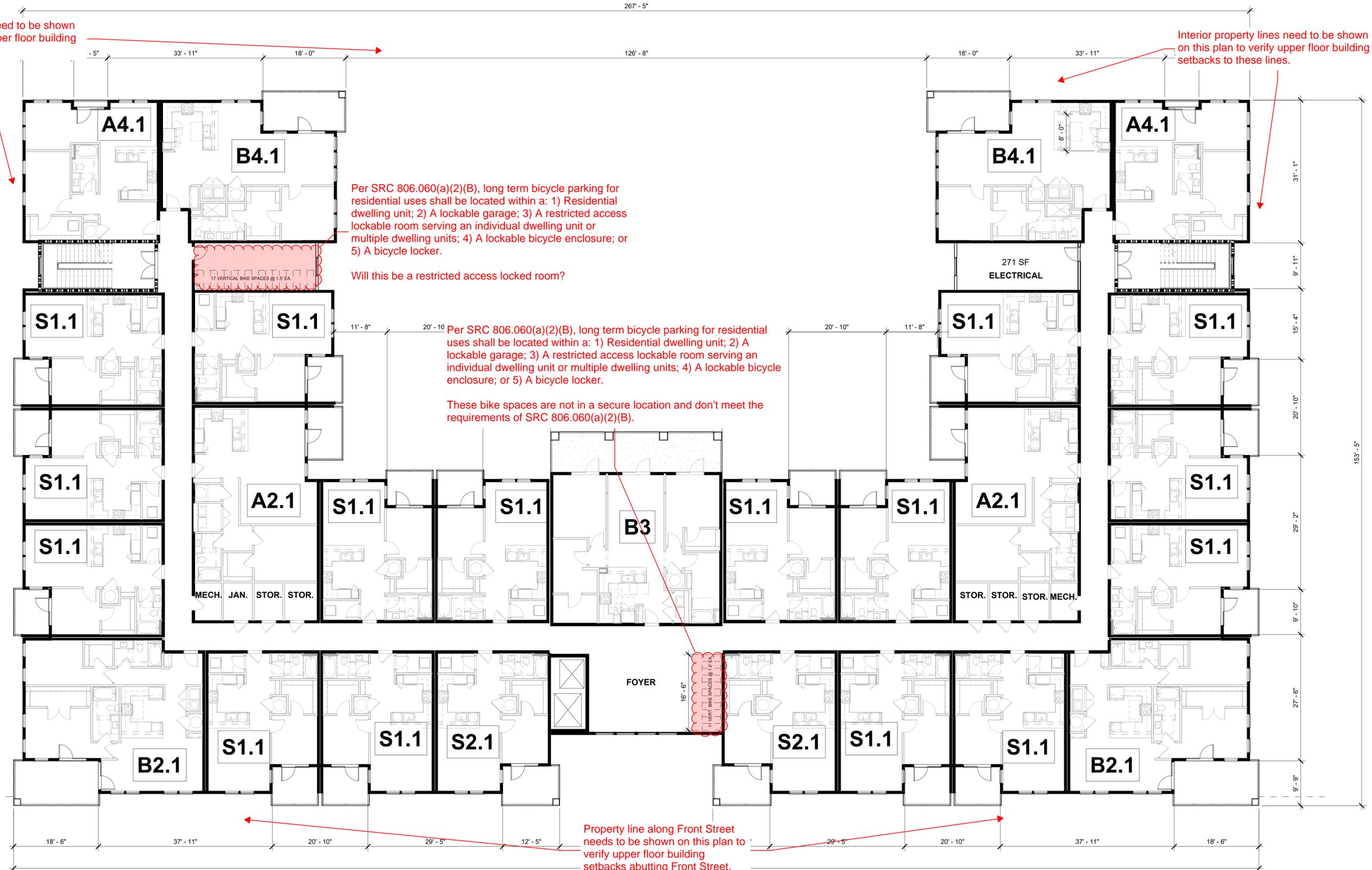


Property line along Front Street needs to be shown on this plan to verify upper floor building setbacks abutting Front Street.

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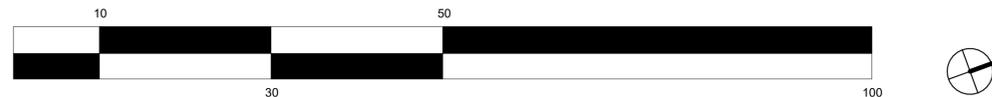
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Will this be a restricted access locked room?

Per SRC 806.060(a)(2)(B), long term bicycle parking for residential uses shall be located within a: 1) Residential dwelling unit; 2) A lockable garage; 3) A restricted access lockable room serving an individual dwelling unit or multiple dwelling units; 4) A lockable bicycle enclosure; or 5) A bicycle locker.

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Property line along Front Street needs to be shown on this plan to verify upper floor building setbacks abutting Front Street.



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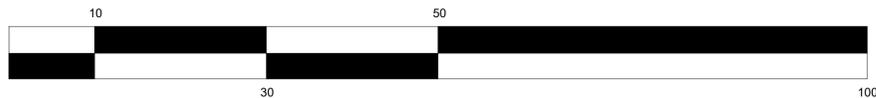
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Property line along Front Street needs to be shown on this plan to verify upper floor building setbacks abutting Front Street.

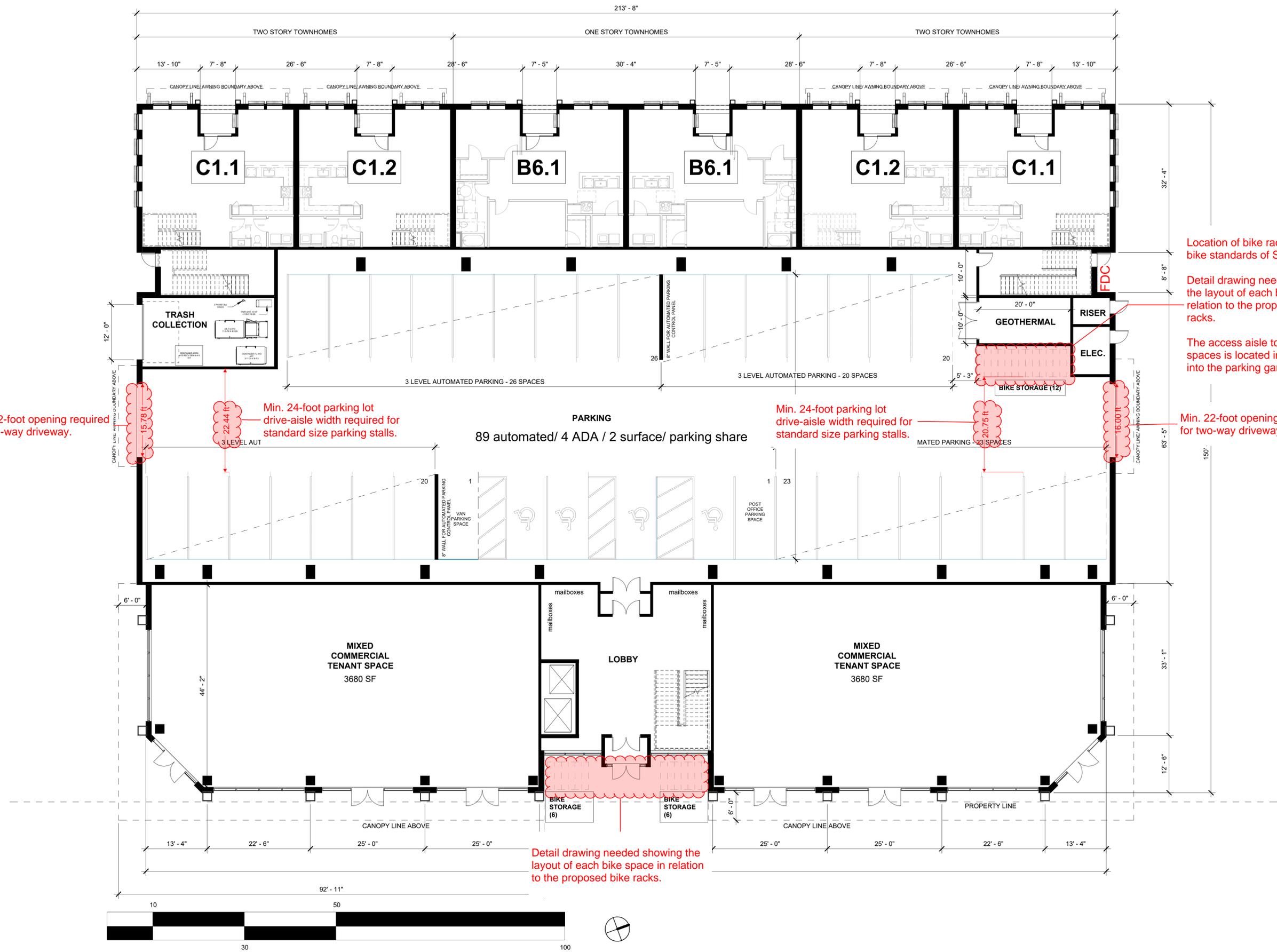




**Ground Floor Building Height**  
 SRC 536.015(g) - Table 536-6 requires buildings with ground floors on primary streets to have a minimum ground floor height of 10 ft. For purposes of this stand ground floor height is measured from the floor to the ceiling of the first floor. The applicant's written statement indicates that the ground floor height of the building is 18 feet. However, in review of the building elevations it looks like the 18-foot height is measured from the floor of the first floor to the floor of the second floor. Confirmation is needed regarding the ground floor height of Buildings 1, 2, and 3 measured from floor to ceiling of the first floor.

83% GLAZING\*  
 89% WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)



Min. 22-foot opening required for two-way driveway.

Min. 24-foot parking lot drive-aisle width required for standard size parking stalls.

Min. 24-foot parking lot drive-aisle width required for standard size parking stalls.

Location of bike racks don't meet bike standards of SRC 806.060.

Detail drawing needed showing the layout of each bike space in relation to the proposed bike racks.

The access aisle to get to the bike spaces is located in the drive-aisle into the parking garage.

Min. 22-foot opening required for two-way driveway.

Detail drawing needed showing the layout of each bike space in relation to the proposed bike racks.



INSIGHT ARCHITECTS

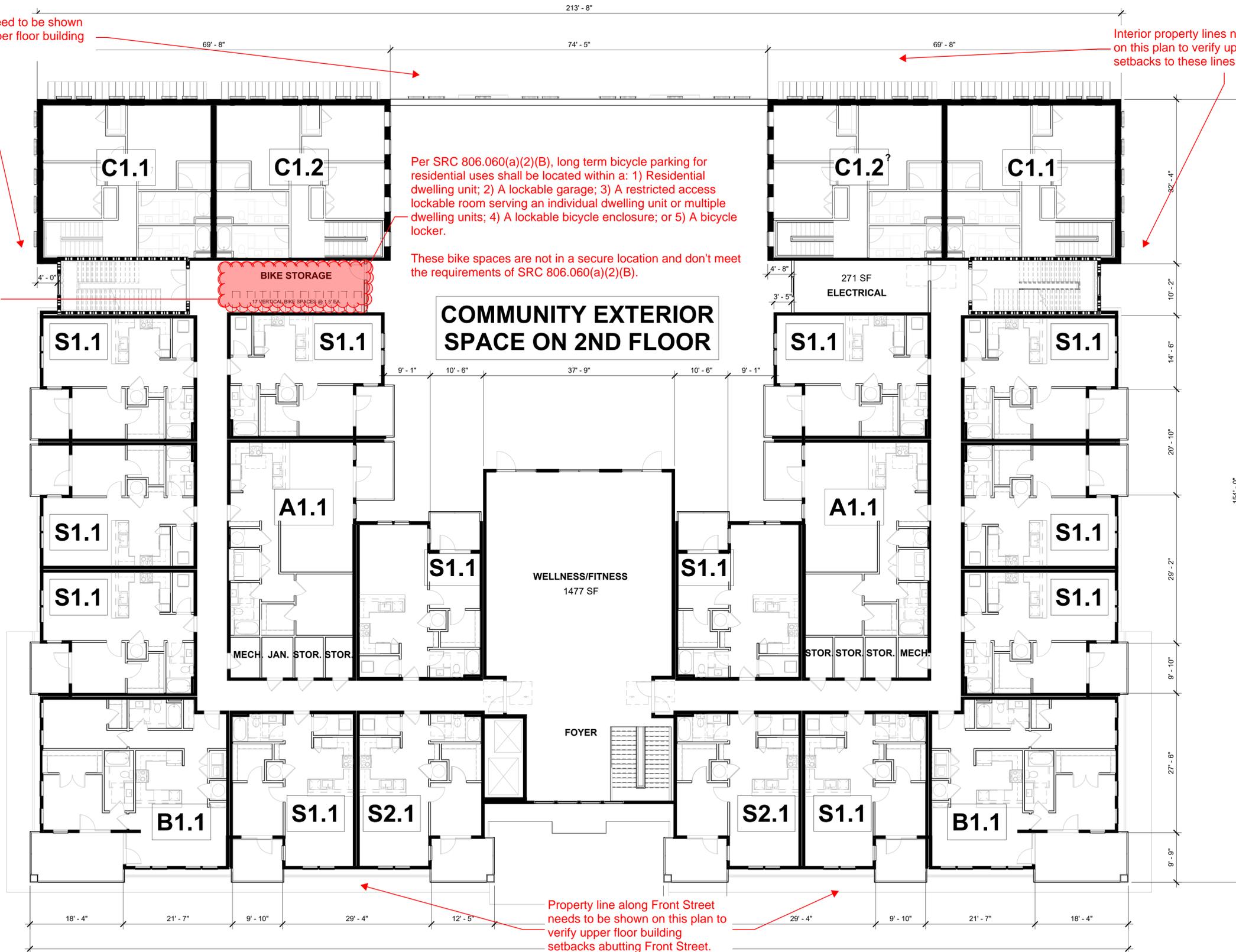
Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.

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Detail drawing needed showing the layout of each bike space in relation to the proposed vertical bike racks.

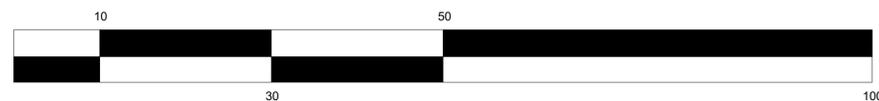
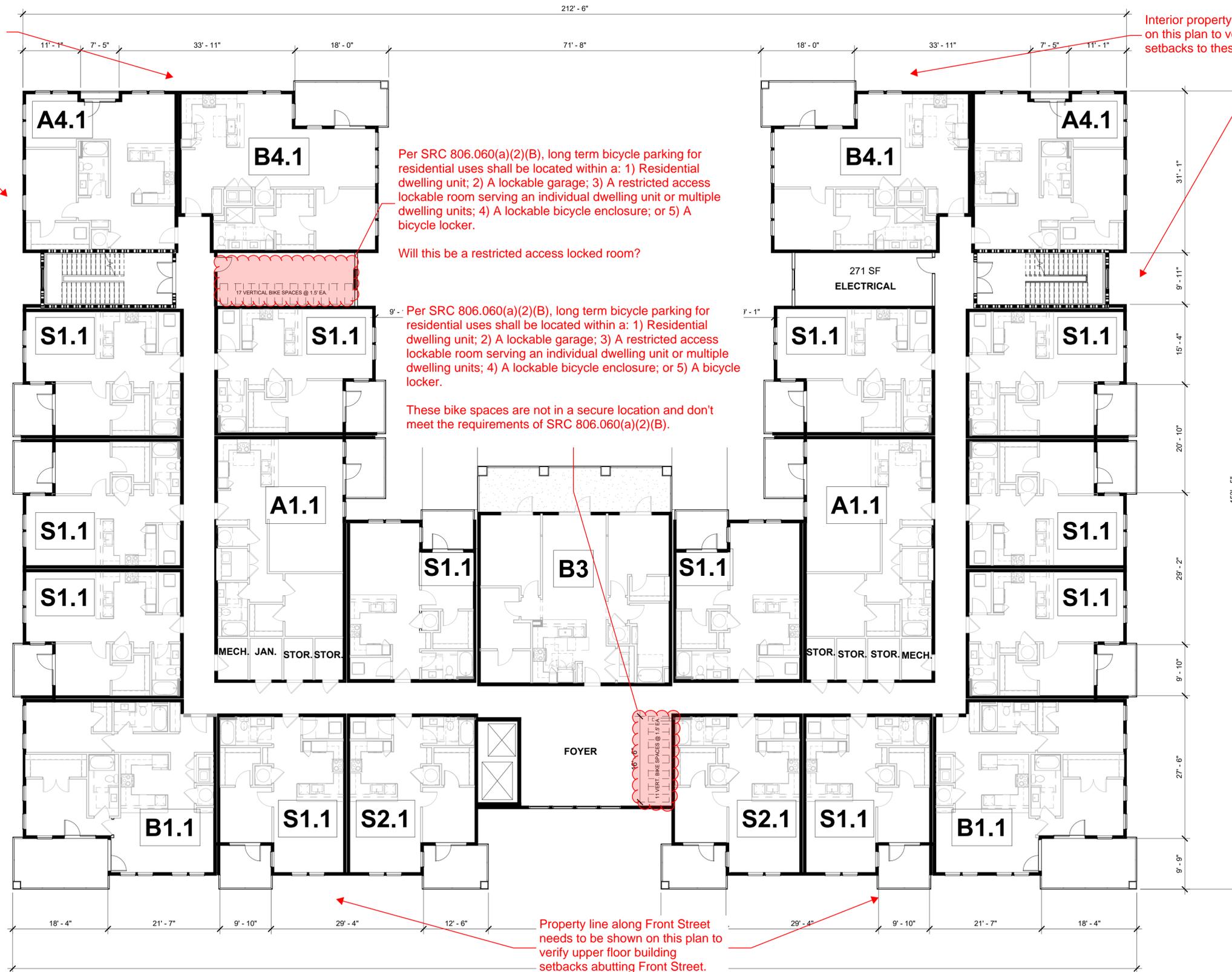
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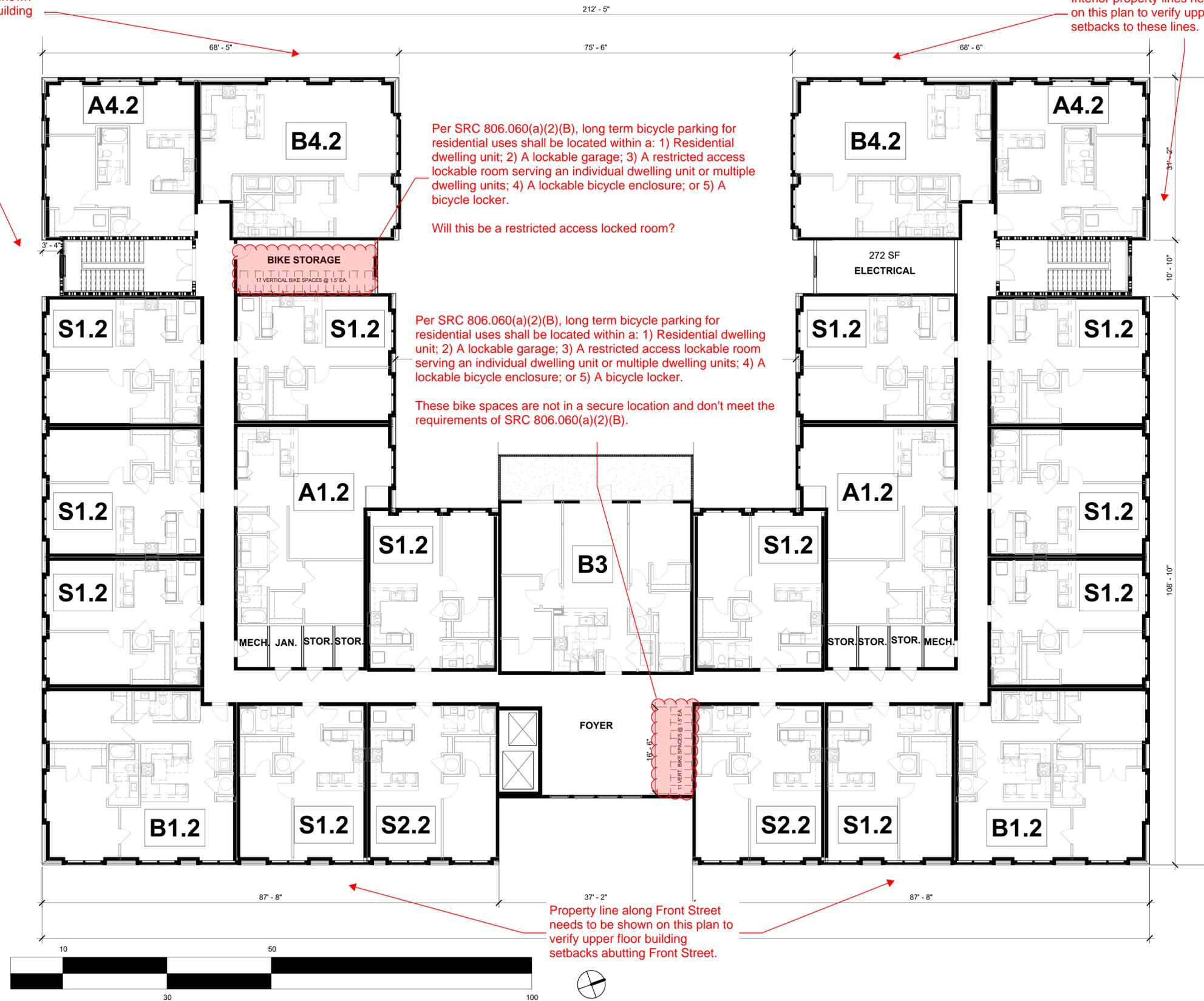
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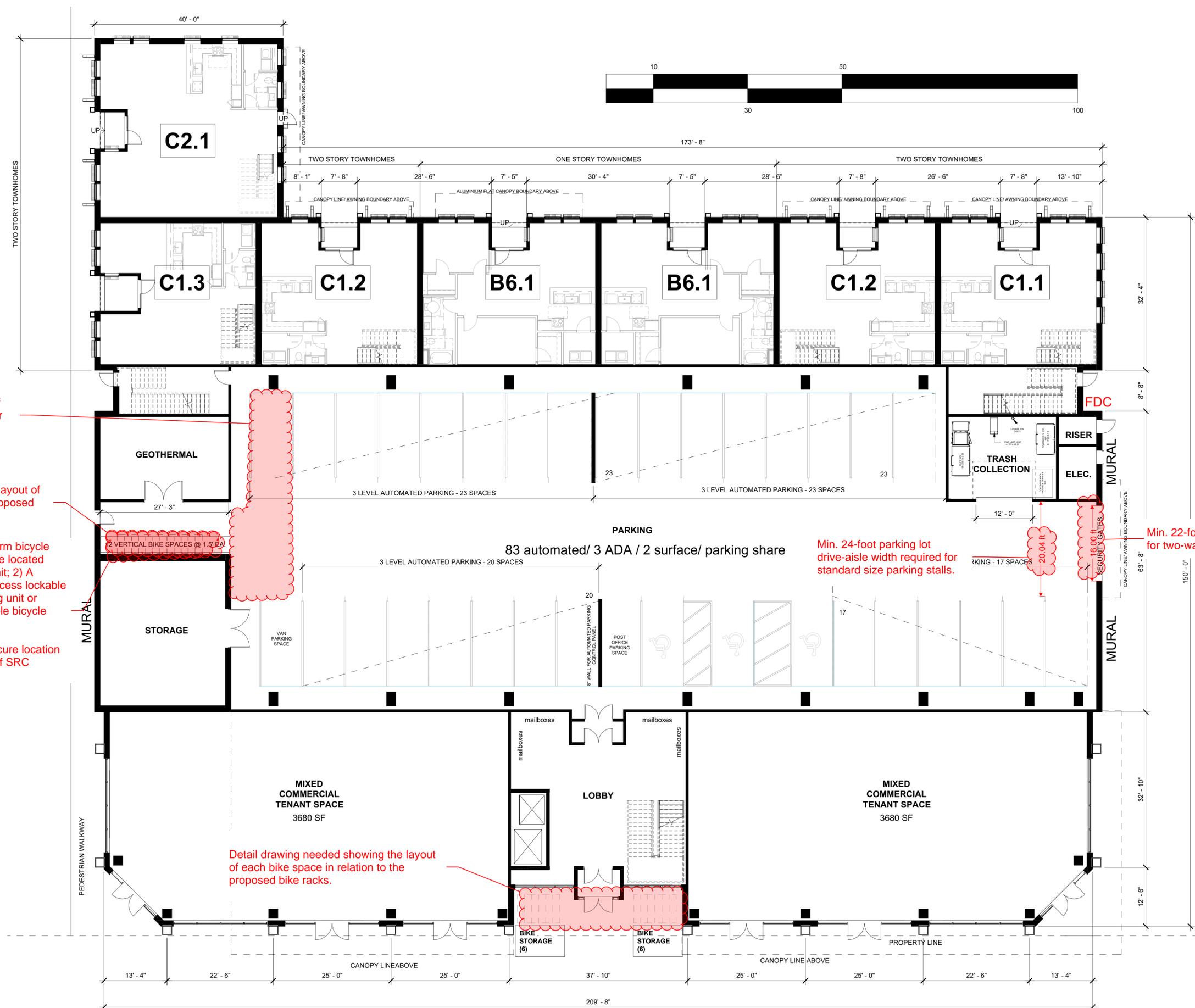
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83% GLAZING\*  
 89% WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)



Turnaround required at terminus of dead-end parking lot drive aisle per SRC 806.035(f)(2)

Detail drawing needed showing the layout of each bike space in relation to the proposed wall mounted bike racks.

Per SRC 806.060(a)(2)(B), long term bicycle parking for residential uses shall be located within a: 1) Residential dwelling unit; 2) A lockable garage; 3) A restricted access lockable room serving an individual dwelling unit or multiple dwelling units; 4) A lockable bicycle enclosure; or 5) A bicycle locker.

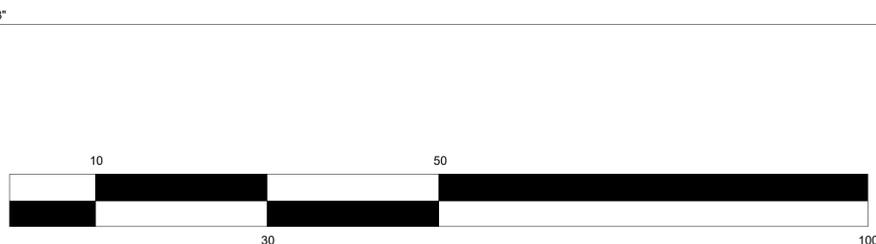
These bike spaces are not in a secure location and don't meet the requirements of SRC 806.060(a)(2)(B).

Detail drawing needed showing the layout of each bike space in relation to the proposed bike racks.

Min. 24-foot parking lot drive-aisle width required for standard size parking stalls.

Min. 22-foot opening required for two-way driveway.

Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.



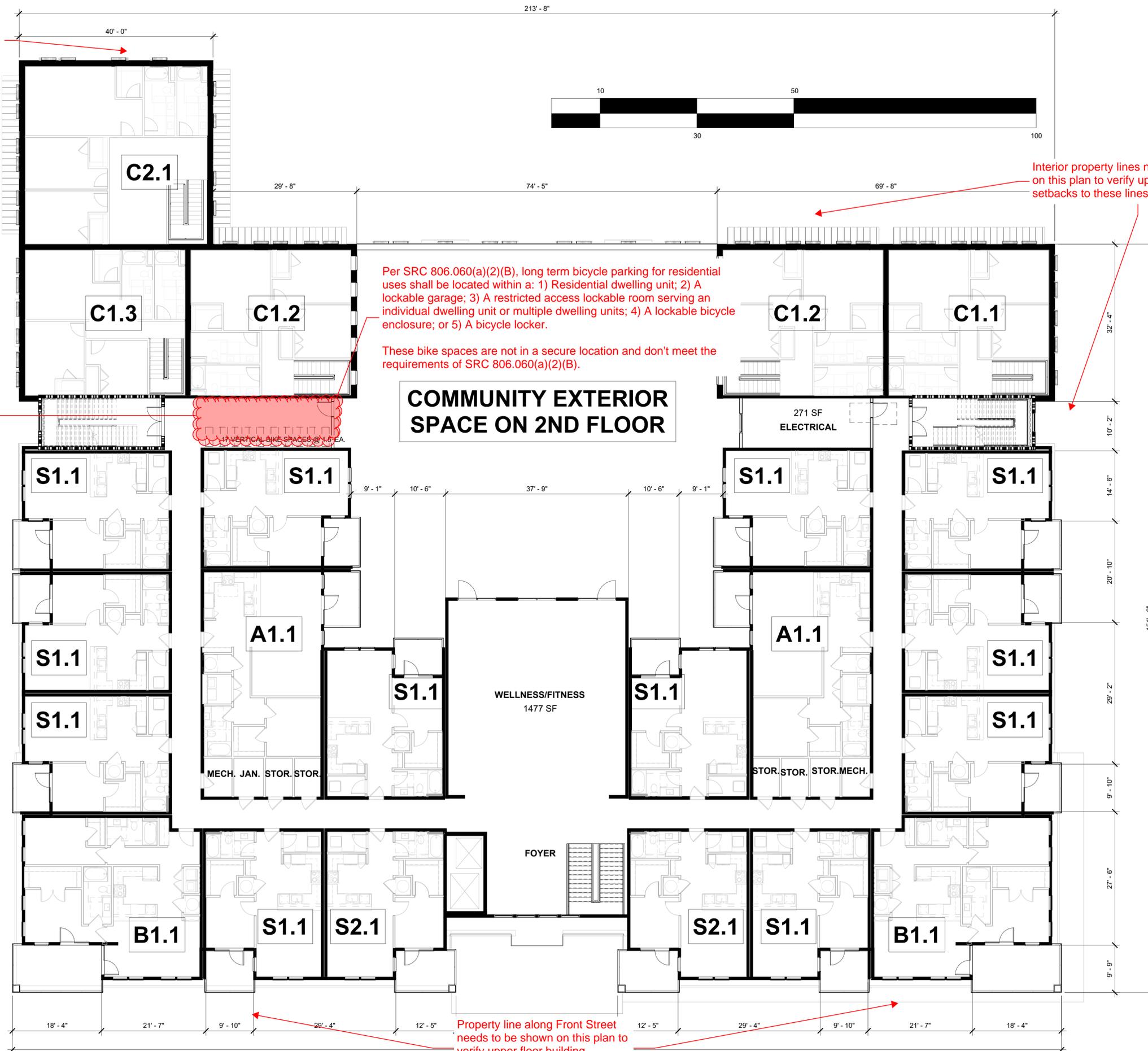
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### COMMUNITY EXTERIOR SPACE ON 2ND FLOOR

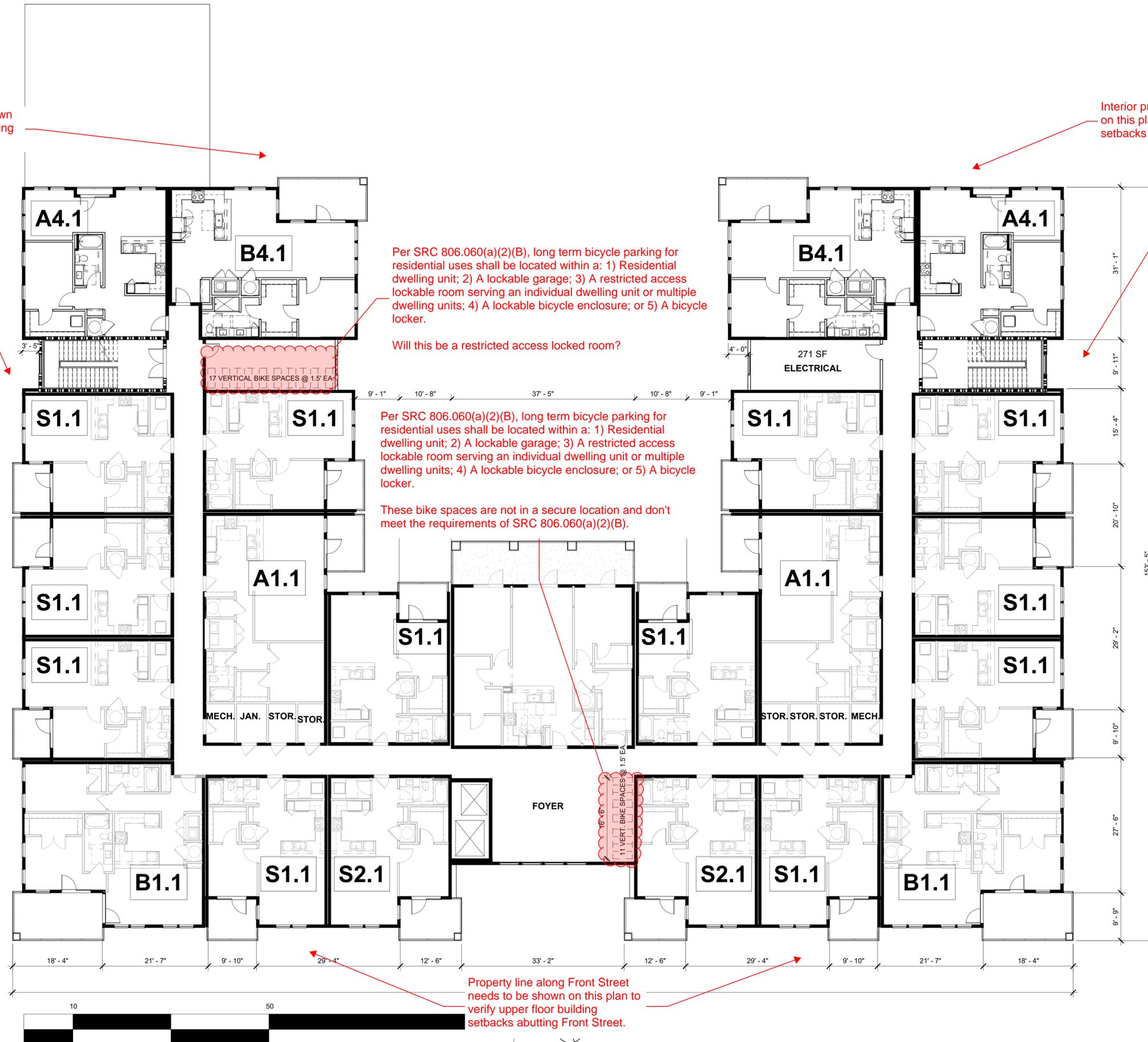


Property line along Front Street needs to be shown on this plan to verify upper floor building setbacks abutting Front Street.



Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.

Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.



Per SRC 806.060(a)(2)(B), long term bicycle parking for residential uses shall be located within a: 1) Residential dwelling unit; 2) A lockable garage; 3) A restricted access lockable room serving an individual dwelling unit or multiple dwelling units; 4) A lockable bicycle enclosure; or 5) A bicycle locker.

Will this be a restricted access locked room?

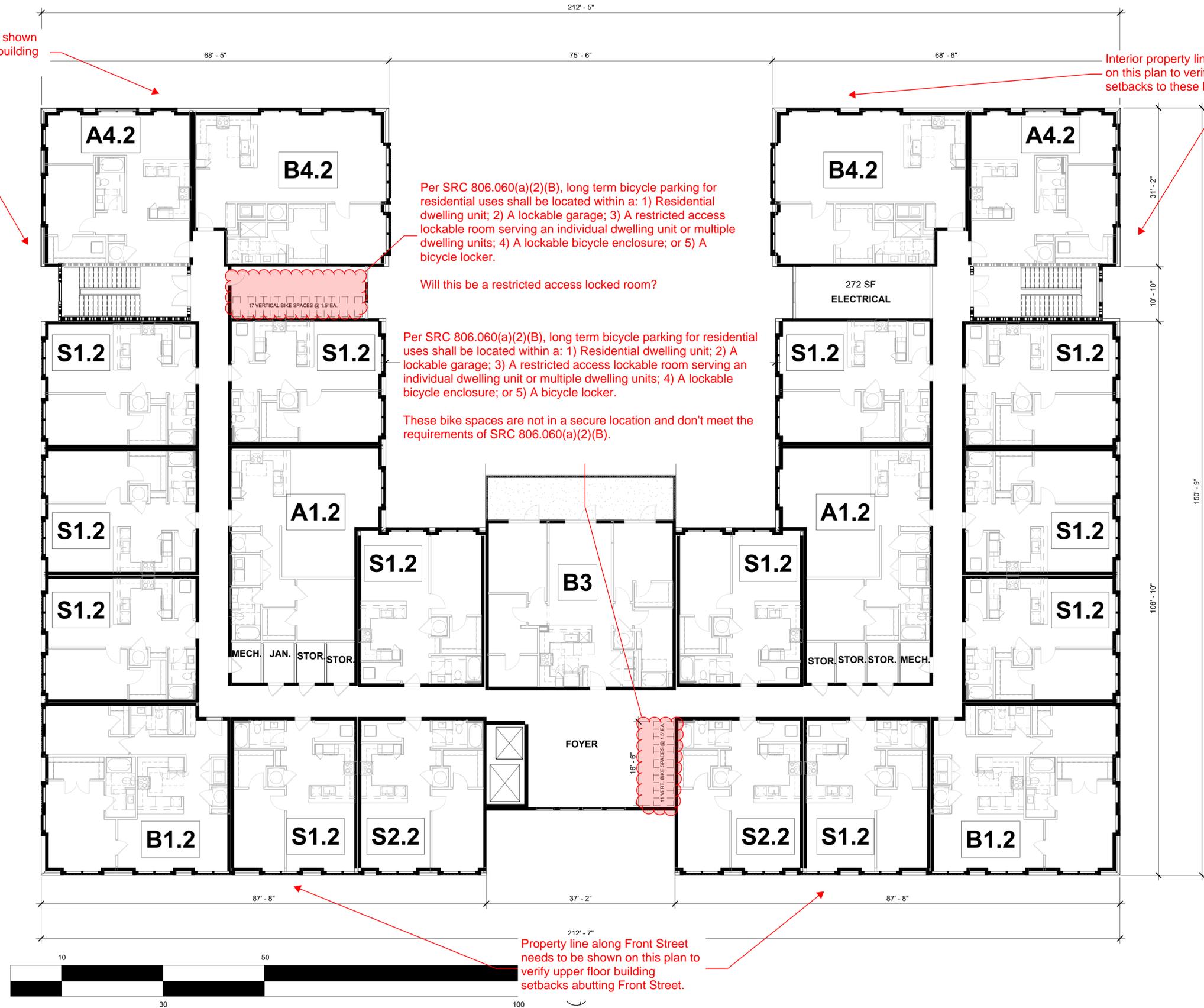
Per SRC 806.060(a)(2)(B), long term bicycle parking for residential uses shall be located within a: 1) Residential dwelling unit; 2) A lockable garage; 3) A restricted access lockable room serving an individual dwelling unit or multiple dwelling units; 4) A lockable bicycle enclosure; or 5) A bicycle locker.

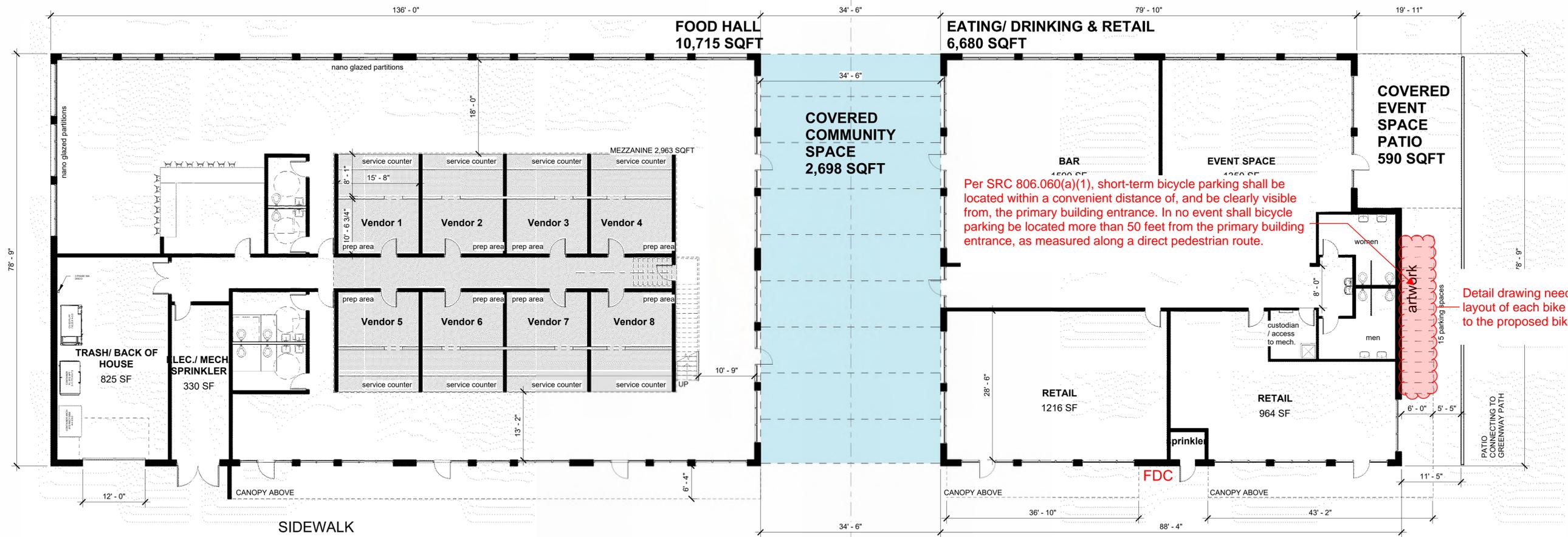
These bike spaces are not in a secure location and don't meet the requirements of SRC 806.060(a)(2)(B).

Property line along Front Street needs to be shown on this plan to verify upper floor building setbacks abutting Front Street.

Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.

Interior property lines need to be shown on this plan to verify upper floor building setbacks to these lines.





1 FOOD HALL  
3/32" = 1'-0"

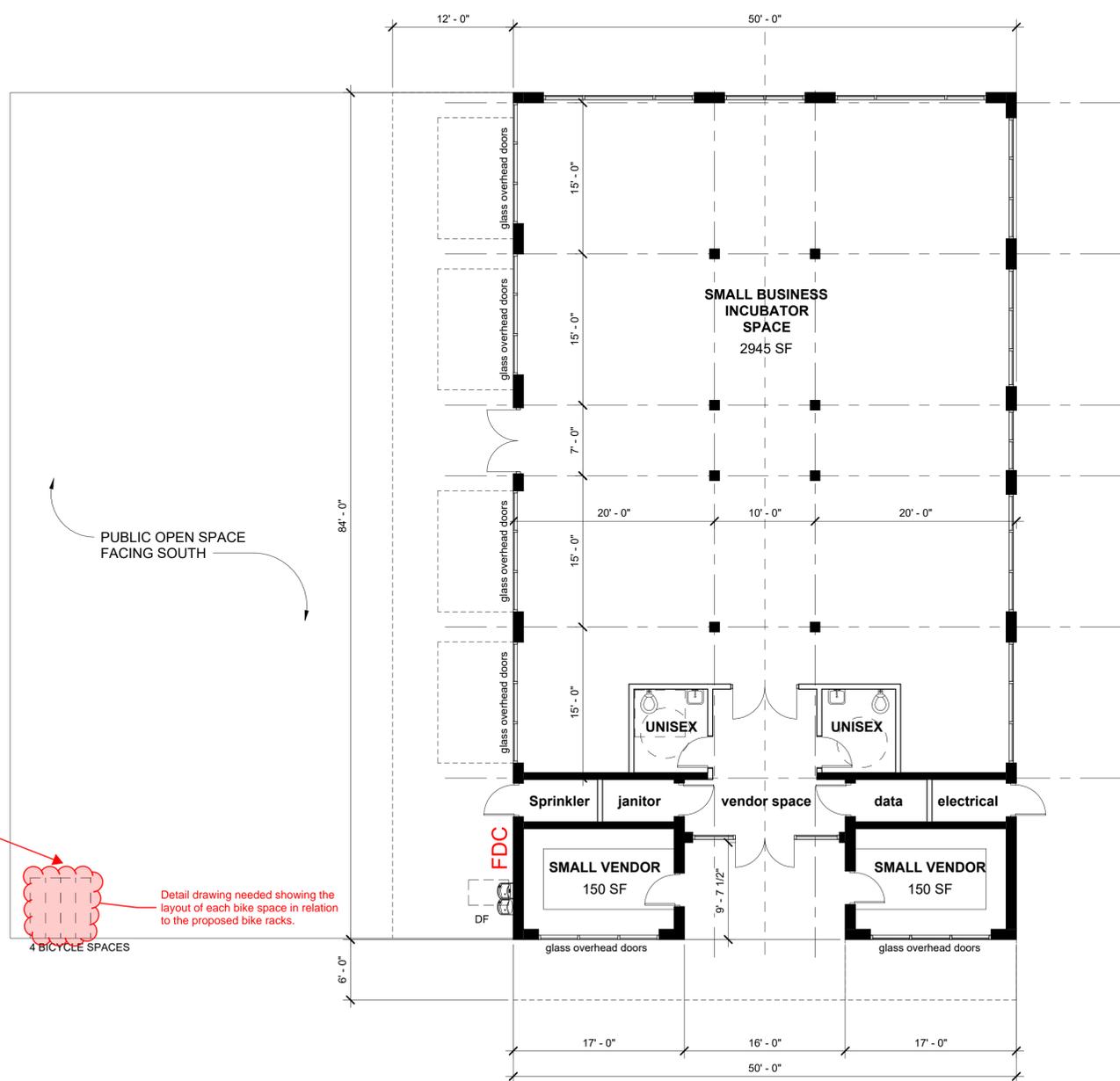




77% GLAZING\*  
100% WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)

Per SRC 806.060(a)(1), short-term bicycle parking shall be located within a convenient distance of, and be clearly visible from, the primary building entrance. In no event shall bicycle parking be located more than 50 feet from the primary building entrance, as measured along a direct pedestrian route.



1 1st FLOOR PLAN  
1/8" = 1'-0"

TOTAL BUILDING SQFT 4,046 sf  
COVERED AREA: 1,154 sf  
TOTAL: 5,200 sf

## **Attachment B: Land Use Application Completeness Review – Supplemental Items (April 22, 2024)**

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**Community Planning and Development**

555 Liberty St. SE / Room 305 • Salem, OR 97301-3503 • 503-588-6173 • [www.cityofsalem.net](http://www.cityofsalem.net)

**April 22, 2024**

**LAND USE APPLICATION COMPLETENESS REVIEW  
- Supplemental Items -**

**Subject Property:** 1105 Front Street NE

**Reference Nos.:** 24-106451-PLN (Class 3 Site Plan Review, Tentative Subdivision Plan, Class 1 & 2 Adjustment, Class 2 Driveway Approach Permit)

**Applicant:** Trent Michels **Phone:**  
The Future of Neighborhood Development, LLC **E-Mail:** [trent.michels@gmail.com](mailto:trent.michels@gmail.com)

**Agent:** Grace Wolff **Phone:** 503-400-6028  
AKS Engineering & Forestry, LLC **E-Mail:** [wolffg@aks-eng.com](mailto:wolffg@aks-eng.com)  
3700 River Road N  
Keizer, OR 97303

The following supplemental completeness review items have been identified for the proposed Class 3 Site Plan Review, Tentative Subdivision Plan, Class 1 and 2 Adjustment, and Class 2 Driveway Approach Permit for property located at 1105 Front Street NE.

Item:	Description:
<p><b>Willamette Greenway Boundary &amp; Compatibility Review Boundary</b></p>	<p><u>Willamette Greenway Boundary:</u> The site plan submitted identifies the boundary of the Willamette River Greenway as of September 10, 1979. However, in comparison of the location of the Greenway Boundary identified on the site plan to that of City records it appears the location of the two boundary lines are different. Please see the attached site plan with an indication of the location of the Willamette Greenway Boundary per City data. The location of the Willamette Greenway Boundary on the site plan needs to be revised to show the correct location.</p> <p><u>Compatibility Review Boundary:</u> The site plan submitted identifies the Willamette Greenway Boundary but it does not show the Willamette Greenway Compatibility Review Boundary. The site plan needs to be revised to also show the Compatibility Review Boundary.</p>
<p><b>Willamette Greenway Development Permit</b></p>	<p>Per SRC 600.015(a)(1), a Willamette Greenway Development Permit is required for any intensification, change of use, or development with the Willamette Greenway Overlay Zone unless exempt under SRC 600.015(a)(2). Based on the location of the Willamette Greenway Boundary and the associated Compatibility Review Boundary in relation to the proposed development, it appears the proposal will include new buildings and site improvements within both the Greenway Boundary and the Compatibility Review Boundary. As such, the proposal will require a Class 2 Greenway Development Permit in addition to the Class 3 Site Plan Review, Subdivision, Class 1 &amp; 2 Adjustment, and Class 2 Driveway Approach Permit.</p>

Item:	Description:
<b>Willamette Greenway Riparian Buffer</b>	The site plan shows the location of the Willamette Greenway Riparian Buffer and the written statement provided with the application indicates that the boundary was determined using Method 2. In order to verify that the location/width of the identified riparian buffer meets the requirements of SRC 600.025(c)(2), a version of the plan is needed showing where the required bank slope measurements were made and the resulting corresponding bank slope measurements.
<b>Willamette Greenway Landscaping Standards</b>	<u>Shrubs:</u> The written statement provided by the applicant indicates that 556 new shrubs are planned to be provided within the Willamette Greenway Boundary. In review of the plant list included in the landscape plan it appears that some of the plants listed may be considered ground cover rather than shrubs. In order to verify conformance with the shrub planting requirement of SRC 600.025(b)(3)(B), the plant list provided needs to distinguish between plants that are ground cover and those which are shrubs. A shrub is defined under SRC Chapter 807 (Landscaping) as, "...deciduous or evergreen woody plant, smaller than a tree, which consists of a number of small stems from the ground or small branches near the ground."
<b>Screening of Parking &amp; Loading Areas</b>	SRC 600.025(f) requires parking and loading areas to be screened from the Willamette River and adjacent properties by a sight-obscuring berm or a sight-obscuring hedge that is a minimum of 6 feet in height at maturity.  The written statement provided from the applicant indicates that all parking areas are internal to the site or within parking garages and therefore screened from the Willamette River and adjacent properties. Staff concurs that the spaces within the parking garage are enclosed and therefore obscured from view from the river and adjacent properties, but the surface parking areas on the site do not meet the standard and are required to be screened.

Your application, which is incomplete, will be deemed complete upon receipt of one of the following:

- 1) All of the missing information;
- 2) Some of the missing information and written notice from you (the applicant) that no other information will be provided; or
- 3) Written notice from you (the applicant) that none of the missing information will be provided.

**You have 180 days from the date the application was first submitted to respond in one of the three ways listed above, or the application will be deemed void.**

For questions regarding any of the above requirements, please feel free to contact me directly by calling (503) 540-2399 or via e-mail at [bbishop@cityofsalem.net](mailto:bbishop@cityofsalem.net).

**The Salem Revised Code may be accessed online at the following location:**

<https://www.cityofsalem.net/government/laws-rules/salem-revised-code>

Sincerely,

Bryce Bishop

Planner III



## **Attachment C: Application Form**

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**Planning/Permit Application Center**

City Hall  
 555 Liberty St. SE, Room 320  
 Salem OR 97301-3513  
 503-588-6213 [planning@cityofsalem.net](mailto:planning@cityofsalem.net)

If you need the following translated in Spanish, please call 503-588-6256.  
 Si usted necesita lo siguiente traducido en español, por favor llame 503-588-6256.

**Project Description**

Tentative Subdivision Plan, Class 3 Site Plan Review, Class 1 Adjustments, Class 2 Adjustments, three Class 2 Driveway Approach Permits, and a Landslide Hazard Construction Permit for the planned redevelopment (The Cannery) of the former Truitt Brothers Cannery Site. The Cannery is planned as a new mixed-use neighborhood along the City of Salems historic riverfront that will accommodate the growing demand for housing and jobs and promote continued reinvestment into the Citys downtown area.

- Class 1 Adjustment
- Class 2 Adjustment
- Class 2 Driveway Approach Permit
- Class 3 Site Plan Review
- Subdivision Tentative Plan

**Work site location and information**

<b>Street address of or location of subject property</b>	<b>1105 FRONT ST NE SALEM OR 97301</b>
<b>Size of property (acres)</b>	8.84
<b>Tax Lot Number</b>	073W22AB00900
<b>Neighborhood Association</b>	Grant Neighborhood Association
<b>Street address of or location of subject property</b>	<b>1375 FRONT ST NE SALEM OR 97301</b>
<b>Size of property (acres)</b>	1.39
<b>Tax Lot Number</b>	073W22AB00600
<b>Neighborhood Association</b>	Grant Neighborhood Association
<b>Street address of or location of subject property</b>	<b>0 SHIPPING ST NE SALEM OR 97301</b>
<b>Size of property (acres)</b>	3.04
<b>Tax Lot Number</b>	073W22AB00300
<b>Neighborhood Association</b>	Grant Neighborhood Association

**People information**

<b>Applicant</b>	AKS ENGINEERING AND 3700 RIVER RD N STE 1 KEIZER OR 97303	503-400-6028 salemadmin@aks-eng.com
<b>Owner</b>	FRONT STREET PROPER] PO BOX 309 SALEM OR 97308-0309	503-362-3674 tmichels@thefund.works
<b>Owner</b>	TRUITT PROPERTIES LLC PO BOX 309 SALEM OR 97308-0309	
<b>Contact</b>	Grace Wolff - Planner wolffg@aks-eng.com	
<b>Contact</b>	Trent Michels trent.michels@gmail.com	

**Project information**

<b>Total Project Valuation</b>	\$100,000,000.00
<b>Site Area (Acreage)</b>	13.27
<b>Comprehensive Plan</b>	River Oriented Mixed Use (ROM)
<b>Zoning</b>	Mixed Use Riverfront (MU-R)
<b># of lots proposed</b>	6
<b>Is this expedited ?</b>	No
<b>Number of Class 1 Adjustments</b>	8
<b>Number of Class 2 Adjustments</b>	7
<b>Number of Driveway Approaches</b>	3
<b>Type of Plan Check</b>	Multi Family
<b>MS4 Reporting</b>	Yes
<b>Existing use structures and/or other improvements on site</b>	Former Truitt Brothers Cannery Site
<b>Neighborhood Association Contact</b>	Emailed Letter 3/14/24
<b>Salem-Keizer Transit Contact</b>	Emailed Letter 3/14/24
<b>Homeowners Association</b>	N/A

**Land Use fees**

<b>Description</b>	<b>Amount</b>
Site Plan Review	\$68,148.00
Subdivision	\$9,845.00
Automation Surcharge	\$5.00
Driveway Approach - Class 2	\$1,992.00
Zoning Adjustment - Class 1	\$2,711.00
Zoning Adjustment - Class 2	\$3,420.00
<b>Total Fees</b>	<b>\$86,121.00</b>

## **Terms and Conditions**

**Correct information:** I hereby certify I have read and examined this application and know the same to be true and correct. All provisions of laws and ordinances governing this type of work will be complied with whether specified herein or not.

**Copyright release for government entities:** I hereby grant permission to the City of Salem to copy, in whole or part, drawings and all other materials submitted by me, my agents, or representatives. This grant of permission extends to all copies needed for administration of the City's regulatory, administrative, and legal functions, including sharing of information with other governmental entities.

**Indemnity:** I, the permit applicant, shall indemnify, defend and hold harmless the City of Salem, its officers, employees and agents from any and all claims arising out of or in connection with work done under this permit.

## **Authorizations**

- Property owners and contract purchasers are required to authorize the filing of this application and must sign below. This signed form must be uploaded with other review documents.
- If the applicant and/or property owner is a Limited Liability Company (LLC), please also provide a list of all members of the LLC with your application.
- All signatures represent that they have full legal capacity to and hereby do authorize the filing of this application and certify that the information and exhibits herewith submitted are true and correct.
- I (we) hereby grant consent to the City of Salem and its officers, agents, employees, and/or independent contractors to enter the property identified above to conduct any and all inspections that are considered appropriate by the City to process this application.

This application was electronically submitted to the City of Salem Permit Application Center by **AKS ENGINEERING AND FORESTRY** (PersonID: 330590) on **March 15, 2024 at 3:26 PM.**

I (we) hereby give notice of the following concealed or unconcealed dangerous conditions on the property:

I (we) certify that I (we) have read, understood, and confirm all the statements listed above and throughout the application form.

Authorized Signature: Trent Michels  
Printed Name: Trent Michels Date: 03/18/2024  
Address (include ZIP): 15017 Thomas Road, Charlotte, NC 28278

Authorized Signature: Peter W Truitt  
Printed Name: Peter W Truitt Date: 5/22/24  
Address (include ZIP): PO 2067, Salem, OR 97308

Authorized Signature: \_\_\_\_\_  
Printed Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Address (include ZIP): \_\_\_\_\_

(For office use only)		
Received by:	Date:	Receipt Number:

## **Attachment D: Recorded Deeds**

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**MAIL TAX STATEMENTS TO:**

Front Street Properties, LLC  
PO Box 309  
Salem, OR 97308

**AFTER RECORDING RETURN TO:**

James C. Griggs  
PO Box 470  
Salem, OR 97308

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**STATUTORY BARGAIN AND SALE DEED**

**Truitt Bros., Inc.**, a corporation duly organized and existing under the laws of the state of Oregon, formerly known as United States Producers, Inc., "**Grantor**," conveys to **Front Street Properties, LLC**, an Oregon limited liability company, "**Grantee**," the following described real property:

See **Exhibit A** attached hereto

It is intended by the parties that all parcels listed on **Exhibit A** remain as separate and distinct legal parcels.

The following is the notice as required by Oregon law: "THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930."

The true and actual consideration paid for this conveyance is One Million Seven Hundred Eight Thousand Dollars (\$1,708,000).

Dated this 1<sup>st</sup> day of February, 2005.

Truitt Bros., Inc.

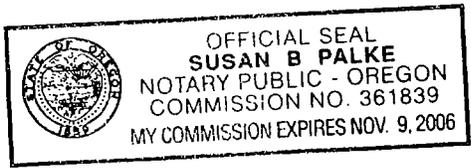
By: David J. Truitt  
David J. Truitt, President

By: Peter W. Truitt  
Peter W. Truitt, Secretary

State of Oregon )  
 ) ss.  
County of Marion )

On this 1<sup>st</sup> day of February, 2005, personally appeared David J. Truitt, who being duly sworn, did say that he is the President of Truitt Bros., Inc., an Oregon corporation, and that said instrument was signed on behalf of said corporation by authority of its Board of Directors and acknowledged said instrument to be its voluntary act and deed.

Before me:



Susan B Palke  
Notary Public for Oregon  
My Commission Expires: 11-9-2006

State of Oregon )  
 ) ss.  
County of Marion )

On this 1<sup>st</sup> day of February, 2005, personally appeared Peter W. Truitt, who being duly sworn, did say that he is the Secretary of Truitt Bros., Inc., an Oregon corporation, and that said instrument was signed on behalf of said corporation by authority of its Board of Directors and acknowledged said instrument to be its voluntary act and deed.

Before me:



Susan B Palke  
Notary Public for Oregon  
My Commission Expires: 11-9-2006

EXHIBIT A

Parcel I:

Tract 1: Beginning at the Northeast corner of the South one-half of Lot 7, Block 1, Mill Addition to the City of Salem, Marion County, Oregon. (See Volume 1, Page 90, Record of Town Plats for said County and State.) being that point on the East line of said Lot 7, which is 25 feet Northerly from the Southeast corner of said Lot; thence North  $70^{\circ}35'$  West along the middle line of said Lot 7, a distance of 200 feet; thence South  $19^{\circ}25'$  West and parallel to the West line of Front Street, a distance of 60 feet; thence Easterly on a line parallel to the South line of said Lot 7, a distance of 200 feet to said West line of Front Street; thence Northerly along said West line of Front Street, a distance of 60 feet to said Northeasterly corner of said South one-half of Lot 7, Block 1, Mill Addition to the City of Salem, Marion County, Oregon, and the place of beginning.

Tract 2: Beginning at an iron pipe in the West line of Front Street in Salem, Oregon, 25 feet Southerly from the Northeast corner of Lot 7, Block 1, Mill Addition to Salem, Marion County, Oregon; thence North  $19^{\circ}25'$  East feet along the West line of Front Street, 689.6 feet to the center of Gaines Street; thence North  $70^{\circ}35'$  West along the center line of Gaines Street, now vacated, 230.33 feet; thence South  $19^{\circ}25'$  West along the center line of Water Street, now vacated, 298.6 feet; thence North  $70^{\circ}35'$  West along the Westerly extension of the South line of Block 24, North Salem, 90.57 feet; thence South  $19^{\circ}25'$  West 216.0 feet; thence North  $70^{\circ}35'$  West along a Westerly extension of the North line of Lot 4, Block 1, Mill Addition, 85 feet more or less to the low water line of the Willamette River; thence up said River following the low water line of the same to a Westerly extension of the line cutting Lot 7, Block 1, Mill Addition, into North and South halves; thence South  $70^{\circ}35'$  East along said line, 515 feet more or less to the point of beginning.

SAVE AND EXCEPT: Beginning at the Southeast corner of Lot 8, Block 1, Mill Addition to Salem, Marion County, Oregon; thence North  $70^{\circ}35'$  West along the Southerly line of said Lot 8, a distance of 320.90 feet; thence North  $19^{\circ}25'$  East parallel with the West line of Front Street, a distance of 136.63 feet to the true point of beginning; thence North  $70^{\circ}35'$  West parallel with the Southerly line of said Lot 8 and the Westerly extension thereof, a distance of 80.00 feet, more or less, to the low water line of the Willamette River; thence Northerly along said low water line to a point on the Westerly extension of the Southerly line of Lot 3, in said Block 1; thence South  $70^{\circ}35'$  East along the Westerly extension of the Southerly line of said Lot 3, a distance of 73.00 feet, more or less, to a point which is North  $19^{\circ}25'$  East 113.72 feet from the true point of beginning; thence South  $19^{\circ}25'$  West a distance of 113.72 feet to the place of beginning.

Tract 3: Beginning on the Westerly line of Front Street at a point which is 33.00 feet North 19°25' East from the Northeast corner of Block 24, North Salem, Marion County, Oregon; thence North 70°35' West along the center line of Gaines Street (vacated) 230.33 feet; thence South 19°25' West parallel with the Westerly line of said Front Street 250.60 feet to the true point of beginning; thence South 19°25' West, parallel with the Westerly line of said Front Street 48.00 feet; thence North 70°35' West, 90.57 feet; thence North 19°25' East 48.00 feet; thence South 70°35' East 90.57 feet to the true point of beginning.

Tract 4: Beginning at a point which is North 19°25' East 15 feet and North 70°35' West 200 feet from the Southeast corner of Lot 8, Block 1, Mill Addition to Salem, Marion County, Oregon, which point is the true place of beginning; thence North 70°35' West and parallel with Westerly extension of the Southerly line of said Lot 8, 120.9 feet; thence North 19°25' East 60 feet, more or less, to the Southerly property line of USP Corporation property; thence South 70°35' East and parallel with the Southerly line of the said Lot 8, 120.9 feet; thence South 19°25' West 60 feet, more or less, to the place of beginning.

Tract 5: Lots 5 and 6, Block 22, North Salem, Marion County, Oregon.

TOGETHER WITH that portion of vacated alley adjoining that would attach thereto by Ordinance 50-91,

Dated : June 25, 1991

Recorded : July 23, 1991

Reel: 870

Page: 299

Parcel II:

Beginning at a point on the Easterly boundary line of Block 25, North Salem, said point bears South 19°25' West 108.00 feet from the Northeast corner of said Block 25 and running thence North 70°35' West, parallel to the Northerly boundary line of Block 25, to the low water line of the Willamette River; thence Southerly, along said low water line, to the Southerly line of that parcel of land described in the exception to Tract 2, said description being recorded in Reel 42, page 596, Marion County Records; thence South 70°35' East, along said Southerly boundary line, 80.00 feet, more or less, to the Southeasterly corner of said exception; thence North 19°25' East 377.72 feet along the Westerly boundary lines of the aforementioned Tract 2 and Tract 3, said Tract 3 being described in Reel 42, page 597, Marion County Records; thence South 70°35' East 90.57 feet, along the Northerly boundary line of said Tract 3, to the Northeasterly corner of same; thence North 19°25' East 250.60 feet, along the aforementioned Westerly boundary line of Tract 2, said Westerly boundary line being the center-line of vacated Water Street to the Northwesterly corner of said Tract 2; thence South 70°35' East 230.33 feet, along the Northerly boundary line of vacated Gaines Street, to the Northerly corner of said Tract 2; thence North 19°25' East 190.60 feet along said Easterly boundary line of Block 25 and its extension to the point of beginning.

Parcel III:

Beginning at the Southeast corner of Lot 8, Block 1, Mill Addition to Salem, in Marion County, Oregon, and thence South 19°30' West a distance of 85.0 feet to the true point of beginning; thence North 70°30' West a distance of 200.0 feet; thence North 19°30' East a distance of 100.0 feet; thence South 70°30' East a distance of 200.0 feet; thence South 19°30' West a distance of 100.0 feet to the true point of beginning.

Parcel IV:

Lot 1, Willamette Landing, in the City of Salem, County of Marion and State of Oregon.

SAVE AND EXCEPT the land described as follows: Beginning at a point on the Southerly right-of-way line of Shipping Street, which is 197.50 feet North 70°37'00" West from the Northeast corner of Lot 1, of said Willamette Landing; thence North 70°37'00" West a distance of 53.26 feet; thence along the arc of a 140.00 foot radius curve to the right a distance of 25.55 feet, a chord of which bears North 14°17'27" East 25.51 feet to the end of said curve; thence North 19°31'05" East 7.49 feet; thence North 79°15'34" East, along the Southerly line of Lot 3, Willamette Landing, a distance of 25.54 feet to a point at the Easterly Southeast corner of said Lot 3, said point also being on the East line of said Willamette Landing; thence South 19°31'05" West along said East line, a distance of 12.72 feet to an angle in said East line; thence South 70°37'00" East along said East line, a distance of 33.47 feet to an angle in said East line; thence South 19°24'59" West along said East line, a distance of 33.00 feet to the point of beginning.

Lot 2, Willamette Landing, in the City of Salem, County of Marion and State of Oregon.

SAVE AND EXCEPT the land described as follows: Beginning at a point on the Southerly right-of-way line of Shipping Street, which is 269.46 feet North 70°37'00" West from the Northeast corner of Lot 1, of said Willamette Landing; thence North 70°37'00" West a distance of 18.70 feet; thence South 79°25'00" West a distance of 68.61 feet to a property corner between said Lots 2 and 3; thence North 10°43'47" West, along said property line between Lots 2 and 3, a distance of 20.01 feet to an angle in said line; thence North 79°15'34" East, along the Southerly line of said Lot 3, a distance of 99.35 feet; thence South 19°31'05" West 7.49 feet to the beginning of a 140.00 foot radius curve to the right; thence along the arc of said curve a distance of 25.55 feet, a chord of which bears South 14°17'27" West 25.51 feet to the point of beginning.

Parcel V:

Lot One (1), Block Twenty-two (22), North Salem, Marion County, Oregon. (See Volume 1, Page 18, Record of Town Plats for said County and State.)

The Northerly Twelve (12) of Lot 2(Two), Block Twenty-two (22), North Salem, Marion County, Oregon. (See Volume 1, Page 18, Record of Town Plats for said County and State.)

Lot 2(Two), Block Twenty-two (22), North Salem, Marion County, Oregon. (See Volume 1, Page 18, Record of Town Plats for said County and State.)  
SAVE AND EXCEPT the Northerly 12 feet thereof.

The Northerly 42 1/2 feet of Lot Three (3), Block Twenty-two (22), North Salem, Marion County, Oregon, more particulary described as follows:  
Beginning at the Northeast corner of said Lot 3, running thence West along the North line of said Lot, to the Northwest corner thereof; thence South along the West line of said Lot 3, 42 1/2 feet; thence East parallel with the North line of said Lot 3, to the East line thereof; thence North along the East line of said Lot 3, 42 1/2 feet to the place of beginning, being a portion of said Lot 3, above described.

All of Lots Three (3), and Four (4), Block Twenty-two (22), North Salem, Marion County, Oregon. (See Volume 1, Page 18, Record of Town Plats for said County and State.)

SAVE AND EXCEPT from said Lot 3, the following described parcel of land:  
Beginning at the Northeast corner of said Lot 3, running thence West along the North line of said Lot, to the Northwest corner thereof; thence South along the West line of said Lot 3, 42 1/2 feet; thence East parallel with the North line of said Lot 3, to the East line thereof; thence North along the East line of said Lot 3, 42 1/2 feet to the place of beginning, being a portion of said Lot 3, above described.

TOGETHER WITH that portion of the vacated alley that would inure by law, as set forth in Ordinance 50-91 on July 23, 1991.

Parcel VI:

Lots 18, 19, and 20, Block 2, Mill Addition to Salem, County of Marion and State of Oregon.

SAVE AND EXCEPT those portions conveyed to the City of Salem, a municipal corporation, by Deed recorded July 27, 1990, in Reel 787, Page 393, and by Deed recorded March 5, 1998, in Reel 1467, Page 469, Deed Records for Marion County, Oregon.

Parcel VII:

Lot 16, Block 2, Mill Addition to Salem, County of Marion and State of Oregon.

**REEL:2483**

**PAGE: 45**

**May 26, 2005, 11:01 am.**

CONTROL #: 141525

State of Oregon  
County of Marion

I hereby certify that the attached  
instrument was received and duly  
recorded by me in Marion County  
records:

FEE: \$ 51.00

BILL BURGESS  
COUNTY CLERK

THIS IS NOT AN INVOICE.

MAIL TAX STATEMENTS TO:

Truitt Properties, LLC  
PO Box 309  
Salem, OR 97308

AFTER RECORDING RETURN TO:

James C. Griggs  
Saalfeld, Griggs, Gorsuch, Alexander  
& Emerick, P.C.  
P.O. Box 470  
Salem, OR 97308

STATUTORY BARGAIN AND SALE DEED

David J. Truitt and Peter W. Truitt, each as to an undivided one-half interest as tenants in common, collectively the Grantors, convey to Truitt Properties LLC, an Oregon limited liability company, Grantee, the following described real property:

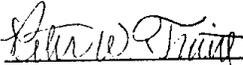
See Exhibit A attached hereto.

The true and actual consideration for this conveyance is NONE; however, the actual consideration consists of or includes other value given or promised which is the whole of the consideration.

The following is the notice as required by Oregon law: "THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930."

Dated: January 2, 1998.

  
\_\_\_\_\_  
David J. Truitt

  
\_\_\_\_\_  
Peter W. Truitt

MARCH 24 1998

State of Oregon )  
 ) ss.  
County of Marion )

On January 2, 1998, personally appeared David J. Truitt, and acknowledged the foregoing instrument to be his voluntary act and deed.

Before me:

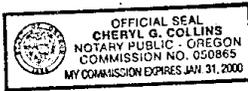


Cheryl G. Collins  
Notary Public for Oregon  
My Commission Expires: 1-31-00

State of Oregon )  
 ) ss.  
County of Marion )

On January 2, 1998, personally appeared Peter W. Truitt, and acknowledged the foregoing instrument to be his voluntary act and deed.

Before me:



Cheryl G. Collins  
(Notary Public for Oregon  
My Commission Expires: 1-31-00

MARCH 24 1998

EXHIBIT A

Beginning at the Northeast corner of Block 25, North Salem, and running thence South 19° 25' West 108.00 feet along the Easterly boundary line of said Block 25; thence North 70° 35' West, parallel with the Northerly boundary line of said Block 25, to the low water line of the Willamette River; thence Northerly, along said low water line, to a point on the Westerly extension of the centerline of Hood Street; thence South 70° 35' East, along said Westerly extension, to a point on the Northerly extension of the Westerly boundary line of the aforementioned Block 25; thence South 19° 25' West 33.00 feet, along said Northerly extension, to the Northwesterly corner of said Block 25; thence South 70° 35' East 197.50 feet, along the Northerly boundary line of said Block 25, to the point of beginning.

ALSO:  
Beginning at the Northeast corner of Lot 1, Block 25, North Salem; thence running Westerly along the Northerly lines of Lots 1 and 8 a distance of 197.50 feet to the Northwest corner of Lot 8; thence running Northeasterly and parallel with the Easterly line of said Block 25 a distance of 33.0 feet; thence running Easterly and parallel with the North lines of Lots 8 and 1 a distance of 197.50 feet to the Westerly edge of Front Street, in the City of Salem; thence running Southerly along the edge of Front Street a distance of 33.0 feet to the place of beginning, and being the Southerly one-half of vacated Hood Street.

Together with a perpetual non-exclusive easement for roadway and utility purposes, including the terms and provisions thereof, over and across and under the following described property:

Beginning at the point of intersection of the Westerly right-of-way line of Front Street with the centerline of vacated Hood Street in North Salem Addition in Township 7 South, Range 3 West of the Willamette Meridian in Marion County, Oregon; thence North 19° 25' East along the Westerly right-of-way line of said Front Street, 20.00 feet; thence North 70° 37' West, parallel with the centerline of vacated Hood Street, 170.00 feet; thence South 19° 25' West parallel with the Westerly right-of-way line of Front Street, 20.00 feet to a point on the centerline of vacated Hood Street; thence South 70° 37' East along the centerline of vacated Hood Street, 170.00 feet to the point of beginning, as set forth in instrument recorded March 6, 1979, in Reel 159, Page 5, Film Records for Marion County, Oregon.

THIS INSTRUMENT DOES NOT GUARANTEE THAT ANY PARTICULAR USE MAY BE MADE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT. A BUYER SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES.

Tax Account No. 83891-960

MARCH 24 1988

REEL:1472

PAGE: 565

March 24, 1998 , 10:42A

CONTROL #: 1472565

State of Oregon  
County of Marion

I hereby certify that the attached  
instrument was received and duly  
recorded by me in Marion County  
records:

FEE: \$45.00

ALAN H DAVIDSON  
COUNTY CLERK

MARCH 24 1998

## **Attachment E: Proof of Signing Authority and List of LLC Members**

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## Business Registry Business Name Search

[New Search](#)

## Business Entity Data

05-22-2024  
10:45

Registry Nbr	Entity Type	Entity Status	Jurisdiction	Registry Date	Next Renewal Date	Renewal Due?
248667-90	DLLC	ACT	OREGON	10-26-2004	10-26-2024	
<b>Entity Name</b>	FRONT STREET PROPERTIES, LLC					
<b>Foreign Name</b>						

[New Search](#)

## Associated Names

Type	PRINCIPAL PLACE OF BUSINESS					
<b>Addr 1</b>	1105 FRONT ST NE					
<b>Addr 2</b>						
<b>CSZ</b>	SALEM	OR	97301		<b>Country</b>	UNITED STATES OF AMERICA

Please click [here](#) for general information about registered agents and service of process.

Type	AGT REGISTERED AGENT			Start Date	09-23-2021	Resign Date
<b>Name</b>	PETER	W	TRUITT			
<b>Addr 1</b>	1105 FRONT ST NE					
<b>Addr 2</b>						
<b>CSZ</b>	SALEM	OR	97301		<b>Country</b>	UNITED STATES OF AMERICA

Type	MAL MAILING ADDRESS					
<b>Addr 1</b>	PO BOX 2067					
<b>Addr 2</b>						
<b>CSZ</b>	SALEM	OR	97308		<b>Country</b>	UNITED STATES OF AMERICA

Type	MGR MANAGER			Resign Date
<b>Name</b>	PETER	W	TRUITT	
<b>Addr 1</b>	PO BOX 2067			
<b>Addr 2</b>				
<b>CSZ</b>	SALEM	OR	97308	<b>Country</b> UNITED STATES OF AMERICA

[New Search](#)

## Name History

Business Entity Name	Name Type	Name Status	Start Date	End Date
FRONT STREET PROPERTIES, LLC	EN	CUR	10-26-2004	

Please [read](#) before ordering [Copies](#).

[New Search](#)

## Summary History

Image Available	Action	Transaction Date	Effective Date	Status	Name/Agent Change	Dissolved By
	AMENDED ANNUAL REPORT	09-08-2023		FI		
	AMENDED ANNUAL REPORT	09-20-2022		FI		
	AMENDED ANNUAL REPORT	09-23-2021		FI	Agent	
	ANNUAL REPORT PAYMENT	10-14-2020		SYS		
	ANNUAL REPORT PAYMENT	09-19-2019		SYS		
	ANNUAL REPORT PAYMENT	09-28-2018		SYS		
	ANNUAL REPORT PAYMENT	10-17-2017		SYS		
	ANNUAL REPORT PAYMENT	10-12-2016		SYS		
	ANNUAL REPORT PAYMENT	10-14-2015		SYS		
	ANNUAL REPORT PAYMENT	09-12-2014		SYS		
	ANNUAL REPORT PAYMENT	10-16-2013		SYS		
	ANNUAL REPORT PAYMENT	10-16-2012		SYS		
	ANNUAL REPORT PAYMENT	10-17-2011		SYS		
	ANNUAL REPORT PAYMENT	10-18-2010		SYS		
	ANNUAL REPORT PAYMENT	09-15-2009		SYS		
	ANNUAL REPORT PAYMENT	10-16-2008		SYS		
	ANNUAL REPORT PAYMENT	10-19-2007		SYS		
	ANNUAL REPORT PAYMENT	09-20-2006		SYS		
	AMENDED ANNUAL REPORT	10-13-2005		FI		
	ARTICLES OF ORGANIZATION	10-26-2004		FI	Agent	

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## Business Registry Business Name Search

[New Search](#)

## Business Entity Data

05-22-2024  
10:43

Registry Nbr	Entity Type	Entity Status	Jurisdiction	Registry Date	Next Renewal Date	Renewal Due?
616717-81	DLLC	ACT	OREGON	02-05-1998	02-05-2025	
<b>Entity Name</b>	TRUITT PROPERTIES, LLC					
<b>Foreign Name</b>						

[New Search](#)

## Associated Names

Type	PRINCIPAL PLACE OF BUSINESS					
<b>Addr 1</b>	1105 FRONT ST NE					
<b>Addr 2</b>						
<b>CSZ</b>	SALEM	OR	97301		<b>Country</b>	UNITED STATES OF AMERICA

Please click [here](#) for general information about registered agents and service of process.

Type	AGT REGISTERED AGENT			Start Date	07-19-2019	Resign Date
<b>Name</b>	PETER	W	TRUITT			
<b>Addr 1</b>	1105 FRONT ST NE					
<b>Addr 2</b>						
<b>CSZ</b>	SALEM	OR	97301		<b>Country</b>	UNITED STATES OF AMERICA

Type	MAL MAILING ADDRESS					
<b>Addr 1</b>	PO BOX 2067					
<b>Addr 2</b>						
<b>CSZ</b>	SALEM	OR	97308		<b>Country</b>	UNITED STATES OF AMERICA

Type	MEM MEMBER			Resign Date	
<b>Name</b>	PETER	W	TRUITT		
<b>Addr 1</b>	PO BOX 622				
<b>Addr 2</b>					
<b>CSZ</b>	SAINT FRANCISVILLE	LA	70775	<b>Country</b>	UNITED STATES OF AMERICA

Type	MEM MEMBER			Resign Date	
<b>Name</b>	LYNDA	M	TRUITT		
<b>Addr 1</b>	PO BOX 622				
<b>Addr 2</b>					
<b>CSZ</b>	SAINT FRANCISVILLE	LA	70775	<b>Country</b>	UNITED STATES OF AMERICA

Type	MEM MEMBER			Resign Date

<b>Name</b>	LUCIANA	T	TRUITT		
<b>Addr 1</b>	PO BOX 2067				
<b>Addr 2</b>					
<b>CSZ</b>	SALEM	OR	97308	<b>Country</b>	UNITED STATES OF AMERICA

[New Search](#)

## Name History

<b>Business Entity Name</b>	<b>Name Type</b>	<b>Name Status</b>	<b>Start Date</b>	<b>End Date</b>
TRUITT PROPERTIES, LLC	EN	CUR	02-05-1998	

Please [read](#) before ordering [Copies](#).

[New Search](#)

## Summary History

<b>Image Available</b>	<b>Action</b>	<b>Transaction Date</b>	<b>Effective Date</b>	<b>Status</b>	<b>Name/Agent Change</b>	<b>Dissolved By</b>
	AMENDED ANNUAL REPORT	03-10-2024		FI		
	AMENDED ANNUAL REPORT	02-16-2023		FI		
	AMENDED ANNUAL REPORT	01-07-2022		FI		
	AMNDMT TO ANNUAL RPT/INFO STATEMENT	10-14-2021		FI		
	ANNUAL REPORT PAYMENT	02-26-2021		SYS		
	ANNUAL REPORT PAYMENT	01-08-2020		SYS		
	AMNDMT TO ANNUAL RPT/INFO STATEMENT	07-19-2019		FI	Agent	
	ANNUAL REPORT PAYMENT	01-09-2019		SYS		
	ANNUAL REPORT PAYMENT	01-17-2018		SYS		
	ANNUAL REPORT PAYMENT	01-17-2017		SYS		
	ANNUAL REPORT PAYMENT	01-14-2016		SYS		
	ANNUAL REPORT PAYMENT	01-15-2015		SYS		
	ANNUAL REPORT PAYMENT	01-14-2014		SYS		
	ANNUAL REPORT PAYMENT	01-15-2013		SYS		
	ANNUAL REPORT PAYMENT	01-18-2012		SYS		
	ANNUAL REPORT PAYMENT	01-14-2011		SYS		

	ANNUAL REPORT PAYMENT	01-13-2010		SYS		
	ANNUAL REPORT PAYMENT	01-14-2009		SYS		
	ANNUAL REPORT PAYMENT	01-17-2008		SYS		
	ANNUAL REPORT PAYMENT	01-18-2007		SYS		
	ANNUAL REPORT PAYMENT	01-19-2006		SYS		
	ANNUAL REPORT PAYMENT	01-20-2005		SYS		
	ANNUAL REPORT PAYMENT	01-22-2004		SYS		
	ANNUAL REPORT PAYMENT	01-21-2003		SYS		
	ANNUAL REPORT PAYMENT	01-17-2002		SYS		
	STRAIGHT RENEWAL	01-08-2001		FI		
	CHANGED RENEWAL	01-05-2001		FI		
	STRAIGHT RENEWAL	02-17-2000		FI		
	AMENDED RENEWAL	03-03-1999		FI		
	NEW FILING	02-05-1998		FI		

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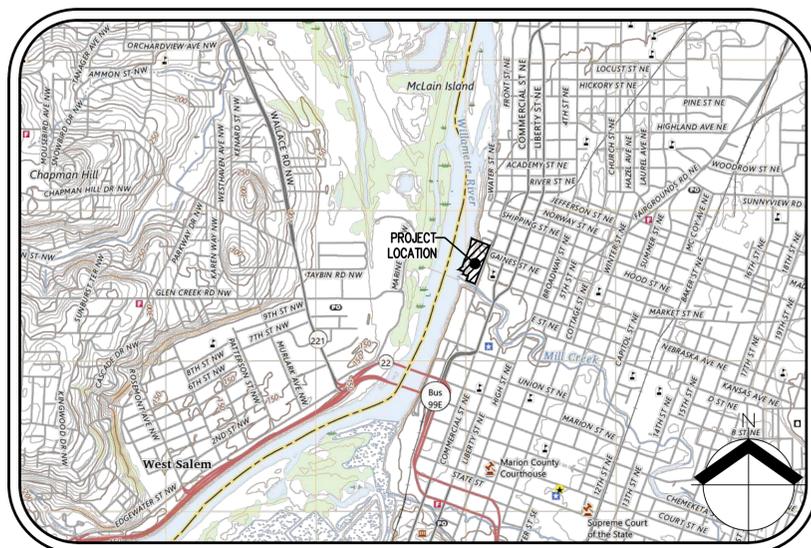
# **Attachment F: Revised Preliminary Land Use Plans**

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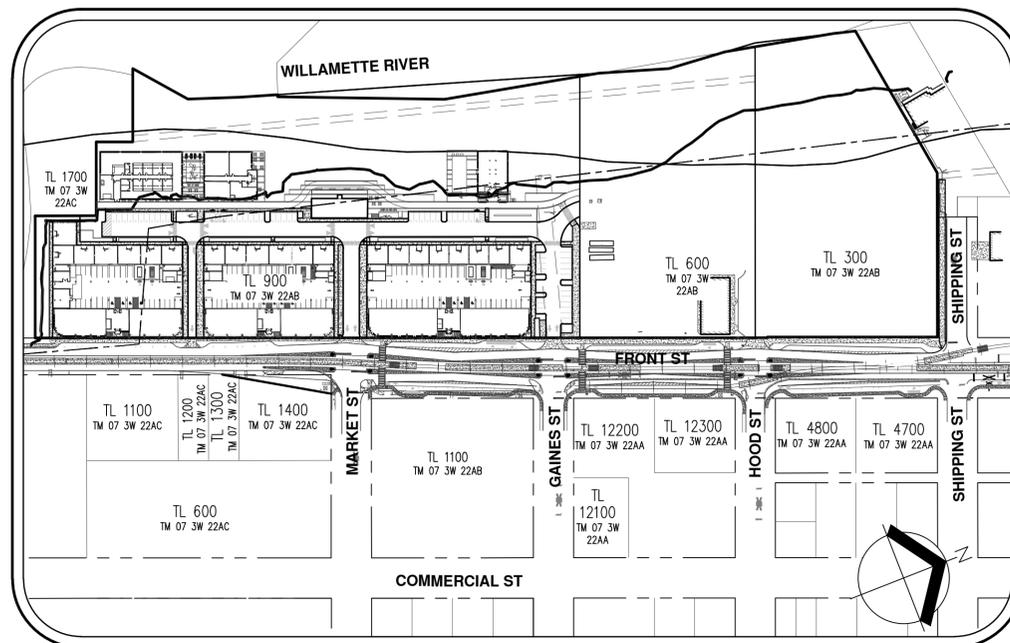
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# THE CANNERY

## PRELIMINARY LAND USE PLANS



**VICINITY MAP**  
NOT TO SCALE



**SITE MAP**  
1" = 150'

**CIVIL ENGINEERING/  
SURVEYING/LAND USE  
PLANNING FIRM**

AKS ENGINEERING & FORESTRY, LLC  
ENGINEERING CONTACT: TYLER ROTH, PE  
PLANNING CONTACT: GRACE WOLFF  
3700 RIVER RD N, STE 1  
KEIZER, OR 97303  
PH: 503.400.6028  
WWW.AKS-ENG.COM

**ARCHITECT**

INSIGHT ARCHITECTS  
CONTACT: KRISTINA HELD, AIA, LEED AP BD+C, CPHC  
1307 WEST MOREHEAD ST, STE 108  
CHARLOTTE, NC 28208  
PH: 704.344.0445

**LANDSCAPE ARCHITECT**

LANGO HANSEN LANDSCAPE ARCHITECT  
CONTACT: KYLE TRULEN, PLA, LEED AP  
1100 NW GLISAN #3A,  
PORTLAND, OR 97209  
PH: 971.380.3580

**CONTRACT  
PURCHASER/APPLICANT**

FUND  
CONTACT: TRENT MICHELS  
15017 THOMAS RD,  
CHARLOTTE, NC 28278

**GEOTECHNICAL FIRM**

CENTRAL GEOTECHNICAL SERVICES, LLC  
CONTACT: JULIO C. VELA, PHD, PE, GE  
10240 SW NIMBUS AVE, STE L6  
PORTLAND, OR 97223  
PH: 503.994.0755

**LEGEND**

EXISTING	PROPOSED	EXISTING	PROPOSED
DECIDUOUS TREE		STORM DRAIN CLEAN OUT	
CONIFEROUS TREE		STORM DRAIN CATCH BASIN	
FIRE HYDRANT		STORM DRAIN AREA DRAIN	
WATER BLOWOFF		STORM DRAIN MANHOLE	
WATER METER		GAS METER	
WATER VALVE		GAS VALVE	
DOUBLE CHECK VALVE		GUY WIRE ANCHOR	
AIR RELEASE VALVE		UTILITY POLE	
SANITARY SEWER CLEAN OUT		POWER VAULT	
SANITARY SEWER MANHOLE		POWER JUNCTION BOX	
SIGN		POWER PEDESTAL	
STREET LIGHT		COMMUNICATIONS VAULT	
MAILBOX		COMMUNICATIONS JUNCTION BOX	
		COMMUNICATIONS RISER	

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE		
BOUNDARY LINE		
PROPERTY LINE		
CENTERLINE		
DITCH		
CURB		
EDGE OF PAVEMENT		
EASEMENT		
FENCE LINE		
GRAVEL EDGE		
POWER LINE		
OVERHEAD WIRE		
COMMUNICATIONS LINE		
FIBER OPTIC LINE		
GAS LINE		
STORM DRAIN LINE		
SANITARY SEWER LINE		
WATER LINE		
RECLAIMED WATER LINE		

**PROPERTY DESCRIPTION:**

MARION COUNTY TAX MAP 07 3W 22AB,  
TAX LOTS 300, 600, & 900  
CITY OF SALEM, OREGON

**VERTICAL DATUM**

ELEVATIONS ARE BASED ON CITY OF SALEM  
BENCHMARK NO. 1151, LOCATED AT THE SE  
CORNER OF SUMMER AND MARION ST.  
ELEVATION = 161.617 FEET (NGVD 29).

**PROPERTY LOCATION:**

1105 FRONT ST NE,  
SALEM, OREGON 97301

**SHEET INDEX**

- P1 COVER SHEET
- C002 EXISTING CONDITIONS PLAN
- C003 EXISTING CONDITIONS PLAN
- P4 TENTATIVE PLAT
- P5 PRELIMINARY ONSITE DEMOLITION PLAN
- P6 PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN
- P7 PRELIMINARY TREE TABLE
- P8 PRELIMINARY SITE PLAN
- P9 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN
- P10 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN
- P11 PRELIMINARY GRADING AND DRAINAGE SECTIONS
- P12 PRELIMINARY COMPOSITE UTILITY PLAN
- P13 PRELIMINARY FRONT ST IMPROVEMENTS
- P14 CONCEPTUAL LOT 5 AND 6 UTILITY PLAN

COVER SHEET  
THE CANNERY  
FUND  
SALEM, OREGON



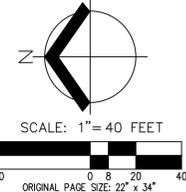
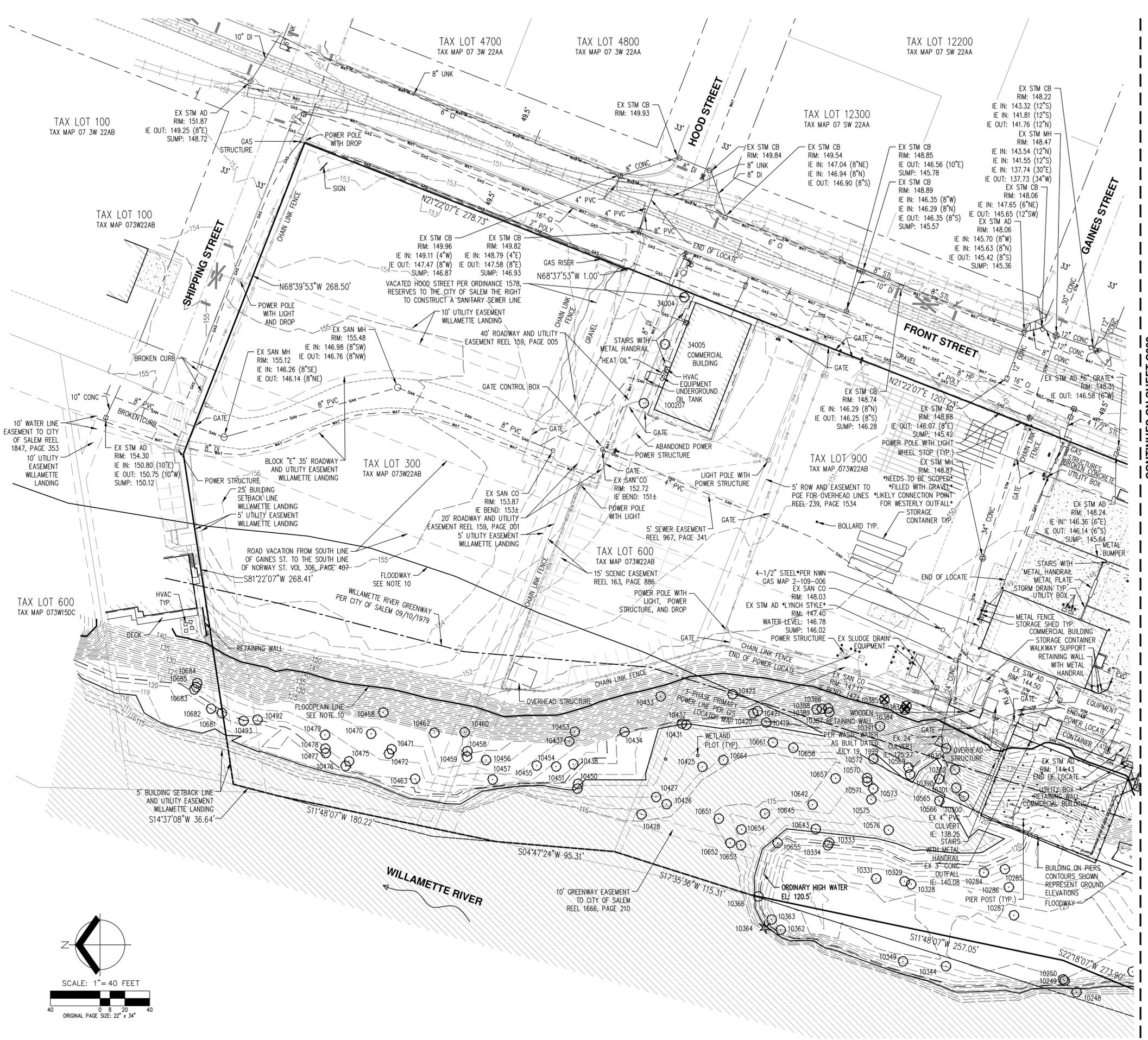
RENEWALS: DECEMBER 31, 2024  
JOB NUMBER: 5968-01  
DATE: 05/31/2024  
DESIGNED BY: TDR  
DRAWN BY: MJM  
CHECKED BY: TDR

- NOTES:**
- UTILITIES SHOWN ARE BASED ON FIELD OBSERVATIONS AND LOCATE TICKET NUMBERS 23007190, 23007220, 23007221, 23007271, 23008701, 23008714, 23008722, 23008733, 23009893, 23009901, AND 23009993. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
  - FIELD WORK WAS CONDUCTED NOVEMBER 16 TO DECEMBER 12, 2017 AND JANUARY 18 TO JUNE 22, 2023.
  - VERTICAL DATUM: ELEVATIONS ARE BASED ON CITY OF SALEM BENCHMARK NO. 1151, LOCATED AT THE SE CORNER OF SUMMER AND MARION ST. ELEVATION = 161.617 FEET (NGVD 29).
  - HORIZONTAL DATUM: A LOCAL DATUM PLANE DERIVED FROM STATE PLANE OREGON NORTH 3601 NAD83(2011) EPOCH 2010.00 BY MULTIPLYING BY A PROJECT MEAN GRID COMBINED SCALE FACTOR OF 1.0001017696 AT A CENTRAL PROJECT POINT WITH INTERNATIONAL FEET STATE PLANE GRID COORDINATES N:479251.50515 E:7545303.43662 AND A MERIDIAN CONVERGENCE ANGLE OF -1'47"59". STATE PLANE COORDINATES WERE DERIVED FROM GPS OBSERVATIONS USING THE TRIMBLE VRS NOW NETWORK. DISTANCES SHOWN ARE INTERNATIONAL FEET GROUND VALUES.
  - THIS MAP DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.
  - SURVEY IS ONLY VALID WITH SURVEYOR'S STAMP AND SIGNATURE.
  - BUILDING FOOTPRINTS ARE MEASURED TO SIDING UNLESS NOTED OTHERWISE. CONTACT SURVEYOR WITH QUESTIONS REGARDING BUILDING TIES.
  - CONTOUR INTERVAL IS 1 FOOT.
  - TREES WITH DIAMETER OF 10" AND GREATER ARE SHOWN. TREE DIAMETERS WERE DETERMINED BY VISUAL INSPECTION. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.
  - FLOODWAY IS SHOWN BY GRAPHICAL OVERLAY OF FEMA FIRMEETTE MAP 41047C0333H WITH AN EFFECTIVE DATE OF JANUARY 2, 2003. ZONE AE IS SHOWN BY MAPPING THE BASE FLOOD ELEVATION (BFE) OF 141.1 (NGVD 29). BFE IS PER FLOOD INSURANCE STUDY FOR THE WILLAMETTE RIVER, MARION COUNTY, WITH EFFECTIVE DATE OF OCTOBER 10, 2019.

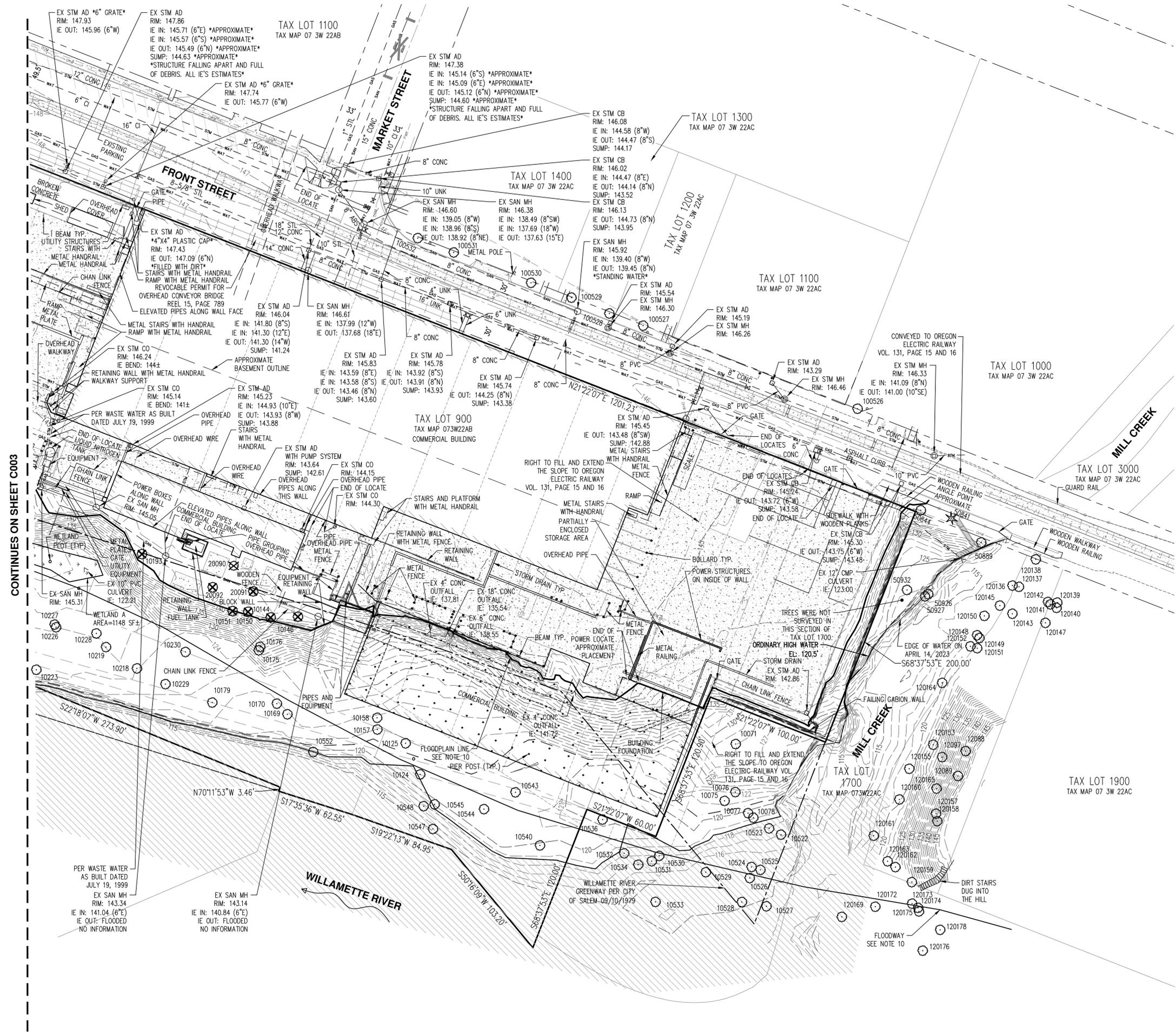
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**LEGEND**

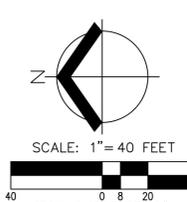
EXISTING		EXISTING	
DECIDUOUS TREE		STORM SEWER CLEAN OUT	
CONIFEROUS TREE		STORM SEWER CATCH BASIN	
FIRE HYDRANT		STORM SEWER AREA DRAIN	
WATER BLOWOFF		STORM SEWER MANHOLE	
WATER METER		GAS METER	
WATER VALVE		GAS VALVE	
DOUBLE CHECK VALVE		GUY WIRE ANCHOR	
AIR RELEASE VALVE		UTILITY POLE	
WATER MANHOLE		POWER VAULT	
SANITARY SEWER CLEAN OUT		POWER JUNCTION BOX	
SANITARY SEWER MANHOLE		POWER PEDESTAL	
SIGN		COMMUNICATIONS VAULT	
STREET LIGHT		COMMUNICATIONS JUNCTION BOX	
MAILBOX		COMMUNICATIONS RISER	
<b>EXISTING</b>			
RIGHT-OF-WAY LINE			
BOUNDARY LINE			
PROPERTY LINE			
CENTERLINE			
DITCH			
CURB			
EDGE OF PAVEMENT			
EASEMENT			
FENCE LINE			
GRAVEL EDGE			
POWER LINE			
OVERHEAD WIRE			
COMMUNICATIONS LINE			
FIBER OPTIC LINE			
GAS LINE			
STORM SEWER LINE			
SANITARY SEWER LINE			
WATER LINE			



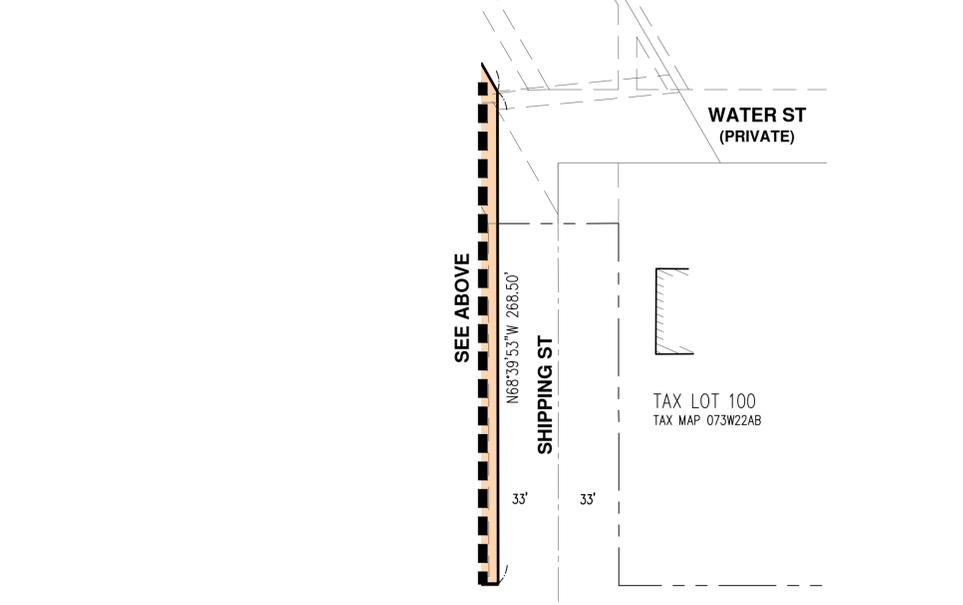
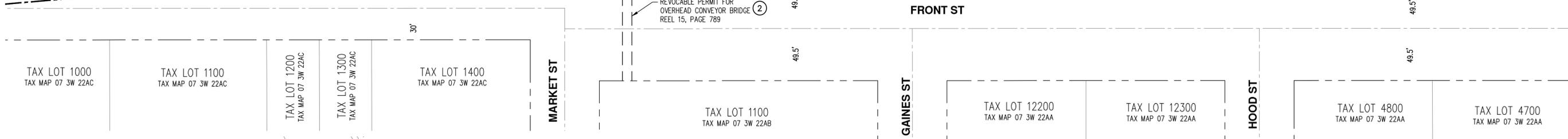
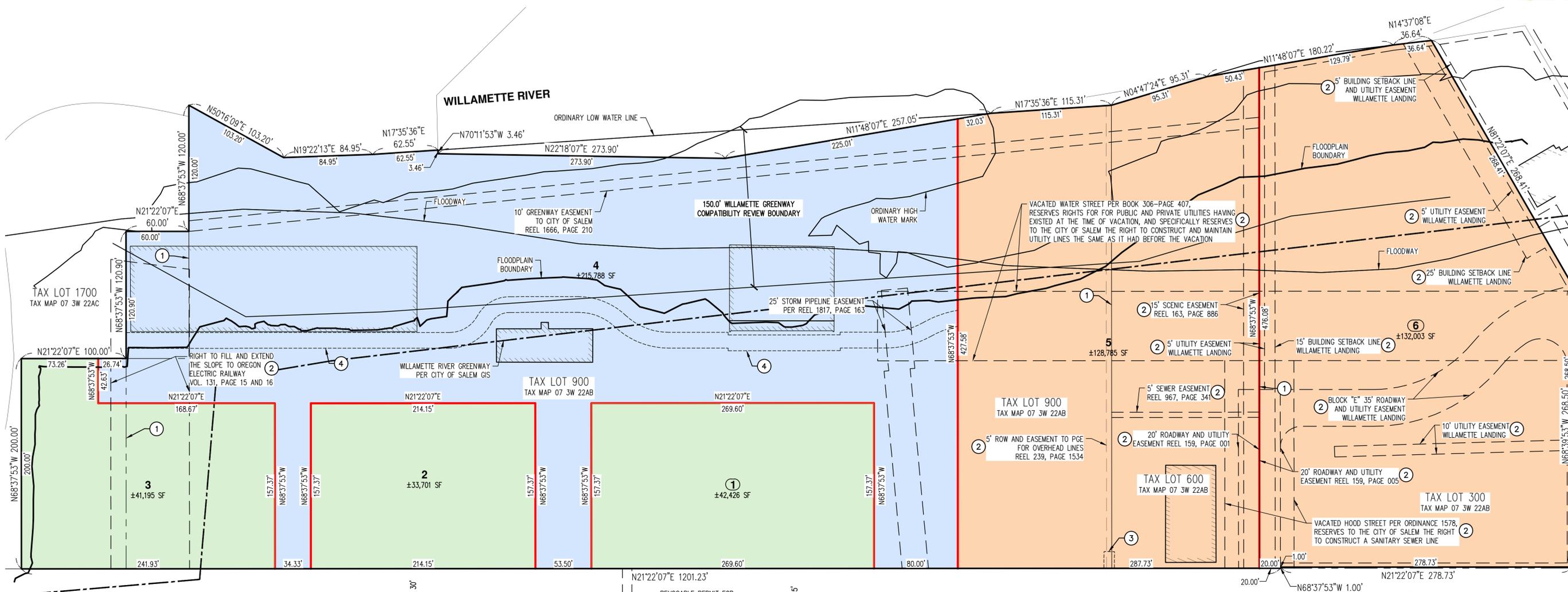
AKS DRAWING FILE: 5968-01EXCOND.DWG | LAYOUT: C002



CONTINUES ON SHEET C003



AKS DRAWING FILE: 5968-01EXCOND.DWG | LAYOUT: C003



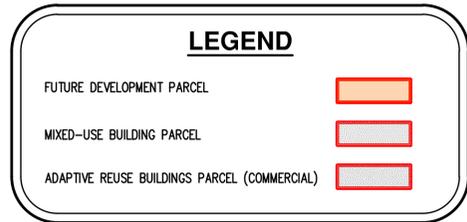
**KEYED NOTES: (#)**

- EXISTING TAX LOT LINE TO BE REMOVED.
- EXISTING EASEMENT OR ROW TO BE QUITCLAIMED/VACATED.
- PROPOSED EASEMENT FOR EXISTING POWER POLE BETWEEN HOOD AND GAINES STREETS, SEE PLAN VIEW.
- 15' WILLAMETTE RIVER GREENWAY PATH EASEMENT DEDICATION. FINAL CONFIGURATION TO BE DETERMINED AT TIME OF BUILDING PERMITS.

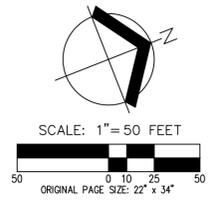
**EASEMENT NOTES**

- CROSS ACCESS, DRAINAGE AND UTILITY EASEMENTS AMONG ALL PARCELS TO BE RECORDED PRIOR TO FINAL PLAT.
- ADDITIONAL EASEMENTS ARE REQUIRED FOR UTILITY IMPROVEMENTS. REFER TO UTILITY PLAN.

THE PURPOSE OF THIS PRELIMINARY PLAT IS TO SHOW PLANNED LOT DIMENSIONS AND AREAS FOR PLANNING PURPOSES. THIS IS NOT AN OFFICIAL PLAT AND IS NOT TO BE USED FOR SURVEY PURPOSES.



NOTE: THIS SHEET IS PRINTED WITH COLOR

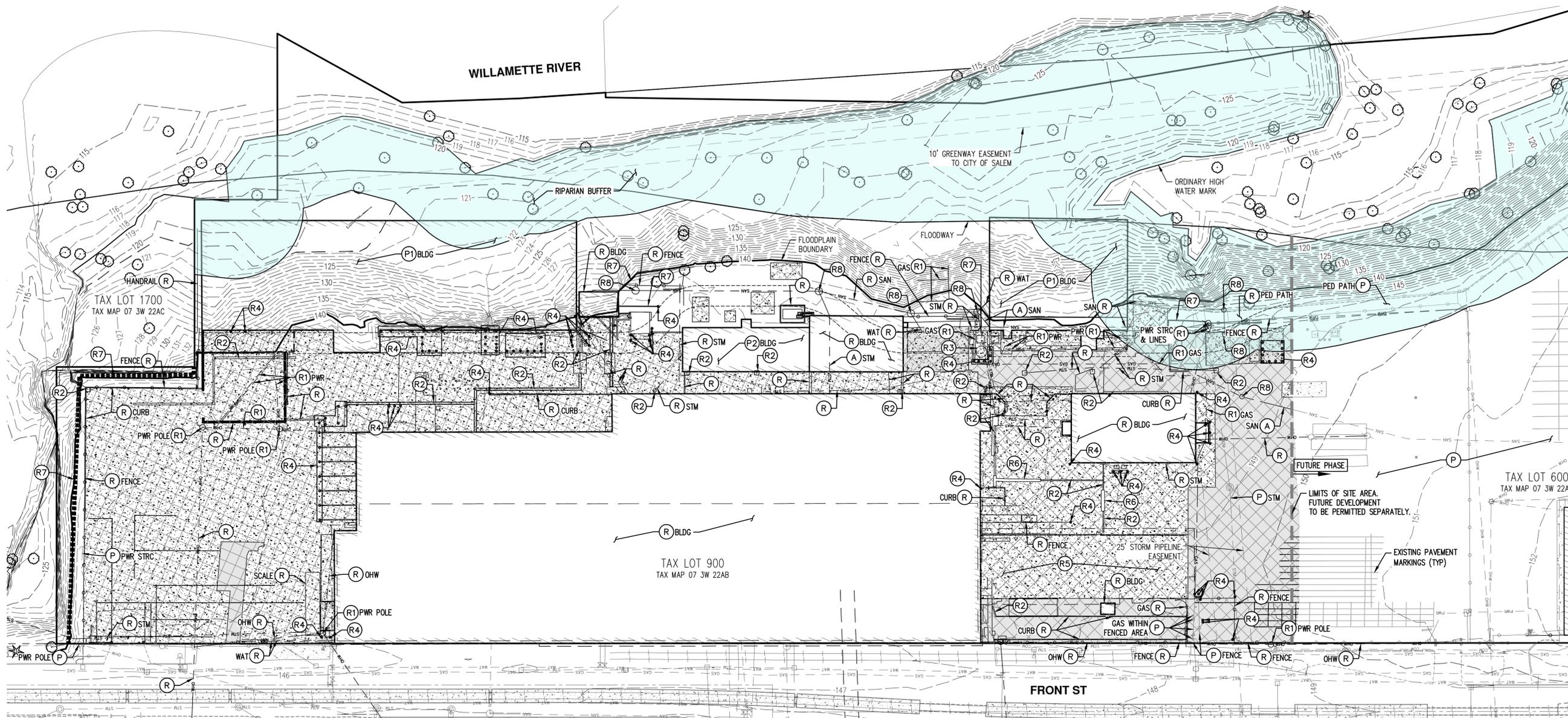


**TENTATIVE PLAT**  
**THE CANNERY**  
 FUND  
 SALEM, OREGON

REGISTERED PROFESSIONAL ENGINEER  
 NOT FOR CONSTRUCTION  
 COVER D. ROTH  
 RENEWS: DECEMBER 31, 2024

JOB NUMBER: 5968-01  
 DATE: 05/31/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

**P4**

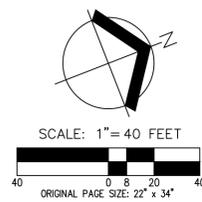


**DEMOLITION KEYED NOTES:** (TR)

- A PLUG, ABANDON, AND/OR REMOVE EXISTING UTILITY LINES PER CITY AND/OR UTILITY COMPANY STANDARDS.
- P PROTECT AT ALL TIMES DURING CONSTRUCTION. ADJUST TO NEW FINISHED GRADE AS REQUIRED. ANY DAMAGE SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.
- P1 REMOVE EXISTING WALLS AND PROTECT THE PIER AND PLATFORM. REFER TO BUILDING PLANS FOR BUILDING AND STRUCTURAL IMPROVEMENTS.
- P2 REFER TO BUILDING PLANS FOR BUILDING IMPROVEMENTS.
- R CONTRACTOR TO REMOVE AND HAUL OFF SITE FOR DISPOSAL.
- R1 COORDINATE WITH FRANCHISE UTILITY PROVIDER FOR RELOCATION/REMOVAL. IF NO RELOCATION IS REQUIRED CONTRACTOR SHALL PROTECT AT ALL TIMES DURING CONSTRUCTION.
- R2 REMOVE EXISTING STORM STRUCTURE AND HAUL OFF SITE FOR DISPOSAL.
- R3 REMOVE EXISTING NITROGEN TANK. REMOVE AND DECOMMISSION IN ACCORDANCE WITH APPLICABLE STATE REGULATIONS.
- R4 REMOVE EXISTING BOLLARDS AND ATTACHED STRUCTURES.
- R5 REMOVE EXISTING COVERED AREA. METAL TRUSSES TO BE SAVED FOR FUTURE REUSE.
- R6 REMOVING EXISTING METAL PLATE.
- R7 EXISTING RETAINING WALL. STRUCTURAL IMPROVEMENTS REQUIRED TO BE DETERMINED AT TIME OF BUILDING PERMIT.
- R8 REMOVE EXISTING SANITARY STRUCTURE AND PUMP STATION. HAUL OFF SITE FOR DISPOSAL IN ACCORDANCE WITH STATE REGULATIONS.

**LEGEND**

EXISTING GROUND CONTOUR (1 FT)	---	149
EXISTING GROUND CONTOUR (5 FT)	---	150
EXISTING TREE TO REMAIN		
EXISTING PAVEMENT/CONCRETE TO BE REMOVED		

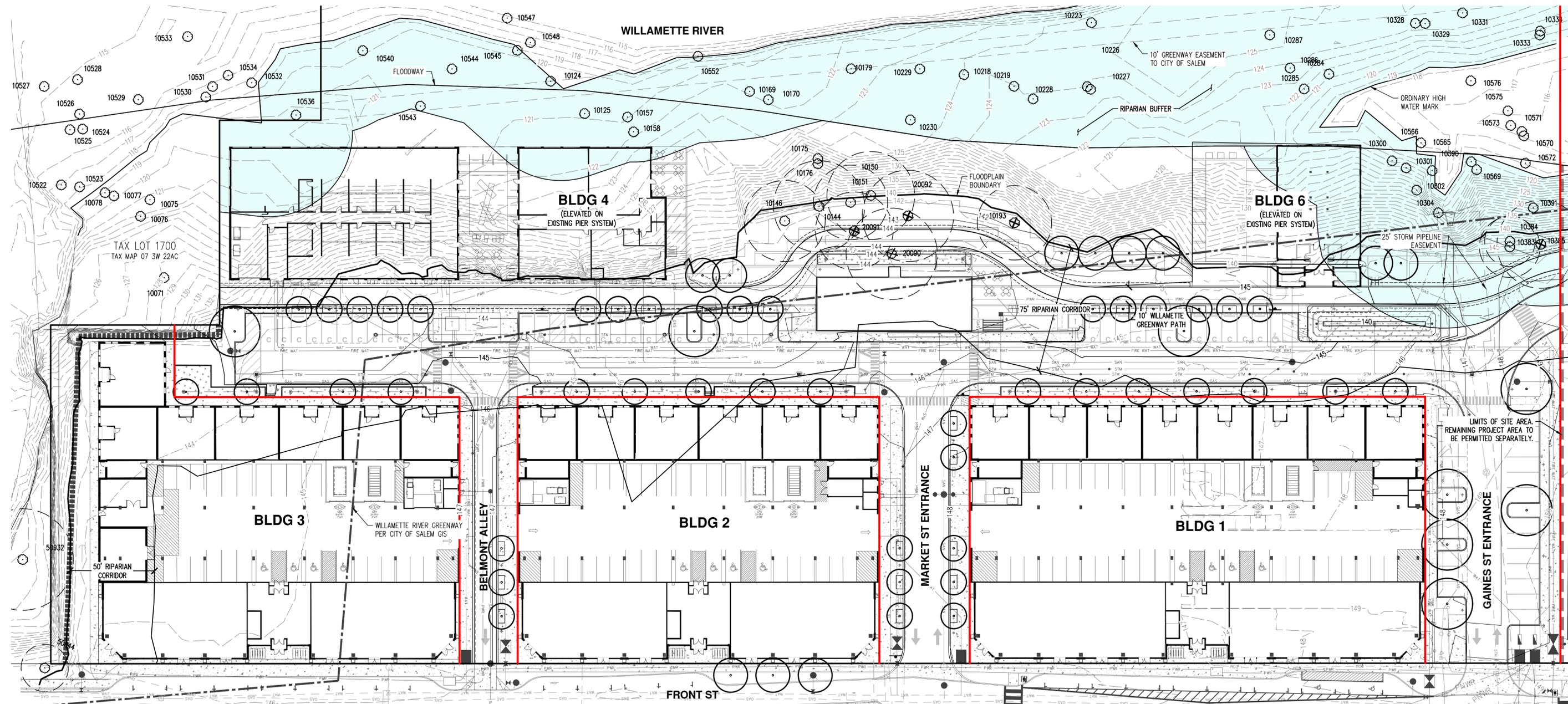


**PRELIMINARY ONSITE DEMOLITION PLAN**  
**THE CANNERY**  
**FUND**  
**SALEM, OREGON**



RENEWALS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 05/31/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

AKS DRAWING FILE: 5968-01 PRELIM TREE PLANNING LAYOUT: P6



**TREE SUMMARY:**

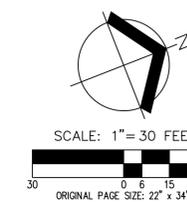
TREES REMOVED FOR GREENWAY PATH = 5

**GENERAL NOTES:**

1. CRITICAL ROOT ZONES SHOWN ARE FOR ANTICIPATED TREE IMPACTS ONLY.
2. TREES BELOW TOP OF BANK ARE NOT ANTICIPATED TO BE IMPACTED.
3. REFER TO ARBORIST LETTER FOR TREE SPECIES AND MORE INFORMATION REGARDING TREE REMOVAL.
4. NO SIGNIFICANT TREES PER CITY OF SALEM REQUIREMENTS ARE PROPOSED TO BE REMOVED.

**LEGEND**

EXISTING GROUND CONTOUR (1 FT)	---
EXISTING GROUND CONTOUR (5 FT)	---
FINISHED GRADE CONTOUR (1 FT)	---
FINISHED GRADE CONTOUR (5 FT)	---
INTERIOR PROPERTY LINE	---
EXISTING TREE TO REMAIN	⊗
EXISTING TREE TO BE REMOVED	⊗
CRITICAL TREE ROOT ZONE 1" DBH = 1'-0" RADIUS	○
PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)	○





AKS ENGINEERING & FORESTRY, LLC  
 3700 RIVER RD. N. STE. 1  
 KEIZER, OR 97103  
 503.400.6028  
 WWW.AKS-ENG.COM

ENGINEERING · SURVEYING · NATURAL RESOURCES  
 FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

PROPERTY DESCRIPTION  
 TAX MAP 07.3W.22AB  
 TAX LOTS 300, 600, 900  
 CONTRACT PURCHASER:  
 FUND  
 15017 THOMAS RD.  
 CHARLOTTE, NC 28278

**PRELIMINARY TREE TABLE**  
**THE CANNERY**  
**FUND**  
**SALEM, OREGON**

**PRELIMINARY**  
**NOT FOR**  
**CONSTRUCTION**

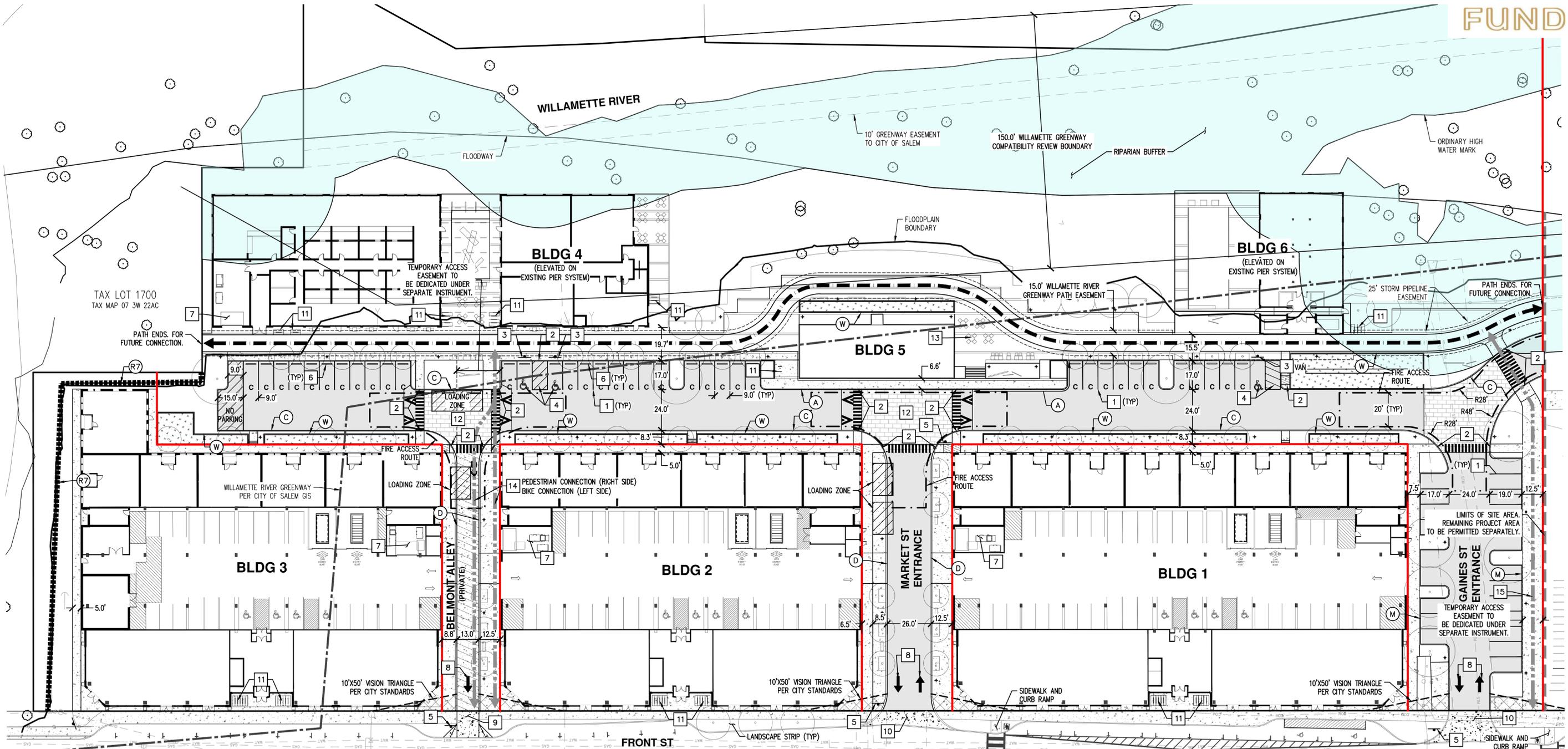
JOB NUMBER: 5968-01  
 DATE: 05/31/2024  
 DESIGNED BY: TDR  
 DRAWN BY: M.M.  
 CHECKED BY: TDR

TREE TABLE			
TREE NUMBER	TYPE	DBH (IN.)	PRESERVE/REMOVE
10071	DECIDUOUS	19 18	PRESERVE
10075	DECIDUOUS	12	PRESERVE
10076	DECIDUOUS	24	PRESERVE
10077	DECIDUOUS	30	PRESERVE
10078	DECIDUOUS	34	PRESERVE
10124	DECIDUOUS	13	PRESERVE
10125	DECIDUOUS	16	PRESERVE
10144	DECIDUOUS	27	PRESERVE
10146	DECIDUOUS	24	PRESERVE
10150	DECIDUOUS	22	PRESERVE
10151	DECIDUOUS	26	PRESERVE
10157	DECIDUOUS	15 11	PRESERVE
10158	DECIDUOUS	59	PRESERVE
10169	DECIDUOUS	15	PRESERVE
10170	DECIDUOUS	47	PRESERVE
10175	DECIDUOUS	12	PRESERVE
10176	DECIDUOUS	13 11	PRESERVE
10179	DECIDUOUS	12	PRESERVE
*10193	DECIDUOUS	22	REMOVE
10218	DECIDUOUS	12	PRESERVE
10219	DECIDUOUS	41	PRESERVE
10223	DECIDUOUS	11 10	PRESERVE
10226	DECIDUOUS	15	PRESERVE
10227	DECIDUOUS	12	PRESERVE
10228	DECIDUOUS	12 10	PRESERVE
10229	DECIDUOUS	14	PRESERVE
10230	DECIDUOUS	11	PRESERVE
10284	DECIDUOUS	39	PRESERVE
10285	DECIDUOUS	17	PRESERVE
10286	DECIDUOUS	10	PRESERVE
10287	DECIDUOUS	13	PRESERVE
10300	DECIDUOUS	52	PRESERVE
10301	DECIDUOUS	54	PRESERVE
10302	DECIDUOUS	19	PRESERVE
10304	DECIDUOUS	20 18	PRESERVE
10328	DECIDUOUS	16 12	PRESERVE
10329	DECIDUOUS	15	PRESERVE
10331	DECIDUOUS	42	PRESERVE
10333	DECIDUOUS	43	PRESERVE
10334	DECIDUOUS	10	PRESERVE
10383	DECIDUOUS	18 17	PRESERVE

TREE TABLE			
TREE NUMBER	TYPE	DBH (IN.)	PRESERVE/REMOVE
10384	DECIDUOUS	15	PRESERVE
*10385	DECIDUOUS	26 21	REMOVE
10390	DECIDUOUS	UNK	PRESERVE
10391	DECIDUOUS	13	PRESERVE
10522	DECIDUOUS	28 23 16	PRESERVE
10523	DECIDUOUS	34	PRESERVE
10524	DECIDUOUS	32	PRESERVE
10525	DECIDUOUS	36	PRESERVE
10526	DECIDUOUS	44	PRESERVE
10527	DECIDUOUS	15 14	PRESERVE
10528	DECIDUOUS	11	PRESERVE
10529	DECIDUOUS	40	PRESERVE
10530	DECIDUOUS	17	PRESERVE
10531	DECIDUOUS	42	PRESERVE
10532	DECIDUOUS	41	PRESERVE
10533	DECIDUOUS	12	PRESERVE
10534	DECIDUOUS	10	PRESERVE
10536	DECIDUOUS	44	PRESERVE
10540	DECIDUOUS	14 11	PRESERVE
10543	DECIDUOUS	40	PRESERVE
10544	DECIDUOUS	28 22 21 19 16 11	PRESERVE
10545	DECIDUOUS	11	PRESERVE
10547	DECIDUOUS	13 10	PRESERVE
10548	DECIDUOUS	11 11	PRESERVE
10552	DECIDUOUS	16	PRESERVE
10565	DECIDUOUS	19 14 14 13 12 12	PRESERVE
10566	DECIDUOUS	52	PRESERVE
10569	DECIDUOUS	73	PRESERVE
10570	DECIDUOUS	17	PRESERVE
10571	DECIDUOUS	17	PRESERVE
10572	DECIDUOUS	10	PRESERVE
10573	DECIDUOUS	15	PRESERVE
10576	DECIDUOUS	11	PRESERVE
*20090	DECIDUOUS	27	REMOVE
*20091	DECIDUOUS	23	REMOVE
*20092	DECIDUOUS	27	REMOVE
50844	DECIDUOUS	8 12 14	PRESERVE
50932	DECIDUOUS	30	PRESERVE

**NOTE:**

- \* REMOVAL NECESSARY TO ACCOMMODATE PUBLIC WILLAMETTE RIVER GREENWAY TRAIL, EXEMPT PER SRC 808.030(a)(2)(G).



**CURB KEYED NOTES:** (TR)

- (A) TYPE 'A' CURB AND GUTTER
- (C) TYPE 'C' CURB
- (D) TYPE 'D' MOUNTABLE CURB
- (M) MONOLITHIC CURB AND SIDEWALK
- (W) PLANTER WALL
- (R7) EXISTING RETAINING WALL. STRUCTURAL IMPROVEMENTS REQUIRED TO BE DETERMINED AT TIME OF BUILDING PERMIT

**SITE KEYED NOTES:** #

1. PAINT 4-INCH WIDE WHITE STRIPE PER CITY STANDARDS.
2. ACCESSIBLE CURB RAMP AND DETECTABLE WARNING SURFACE.
3. ACCESSIBLE PARKING SIGN. "VAN" INDICATES VAN ACCESSIBLE SIGN.
4. ACCESSIBLE PARKING STALLS AND AISLE STRIPING.
5. INSTALL 30"x30" STOP SIGN AND STOP BAR. (36"x36" WHEN ENTERING PUBLIC ROW)
6. CONCRETE WHEEL STOP.
7. TRASH ENCLOSURE. SEE ARCHITECTURAL PLANS FOR DETAILS.
8. DIRECTIONAL ARROW STRIPE.
9. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.302.
10. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.315.
11. BIKE RACK, SEE ARCHITECTURAL PLANS FOR DETAILS.
12. RAISED SPEED TABLE PEDESTRIAN CROSSING.
13. OUTDOOR SEATING. SEE LANDSCAPE PLANS FOR DETAILS.
14. SHARED ACCESS FROM WILLAMETTE GREENWAY PATH TO FRONT STREET. EASEMENT TO BE QUITCLAIMED UPON CONSTRUCTION OF PATH TO THE SOUTH.
15. SHARED ACCESS FROM WILLAMETTE GREENWAY PATH TO FRONT STREET. EASEMENT TO BE QUITCLAIMED UPON CONSTRUCTION OF PHASE 2 IMPROVEMENTS.

**SITE PLAN DATA:**

ZONING = MU-R  
 SUBJECT PROPERTY AREA = ±593,899 SF (±13.6 ACRES)  
 SITE AREA = ±333,110 SF (±7.6 ACRES)  
 DENSITY:  
 MULTI-FAMILY = 371 UNITS  
 \*RETAIL = 12,160 SF  
 \*OFFICE = 5,885 SF  
 \*EATING/DRINKING ESTABLISHMENT = 30,875 SF  
 \*DISTRIBUTION OF RETAIL, OFFICE, AND EATING/DRINKING ESTABLISHMENTS SQUARE FOOTAGE ARE SUBJECT TO CHANGE.

**PARKING SUMMARY:**

**MAXIMUM VEHICLE PARKING:**  
 MULTI-FAMILY = 649 SPACES (1.75/UNIT)  
 RETAIL = 61 SPACES (1/200 SF)  
 OFFICE = 24 SPACES (1/250 SF)  
 EATING/DRINKING ESTABLISHMENT = 176 SPACES (1/175 SF)  
 MAX TOTAL = 910 SPACES

**VEHICLE PARKING PROVIDED:**  
 GARAGE PARKING  
 • AUTOMATED = 291 SPACES  
 • STANDARD = 30 SPACES  
 • COMPACT = 54 SPACES  
 • ACCESSIBLE = 12 SPACES  
 OFF-STREET PARKING  
 • STANDARD = 20 SPACES  
 • COMPACT = 35 SPACES  
 • ACCESSIBLE = 3 SPACES  
 TOTAL PARKING = 445 SPACES

**BICYCLE PARKING REQUIRED:**

MULTI-FAMILY = 371 SPACES (1/UNIT)  
 RETAIL = 4 SPACES (GREATER OF 4 OR 1/10,000 SF)  
 OFFICE = 4 SPACES (GREATER OF 4 OR 1/3,500 SF)  
 EATING/DRINKING ESTABLISHMENT = 31 SPACES (GREATER OF 4 OR 1/1,000 SF)  
 TOTAL REQUIRED = 410 SPACES

**BICYCLE PARKING PROVIDED:**

SHORT-TERM = 59 SPACES  
 LONG-TERM = 380 SPACES  
 TOTAL = 439 SPACES

**LOADING ZONE REQUIRED/PROVIDED:**

MULTI-FAMILY REQUIRED = 3 SPACES (12'WX19'L)  
 RETAIL SALES AND SERVICES REQUIRED = 1 SPACE (12'WX30'L)  
 OFFICE REQUIRED = 1 SPACE (OFF-STREET PARKING AREA USED FOR LOADING PER SRC 806.075(a))  
 TOTAL REQUIRED = 4 SPACES  
 TOTAL PROVIDED = 3 SPACES (12'WX19'L)  
 1 SPACE (12'WX30'L)

NOTE: SPACES TO BE SCHEDULED AND CONED OFF WITH SITE OPERATOR FOR LOADING AND UNLOADING.

**SETBACKS:**

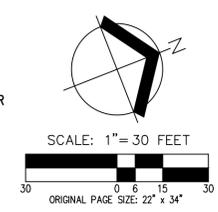
**ALONG FRONT ST**  
 BUILDINGS = 0 FT OR MAX 10 FT (IF SETBACK AREA IS USED FOR PEDESTRIAN AMENITIES)  
**VEHICLE USE AREA**  
 BUILDINGS = 10 FT  
**SIDE/REAR YARD**  
 BUILDINGS = NONE  
 VEHICLE USE AREA = 5 FT (NOT REQUIRED ABUTTING AN ALLEY)

**GENERAL NOTES:**

1. BUILDINGS 1, 2, AND 3 ARE ON SEPARATE PROPERTIES. REFER TO SHEET P4 FOR THE PROPOSED PROPERTY LINES.
2. THE FRONT STREET NE IMPROVEMENTS SHOWN ARE PRELIMINARY AND BASED ON CONCEPTUAL DESIGN WORK PROVIDED BY THE CITY'S RETAINED RAIL ENGINEER. REFINED FRONT STREET NE IMPROVEMENTS ARE ANTICIPATED AND WILL BE CONSTRUCTED IN ACCORDANCE WITH FEEDBACK RECEIVED FROM THE FINAL RAIL DIAGNOSTIC AND COORDINATION WITH THE CITY.

**EV READY NOTE:**

40% OF PARKING STALLS ARE REQUIRED TO BE EV READY PER STATE REQUIREMENTS. FINAL EV READY STALL LOCATION AND CONDUIT PLACEMENT WILL BE COORDINATED WITH PROJECT ELECTRICIAN AT THE TIME OF BUILDING PERMIT SUBMITTAL.



**LEGEND**

- 10' WILLAMETTE GREENWAY CONCRETE PATH (WITHIN 15' EASEMENT TO CITY OF SALEM)
- TEMPORARY GREENWAY ACCESS TO FRONT STREET UNTIL FUTURE CONNECTIONS ARE CONSTRUCTED.
- INTERIOR PROPERTY LINE
- ASPHALT PAVEMENT SECTION
- CONCRETE SIDEWALK (4" MIN THICKNESS)
- CONCRETE PAVEMENT SECTION (8" MIN THICKNESS)
- CONCRETE PAVERS (REFER TO PLANS BY OTHERS)
- STORMWATER FACILITY
- PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)

**PRELIMINARY SITE PLAN**  
**THE CANNERY**  
**FUND**  
**SALEM, OREGON**



REVISIONS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 05/31/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

AKS DRAWING FILE: 5968-01 PRELIM SITE PLANNING LAYOUT: LAYOUT 1

**ABBREVIATIONS:**

- EXISTING:  
(RIM): EXISTING RIM ELEVATION
- PROPOSED:  
FFE: FINISHED FLOOR ELEVATION  
FG: FINISHED GRADE ELEVATION  
RIM: RIM ELEVATION  
AC: ASPHALT CONCRETE ELEVATION  
TC: TOP OF CURB ELEVATION  
BSE: BOTTOM OF STAIR ELEVATION  
TSE: TOP OF STAIR ELEVATION  
TW: TOP OF WALL ELEVATION  
BW: BOTTOM OF WALL ELEVATION  
SW: SIDEWALK ELEVATION  
TD: TRENCH DRAIN RIM ELEVATION  
GUT: GUTTER ELEVATION
- DOWNWARD SLOPE:  $\searrow$  X.X%

**GENERAL NOTES:**

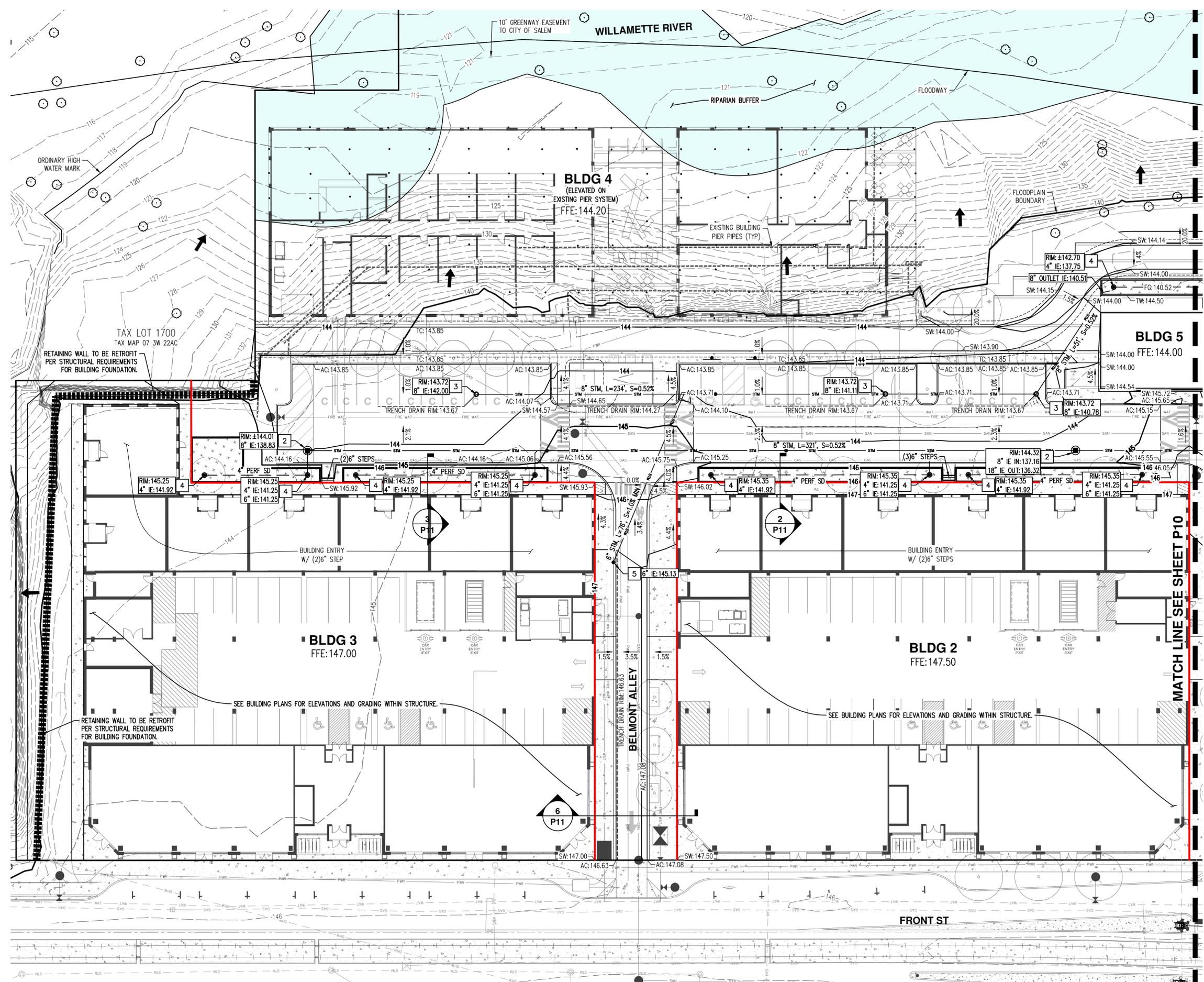
- (P) PRIOR TO CONSTRUCTION AND ORDERING PIPE MATERIALS, CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY EXACT LOCATION, ALIGNMENT, DEPTH, AND SIZE. CONTACT ENGINEER IF ADJUSTMENT IS REQUIRED.

**STORM DRAIN (SD) KEYED NOTES: #**

- CONNECT TO EXISTING 24" CONCRETE PUBLIC STORM MAIN WITH NEW 48" MANHOLE. RIM AND INVERT ELEVATION (IE) PER PLANS.
- 48" SD MANHOLE. RIM AND IE PER PLAN.
- 24" SD MINI MANHOLE. RIM AND IE PER PLAN.
- SD BEEHIVE OVERFLOW.
- SD CLEANOUT (CO). IE PER PLAN.
- SD AREA DRAIN. RIM AND IE PER PLAN.
- ADJUST EXISTING MANHOLE RIM TO FINISHED GRADE ELEVATION.
- STUB FOR FUTURE LOT 5 AND 6 CONNECTIONS.

**LEGEND**

- EXISTING GROUND CONTOUR (1 FT)
- EXISTING GROUND CONTOUR (5 FT)
- FINISHED GRADE CONTOUR (1 FT)
- FINISHED GRADE CONTOUR (5 FT)
- INTERIOR PROPERTY LINE
- TRENCH DRAIN
- PROPOSED MANHOLE (MH)
- PROPOSED CLEANOUT (CO)/DOWNSPOUT (DS)
- PROPOSED CATCH BASIN (CB)
- BEEHIVE OVERFLOW DRAIN (BH)
- MINI MANHOLE (MMH)
- STORMWATER FACILITY
- ADA RAMP LANDING AREA (2% MAX ANY DIRECTION)
- EXISTING SLOPE GREATER THAN 15%

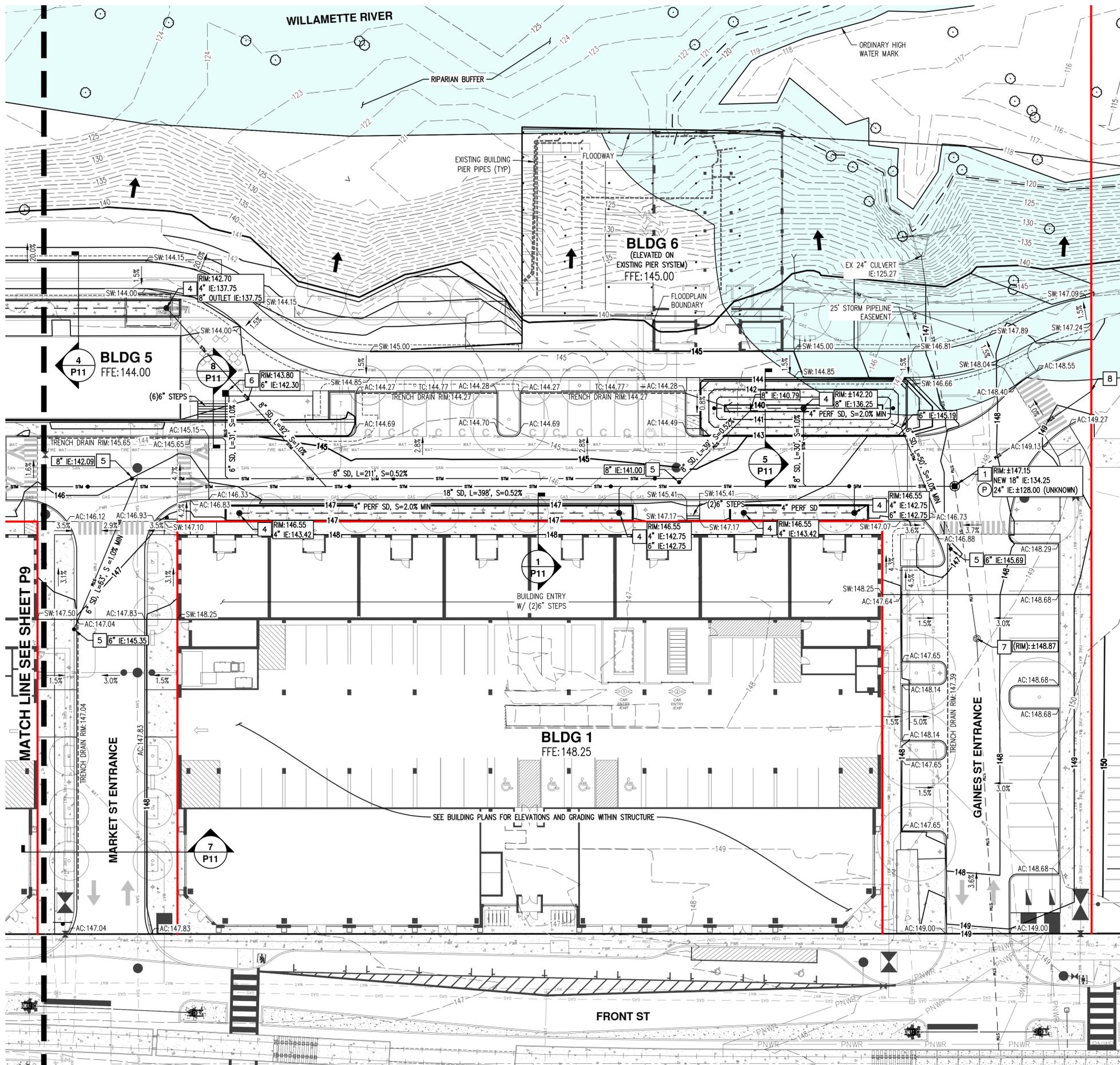


PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN

THE CANNERY  
FUND  
SALEM, OREGON



RENEWED: DECEMBER 31, 2024  
JOB NUMBER: 5968-01  
DATE: 05/31/2024  
DESIGNED BY: TDR  
DRAWN BY: MJM  
CHECKED BY: TDR



**ABBREVIATIONS:**

- EXISTING:**  
 (RM): EXISTING RIM ELEVATION
- PROPOSED:**  
 FFE: FINISHED FLOOR ELEVATION  
 FG: FINISHED GRADE ELEVATION  
 RM: RIM ELEVATION  
 AC: ASPHALT CONCRETE ELEVATION  
 TC: TOP OF CURB ELEVATION  
 BSE: BOTTOM OF STAIR ELEVATION  
 TSE: TOP OF STAIR ELEVATION  
 TW: TOP OF WALL ELEVATION  
 BW: BOTTOM OF WALL ELEVATION  
 SW: SIDEWALK ELEVATION  
 TD: TRENCH DRAIN RIM ELEVATION  
 GUT: GUTTER ELEVATION

DOWNWARD SLOPE: X.X%

**GENERAL NOTES:**

- (P) PRIOR TO CONSTRUCTION AND ORDERING PIPE MATERIALS, CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY EXACT LOCATION, ALIGNMENT, DEPTH, AND SIZE. CONTACT ENGINEER IF ADJUSTMENT IS REQUIRED.

**STORM DRAIN (SD) KEYED NOTES: #**

- CONNECT TO EXISTING 24" CONCRETE PUBLIC STORM MAIN WITH NEW 48" MANHOLE. RIM AND INVERT ELEVATION (IE) PER PLANS.
- 48" SD MANHOLE. RIM AND IE PER PLAN.
- 24" SD MINI MANHOLE. RIM AND IE PER PLAN.
- SD BEEHIVE OVERFLOW.
- SD CLEANOUT (CO). IE PER PLAN.
- SD AREA DRAIN. RIM AND IE PER PLAN.
- ADJUST EXISTING MANHOLE RIM TO FINISHED GRADE ELEVATION.
- STUB FOR FUTURE LOT 5 AND 6 CONNECTIONS.

**LEGEND**

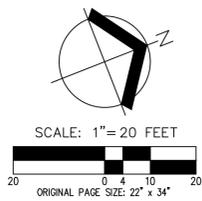
EXISTING GROUND CONTOUR (1 FT)	---	149
EXISTING GROUND CONTOUR (5 FT)	---	150
FINISHED GRADE CONTOUR (1 FT)	---	149
FINISHED GRADE CONTOUR (5 FT)	---	150
INTERIOR PROPERTY LINE	---	
TRENCH DRAIN	---	
PROPOSED MANHOLE (MH)	⊙	
PROPOSED CLEANOUT (CO)\DOWNSPOUT (DS)	•	
PROPOSED CATCH BASIN (CB)	■	
BEEHIVE OVERFLOW DRAIN (BH)	⊙	
MINI MANHOLE (MMH)	○	
STORMWATER FACILITY	+	
ADA RAMP LANDING AREA (2% MAX ANY DIRECTION)	▨	
EXISTING SLOPE GREATER THAN 15%	→	

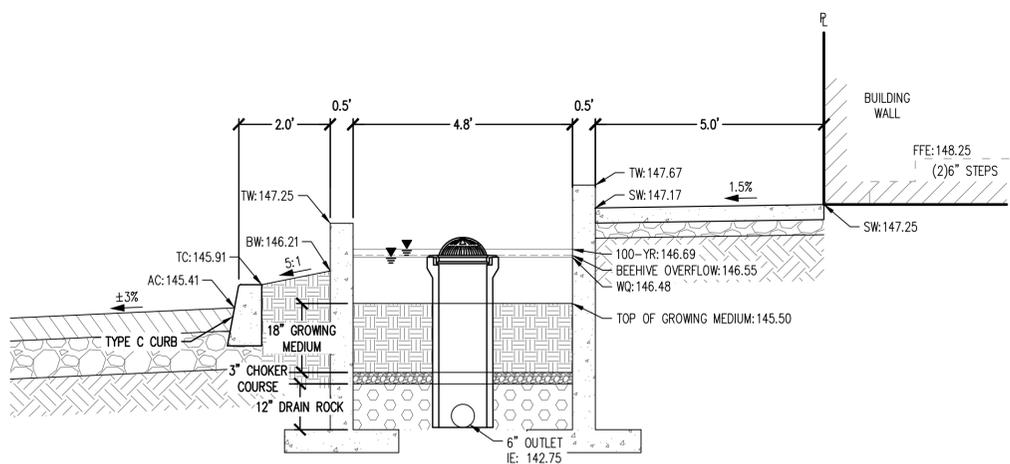
**PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN**  
**THE CANNERY**  
**FUND**  
**SALEM, OREGON**



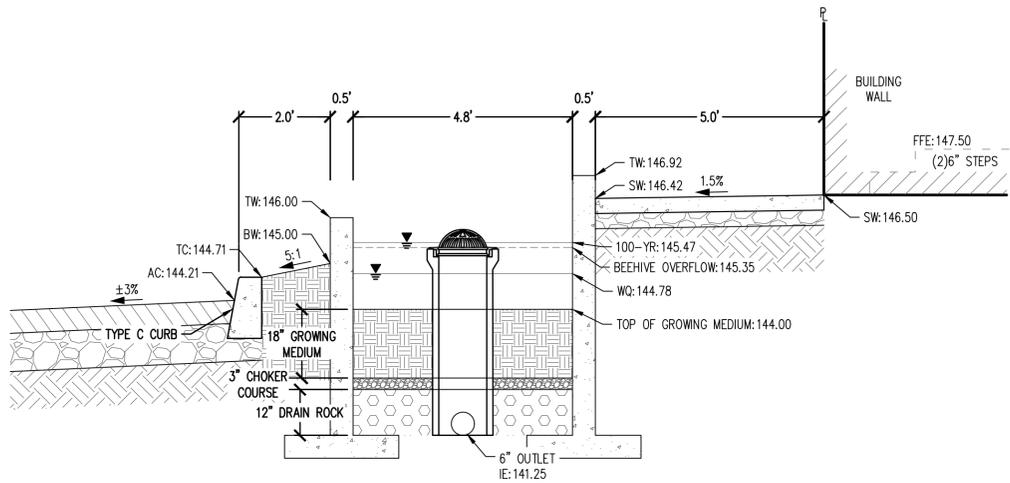
RENEWALS: DECEMBER 31, 2024

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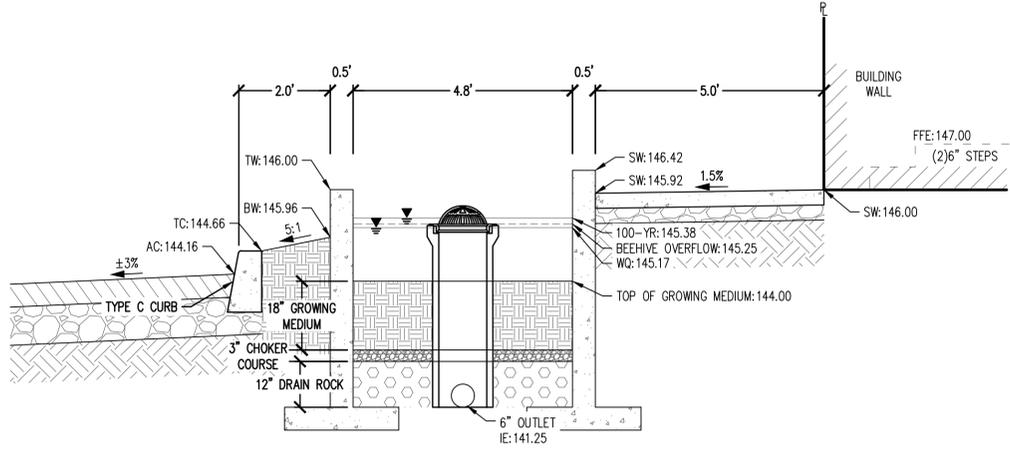




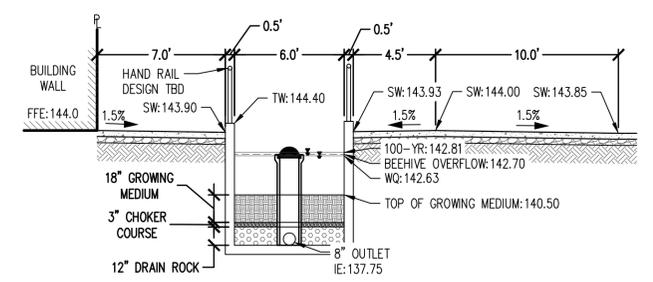
**1 BUILDING 1 PLANTER CROSS-SECTION**  
 1" = 2'



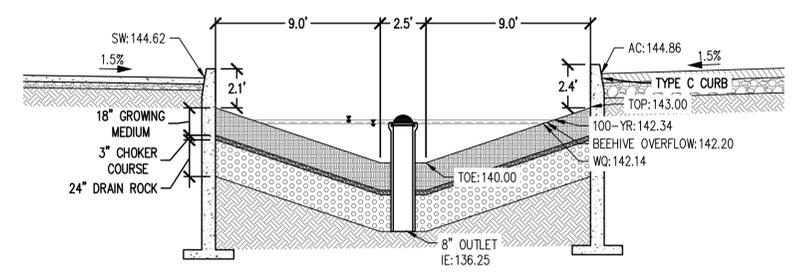
**2 BUILDING 2 PLANTER CROSS-SECTION**  
 1" = 2'



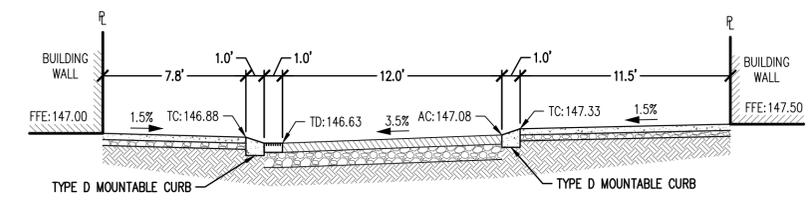
**3 BUILDING 3 PLANTER CROSS-SECTION**  
 1" = 2'



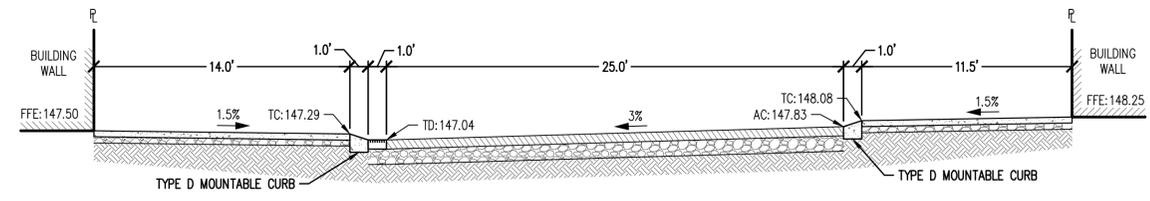
**4 WINERY PLANTER CROSS-SECTION**  
 1" = 5'



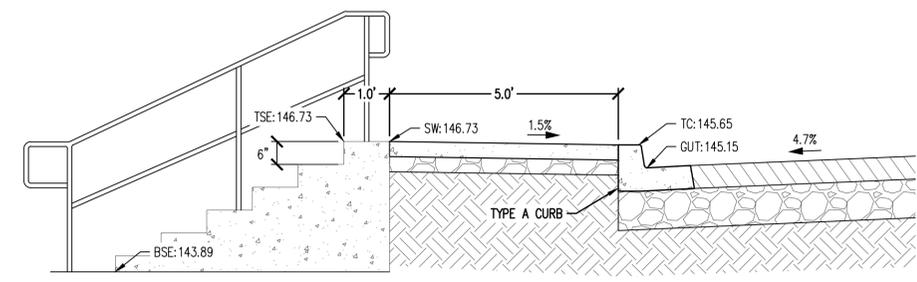
**5 RAIN GARDEN CROSS-SECTION**  
 1" = 5'



**6 BELMONT ALLEY CROSS-SECTION**  
 1" = 5'



**7 MARKET ST ENTRANCE CROSS-SECTION**  
 1" = 5'

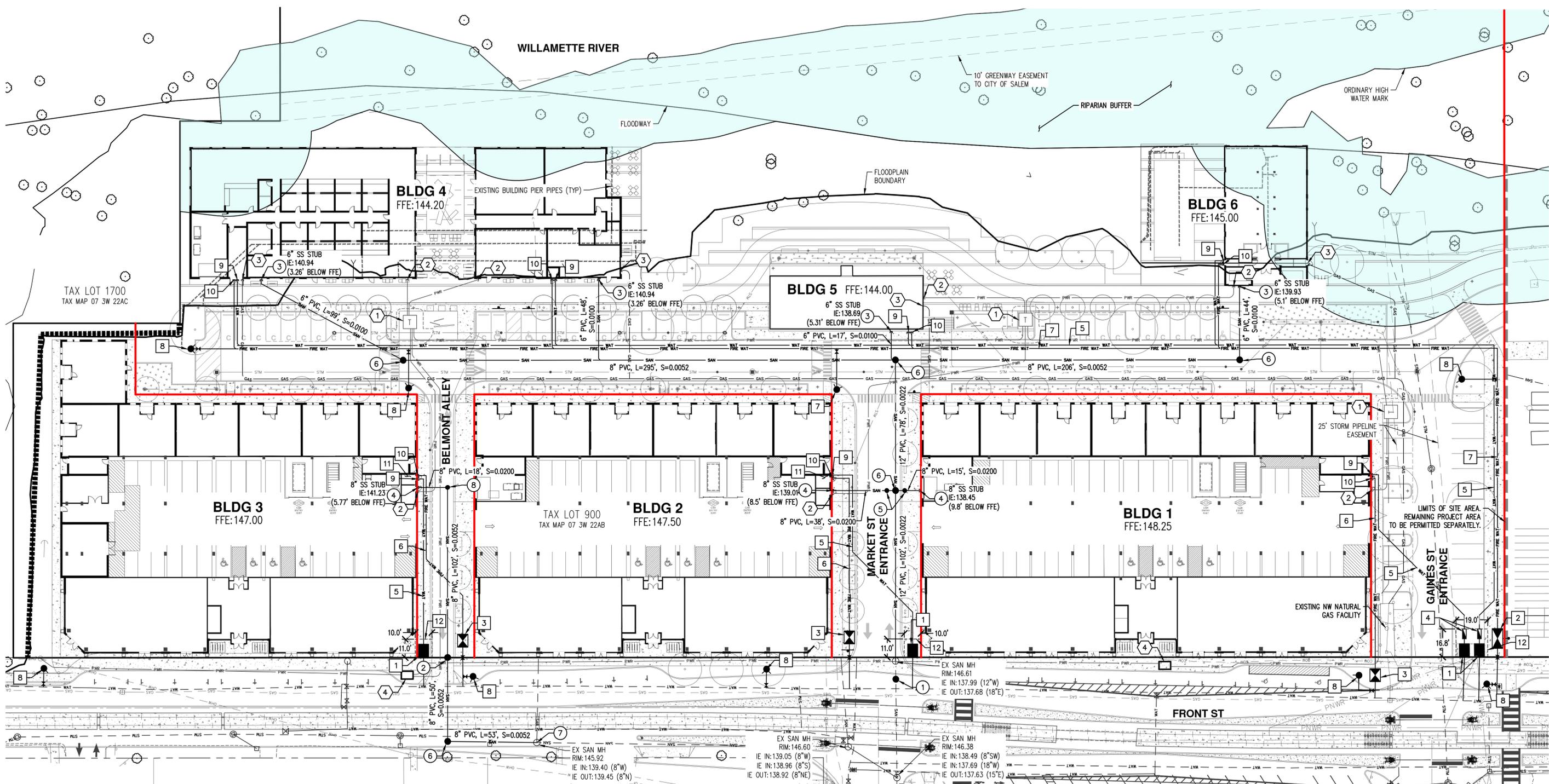


**8 WINERY BUILDING STAIR STEP CONCEPT**  
 1" = 2'

**ABBREVIATIONS:**

- EXISTING:**  
 (RIM): EXISTING RIM ELEVATION
- PROPOSED:**  
 FFE: FINISHED FLOOR ELEVATION  
 FG: FINISHED GRADE ELEVATION  
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 BW: BOTTOM OF WALL ELEVATION  
 SW: SIDEWALK ELEVATION  
 TD: TRENCH DRAIN RIM ELEVATION  
 GUT: GUTTER ELEVATION

DOWNWARD SLOPE: X.X%



**WATER AND FIRE KEYED NOTES: #**

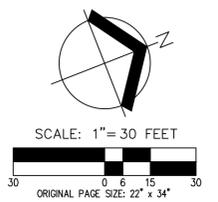
1. 3" WATER METER PER CITY STANDARDS.
2. 8" DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) WITH FDC.
3. 6" DCDA.
4. ABOVE GROUND REDUCED PRESSURE (RP) ASSEMBLY.
5. 4" DOMESTIC WATER SERVICE.
6. 6" FIRE SERVICE.
7. 8" FIRE SERVICE.
8. FIRE HYDRANT ASSEMBLY.
9. 4" DOMESTIC WATER SERVICE TO BUILDING. REFER TO PLANS BY OTHERS.
10. 6" FIRE SERVICE TO BUILDING WITH FDC MOUNTED ON FACE OF BUILDING. REFER TO PLANS BY OTHERS.
11. RP ASSEMBLY INSIDE BUILDING.
12. CITY OF SALEM WATER EASEMENT.

**SANITARY SEWER (SAN) KEYED NOTES: #**

1. CONNECT TO EXISTING SAN MAIN WITH NEW MANHOLE (MH).
2. 48" SAN MONITORING MH.
3. 6" SAN LATERAL TO BUILDING. REFER TO PLANS BY OTHERS.
4. 8" SAN LATERAL TO BUILDING. REFER TO PLANS BY OTHERS.
5. 24" MINI MH FOR MONITORING PER CITY OF SALEM STANDARDS.
6. 48" SAN STANDARD MH.
7. CONNECT TO EXISTING SAN MH.
8. 24" MINI MH.

**FRANCHISE UTILITY KEYED NOTES: #**

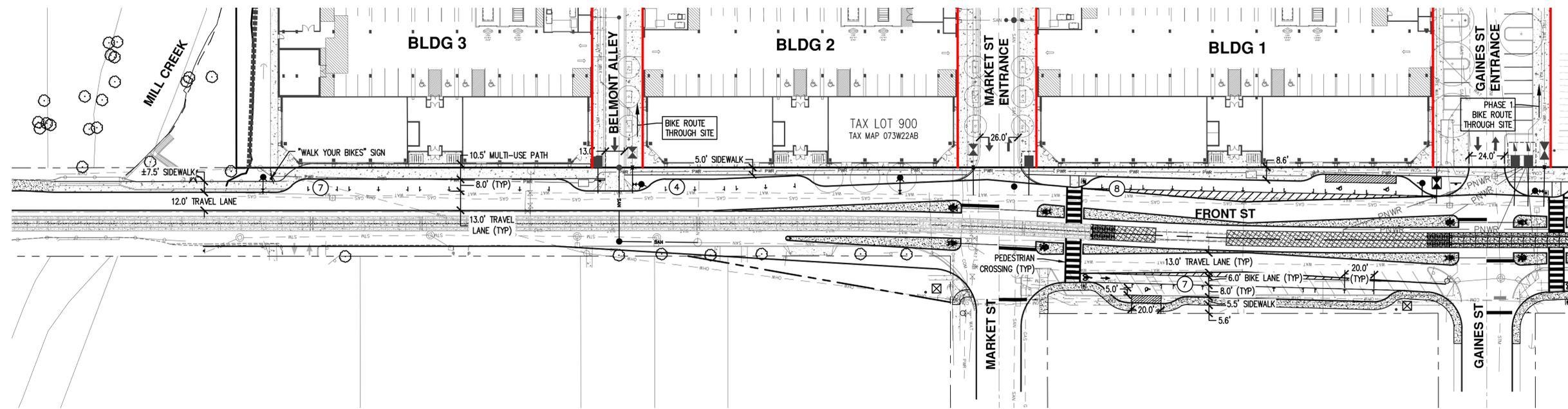
1. CONCEPTUAL TRANSFORMER LOCATION.
2. POWER CONDUIT TO PROPOSED BUILDINGS.
3. GAS SERVICE TO BUILDINGS. COORDINATE WITH NORTHWEST NATURAL FOR FINAL SERVICE PLAN.
4. CONCEPTUAL PULL VAULT LOCATION.



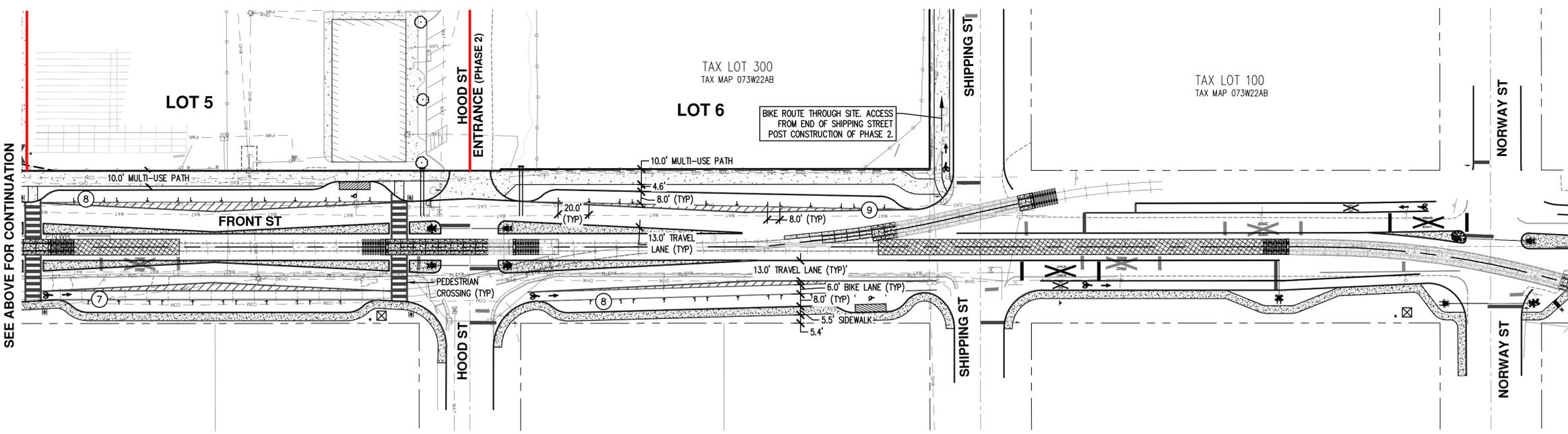
**PRELIMINARY COMPOSITE UTILITY PLAN**  
**THE CANNERY FUND**  
**SALEM, OREGON**



RENEWALS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 05/31/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR



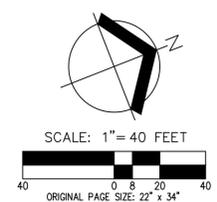
SEE BELOW FOR CONTINUATION



SEE ABOVE FOR CONTINUATION

**LEGEND:**  
 # NUMBER OF PARKING STALLS IN ROW

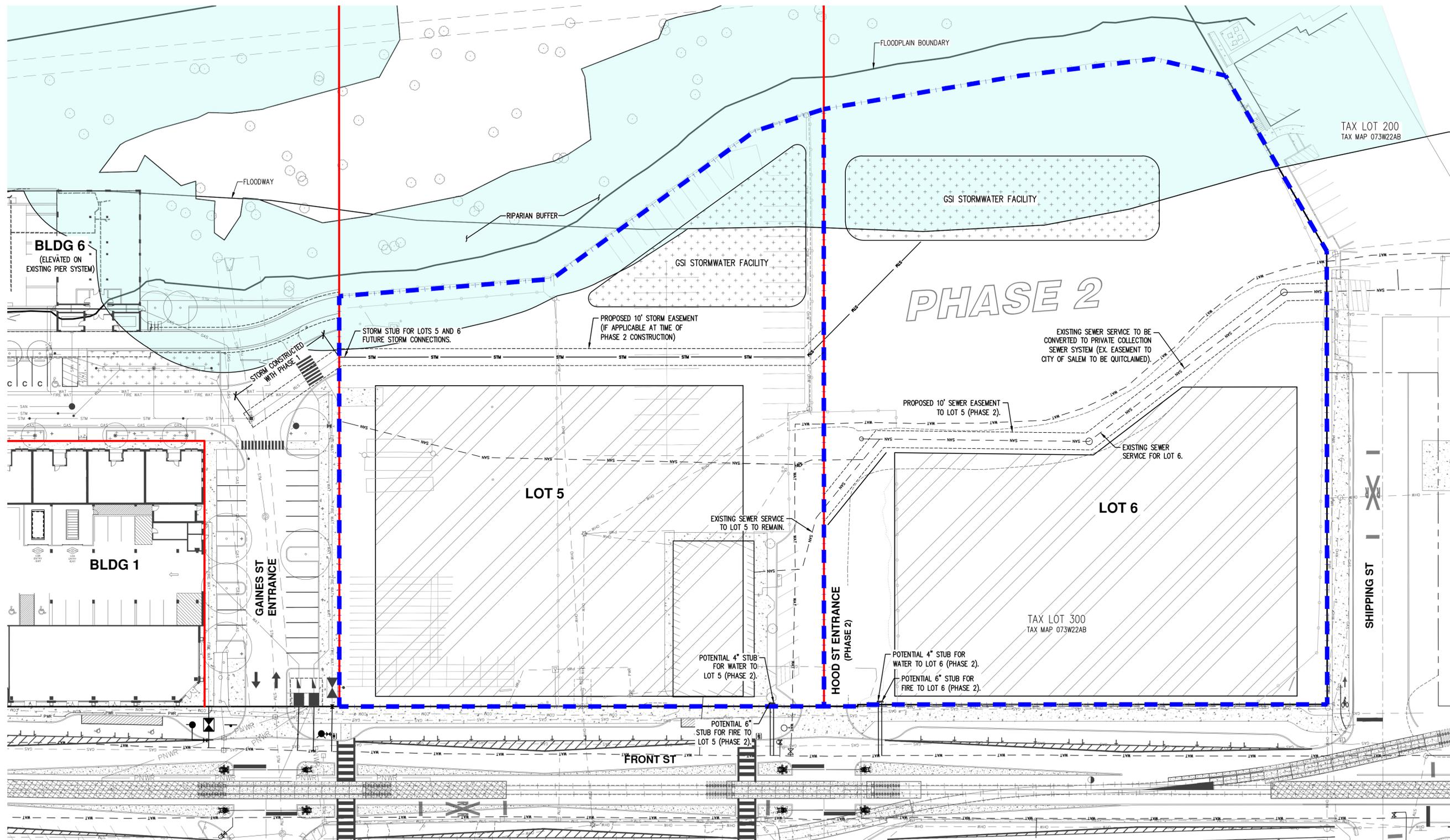
**GENERAL NOTE:**  
 PROPOSED FRONT STREET IMPROVEMENTS ARE SUBJECT TO CHANGE BASED ON RAIL AND CITY FEEDBACK. INFORMATION SHOWN IS BASED ON LATEST COORDINATION EFFORTS WITH THE CITY OF SALEM AND RAILROAD ENGINEER.



**PRELIMINARY FRONT ST IMPROVEMENTS**  
**THE CANNERY**  
 FUND  
 SALEM, OREGON



JOB NUMBER:	5968-01
DATE:	05/31/2024
DESIGNED BY:	TDR
DRAWN BY:	MJM
CHECKED BY:	TDR

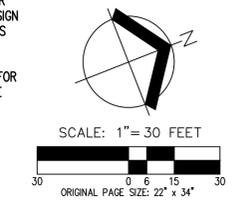


**PHASE 2**

**LEGEND**

- DEVELOPABLE AREA (ASSUMED FOR GSI STORMWATER FACILITY SIZING)
- INTERIOR PROPERTY LINE
- POTENTIAL BUILDING FOOTPRINTS TO BE FINALIZED WITH PHASE 2 SITE PLAN REVIEW

- GENERAL NOTES:**
- 10% OF THE TOTAL NEW AND REPLACED IMPERVIOUS SURFACE HAS BEEN DEDICATED A FOR GSI STORMWATER FACILITY ON LOTS 5 AND 6 PER THE CITY OF SALEM PUBLIC WORKS DESIGN STANDARDS SECTION 4E.6, AND FLOW CONTROL AND TREATMENT PERFORMANCE STANDARDS PER SRC CHAPTER 71.
  - THE PURPOSE OF THIS PLAN SHEET IS TO DEMONSTRATE THE POTENTIAL UTILITY LAYOUT FOR LOTS 5 AND 6. FINAL UTILITY LAYOUT AND SERVICE LOCATIONS TO BE CONFIRMED AT TIME OF PHASE 2 SITE PLAN REVIEW SUBMITTAL.



**CONCEPTUAL LOT 5 AND 6 UTILITY PLAN**  
**THE CANNERY**  
 FUND  
 SALEM, OREGON

REGISTERED PROFESSIONAL ENGINEER  
 COVER D. ROTH  
 PRELIMINARY  
 NOT FOR CONSTRUCTION  
 RENEWS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 05/31/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

## Attachment G: County Surveyor Correspondence

---

**From:** [Ben Huff](#)  
**To:** [Madison Margolis](#); [Rudy Borowczak](#)  
**Cc:** [Tyler Roth](#); [Grace Wolff](#)  
**Subject:** FW: Tax Lot 900, 1105 Front Street Salem  
**Date:** Thursday, May 16, 2024 11:41:09 AM  
**Attachments:** [image006.png](#)  
[image007.png](#)  
[image008.png](#)  
[image009.png](#)  
[image010.png](#)

---

FYI, the tax map will get corrected to reflect how we are showing the line.

Best,

**Ben Huff PLS, EI**



**AKS ENGINEERING & FORESTRY, LLC**

12965 SW Herman Road, Suite 100 | Tualatin, OR 97062

P: 503.563.6151 Ext. 212 C: 503.851.2127 | [www.aks-eng.com](http://www.aks-eng.com) | [BenH@aks-eng.com](mailto:BenH@aks-eng.com)

Offices in: Bend, OR | Keizer, OR | Tualatin, OR | Vancouver, WA

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---

**From:** Jason Sievers <[JSievers@co.marion.or.us](mailto:JSievers@co.marion.or.us)>  
**Sent:** Thursday, May 16, 2024 11:06 AM  
**To:** Ben Huff <[BenH@aks-eng.com](mailto:BenH@aks-eng.com)>  
**Cc:** Nathan Schultz <[schultzn@aks-eng.com](mailto:schultzn@aks-eng.com)>; Matt Deming <[demingm@aks-eng.com](mailto:demingm@aks-eng.com)>  
**Subject:** RE: Tax Lot 900, 1105 Front Street Salem

**Proceed with caution:** This email hails from an external source. Unverified emails may lead to phishing attacks or malware infiltration. Always exercise due diligence.

Hi Ben,

It looks like our mistake, when converting from paper maps to digital we show Block 'A' continuing south. We will update our tax map to match the plat. Thank you for bringing it to our attention.

We changed ownership to City of Salem by Reel 249, Page 782.

47355 REEL 249 PAGE 782

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, That CONTINENTAL ENTERPRISES, INC., a corporation duly organized and existing under the laws of the State of Oregon, hereinafter called grantor, for the consideration hereinafter stated, does hereby grant, bargain, sell and convey unto the CITY OF SALEM, a municipal corporation, organized and existing under and by virtue of the laws of the State of Oregon, hereinafter called grantee and grantee's successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of Marion, and State of Oregon, described as follows, to-wit:

Blocks A and C, WILLAMETTE LANDING.

Thanks,

Jason Sievers  
Cartographer/GIS Technician  
Marion County Assessor's Office  
503-584-4781  
[jsievers@co.marion.or.us](mailto:jsievers@co.marion.or.us)

---

**From:** Ben Huff <[BenH@aks-eng.com](mailto:BenH@aks-eng.com)>

**Sent:** Tuesday, May 14, 2024 4:39 PM

**To:** Jason Sievers <[JSievers@co.marion.or.us](mailto:JSievers@co.marion.or.us)>

**Cc:** Nathan Schultz <[schultzn@aks-eng.com](mailto:schultzn@aks-eng.com)>; Matt Deming <[demingm@aks-eng.com](mailto:demingm@aks-eng.com)>

**Subject:** RE: Tax Lot 900, 1105 Front Street Salem





tax lot 900 is coming from the legals of Parcels I and II.

Jason Sievers  
Cartographer/GIS Technician  
Marion County Assessor's Office  
503-584-4781  
[jsievers@co.marion.or.us](mailto:jsievers@co.marion.or.us)

---

**From:** Ben Huff <[BenH@aks-eng.com](mailto:BenH@aks-eng.com)>  
**Sent:** Tuesday, April 18, 2023 11:37 AM  
**To:** MapRoom <[MapRoom@co.marion.or.us](mailto:MapRoom@co.marion.or.us)>  
**Cc:** Rudy Borowczak <[borowczakr@aks-eng.com](mailto:borowczakr@aks-eng.com)>  
**Subject:** Tax Lot 900, 1105 Front Street Salem

You don't often get email from [benh@aks-eng.com](mailto:benh@aks-eng.com). [Learn why this is important](#)

*NOTICE: This communication may contain privileged or other confidential information. If you have received it in error, please advise the sender by reply e-mail and immediately delete the message and any attachments without copying or disclosing the contents. AKS Engineering and Forestry shall not be liable for any changes made to the electronic data transferred. Distribution of electronic data to others is prohibited without the express written consent of AKS Engineering and Forestry.*

# Attachment H: Revised Preliminary Landscape Plans

---



1 ILLUSTRATIVE PLAN OVERALL

Plan  
SCALE: 1" = 40'



THE CANNERY

1105 FRONT ST NE,  
SALEM, OR 97301

LAND USE SUBMITTAL

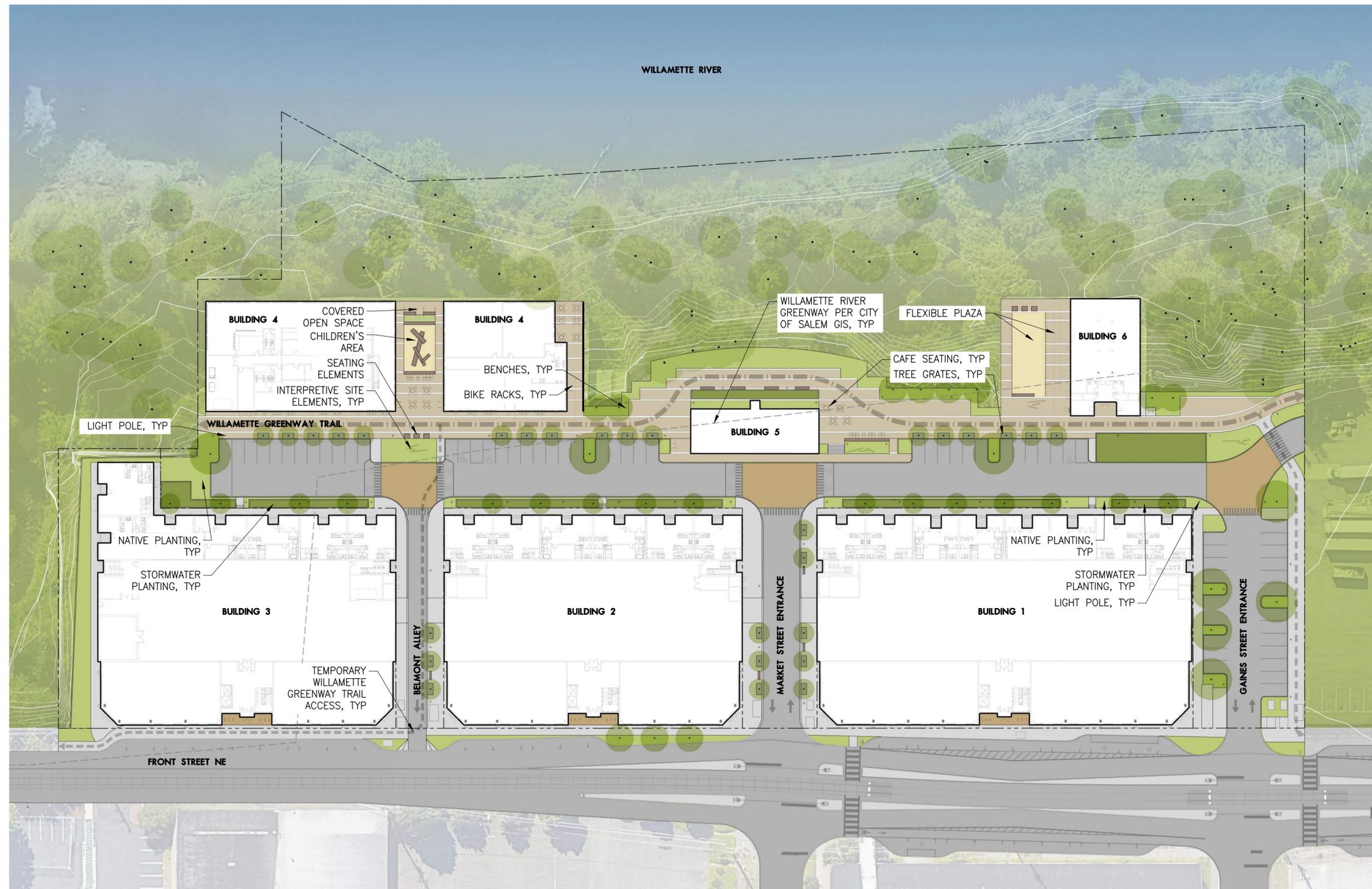
ILLUSTRATIVE PLAN  
OVERALL

REVISIONS

SCALE  
DRAWN BY  
DATE 2024.03.15  
PROJECT NO. 2346-SAC

SHEET

L101



1 ILLUSTRATIVE PLAN LEVEL 1

Plan  
SCALE: 1" = 40'



THE CANNERY

1105 FRONT ST NE,  
SALEM, OR 97301

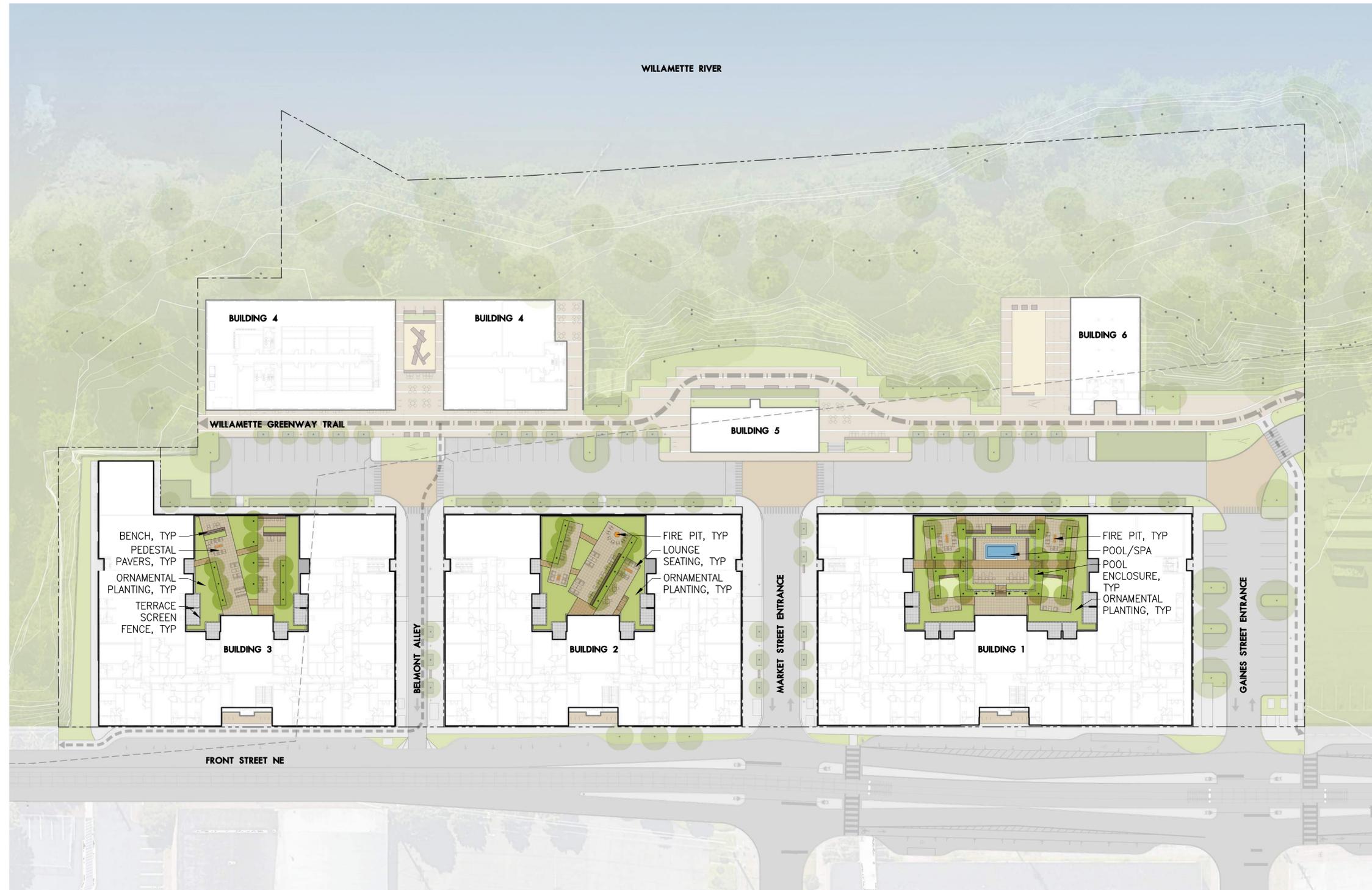
LAND USE SUBMITTAL  
ILLUSTRATIVE PLAN LEVEL 1

REVISIONS

SCALE  
DRAWN BY  
DATE 2024.03.15  
PROJECT NO. 2346-SAC

SHEET

L102



1 ILLUSTRATIVE PLAN LEVEL 2

Plan  
SCALE: 1" = 40'



THE CANNERY

1105 FRONT ST NE,  
SALEM, OR 97301

LAND USE SUBMITTAL  
ILLUSTRATIVE PLAN LEVEL 2

REVISIONS

SCALE  
DRAWN BY  
DATE 2024.03.15  
PROJECT NO. 2346-SAC

SHEET

L103



**SITE LANDSCAPE DATA**

SRC 600.025.B WILLAMETTE RIVER GREENWAY LANDSCAPING  
 TOTAL LINEAR FEET OF RIVER FRONTAGE: 894 LF  
 TREES REQUIRED (1 PER 20LF): 45 TREES  
 TREES EXISTING: 57 TREES  
 TREES PROPOSED: 6 TREES  
 SHRUBS REQUIRED (1 PER 2LF): 447 SHRUBS  
 SHRUBS PROPOSED: 699 SHRUBS

SRC 806.035.D.2 INTERIOR PARKING LOT LANDSCAPING  
 TOTAL PARKING AREA: 28,050 SF  
 INTERIOR LANDSCAPING REQUIRED: 5.0% (1,403 SF)  
 INTERIOR LANDSCAPING PROPOSED: 7.3% (2,049 SF)

SRC 806.035.D.3 INTERIOR PARKING LOT TREES  
 TOTAL PARKING STALLS: 58 STALLS  
 INTERIOR TREES REQUIRED: 5 TREES (1 TREE PER 12 STALLS)  
 INTERIOR TREES PROPOSED: 7 TREES

SRC 806.035.N PARKING LOT TREE CANOPY  
 TOTAL PARKING AREA: 28,050 SF  
 REQUIRED TREE CANOPY PERCENTAGE: 40%  
 REQUIRED TREE CANOPY AREA: 11,220 SF  
 PROPOSED TREE CANOPY AREA: 15,339 SF  
 PROPOSED TREE CANOPY PERCENTAGE: 55%

LANDSCAPE ARCHITECTS PC  
**lango.hansen**  
 1100 nw glisan #3A portland OR 97209 T 503.295.2437

**THE CANNERY**

1105 FRONT ST NE,  
 SALEM, OR 97301

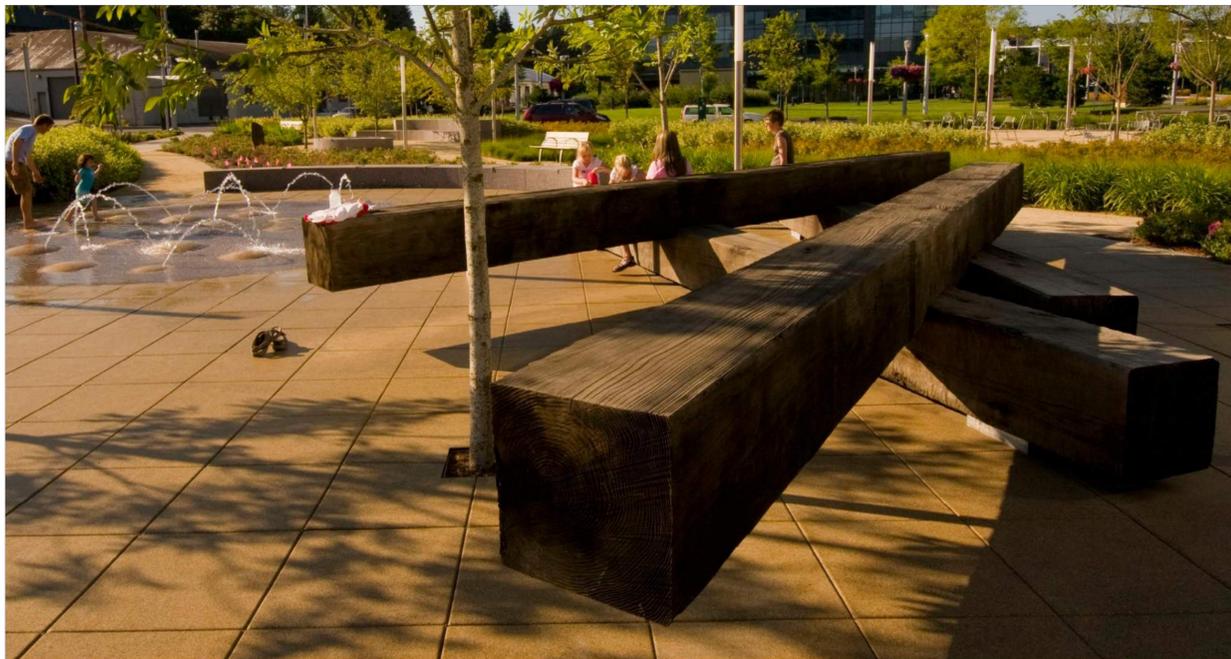
**1 LANDSCAPE LAND USE DIAGRAM**

Plan  
 SCALE: 1" = 40'



LAND USE SUBMITTAL	
LANDSCAPE LAND USE DIAGRAM	
REVISIONS	
SCALE	
DRAWN BY	
DATE	2024.03.15
PROJECT NO.	2346-SAC
SHEET	

**L104**



1 PRECEDENT IMAGES

LANDSCAPE ARCHITECTS P.C.  
**lango. hansen**  
 1100 nw glisan #3A portland OR 97209 T 503.295.2437

THE CANNERY

1105 FRONT ST NE,  
 SALEM, OR 97301

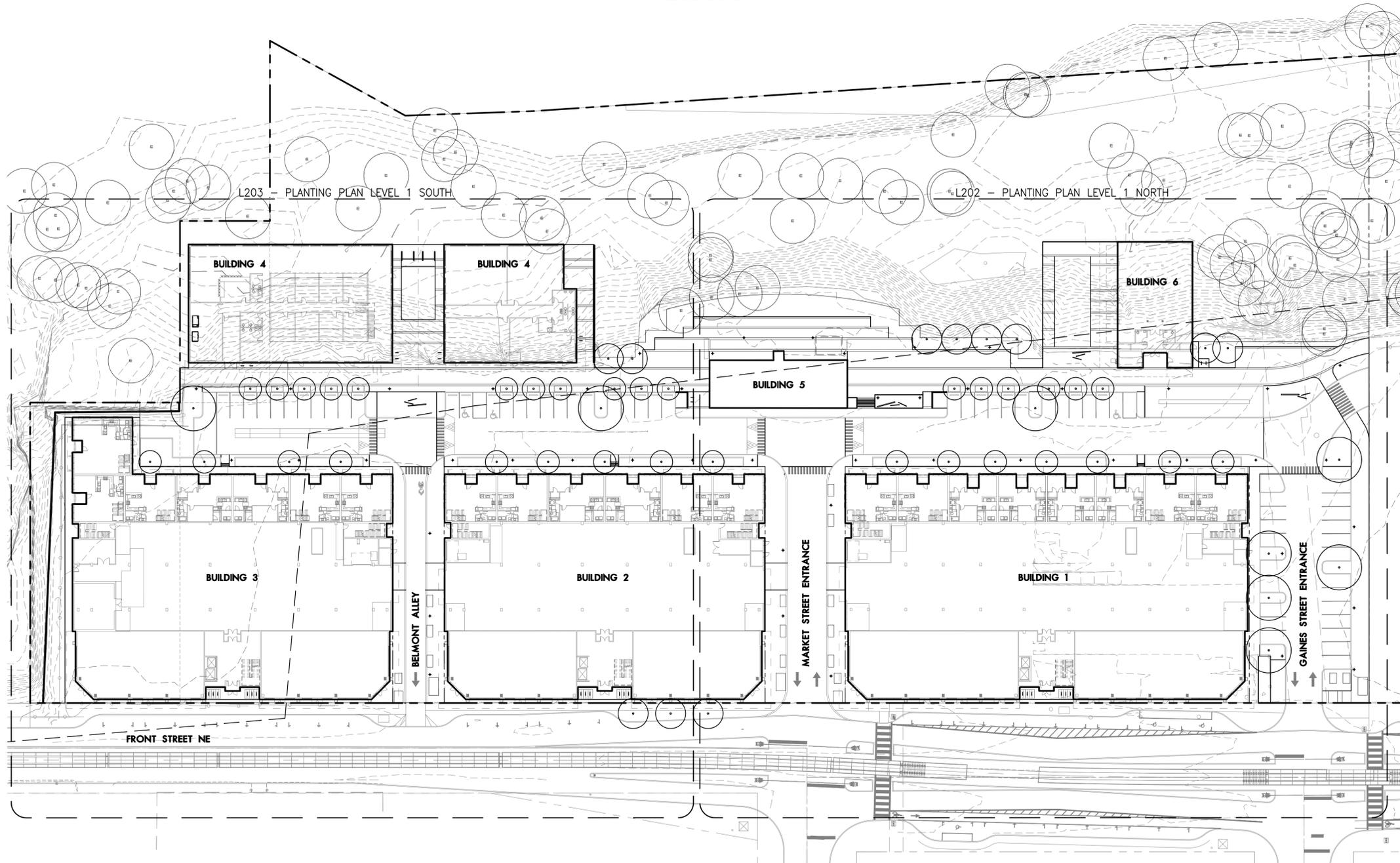
LAND USE SUBMITTAL  
 PRECEDENT IMAGES

REVISIONS


SCALE  
 DRAWN BY  
 DATE 2024.03.15  
 PROJECT NO. 2346-SAC

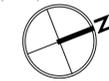
SHEET  
**L105**

WILLAMETTE RIVER



1 PLANTING PLAN LEVEL 1 OVERALL

Plan  
SCALE: 1" = 40'



**LEGEND**

- WILLAMETTE RIVER GREENWAY
- - - PROPERTY LINE/RIGHT-OF-WAY
- - - INTERNAL PROPERTY LINE
- CONCRETE CURB
- BIKE RACK
- + LIGHT POLE
- ⊕ EXISTING TREE TO REMAIN

**ABBREVIATIONS**

- B&B BALLED & BURLAPPED
- CAL CALIPER
- CONT CONTAINER
- DIA DIAMETER
- DBH DIAMETER AT BREAST HEIGHT
- EQ EQUAL
- HT HEIGHT
- MIN MINIMUM
- MAX MAXIMUM
- NO NUMBER
- O.C. ON CENTER
- SIM SIMILAR
- SL SEEDED LAWN
- SPECS SPECIFICATIONS
- TYP TYPICAL
- # CONTAINER SIZE

**PLANTING NOTES**

1. THIS PLAN IS BASED ON A SURVEY BY AKS ENGINEERING AND FORESTRY DATED 2/17/2023. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES IDENTIFIED ON SITE RELATED TO SURVEY INFORMATION PRIOR TO INSTALLATION.
2. PROTECT EXISTING VEGETATION TO REMAIN.
3. ALL PLANT MATERIAL SHALL BE NURSERY GROWN, WELL ROOTED, AND WELL BRANCHED. ALL TREES MUST BE FREE OF INSECTS, DISEASES, MECHANICAL INJURY, AND OTHER OBJECTIONABLE FEATURES WHEN PLANTED. ALL PLANT MATERIAL SHALL CONFORM TO "AMERICAN STOCK STANDARDS" LATEST EDITION.
4. ALL PLANT MATERIAL TO BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. SEE SPECIFICATIONS.
5. PLANT SPACING SHALL TAKE PRECEDENCE OVER VALVE BOX LOCATIONS. INSTALLED VALVE BOXES THAT CONFLICT WITH ACCEPTED PLANT LAYOUT SHALL BE MOVED TO POSITION BETWEEN PLANTS.
6. PLANT COUNTS FOR TREES AND SHRUBS ARE SUPPLIED FOR THE CONTRACTOR'S CONVENIENCE. CONTRACTOR RESPONSIBLE FOR INSTALLING ALL PLANTS IN LOCATIONS AND QUANTITIES SHOWN.
7. CLEAR PLANT BEDS OF ALL GRAVEL AND DEBRIS PRIOR TO SOIL PREPARATION AND PLANTING, FOR APPROVAL BY LANDSCAPE ARCHITECT.
8. TREES TO BE RETAINED AND/OR PLANTED SHALL BE WATERED AS NECESSARY TO MINIMIZE STRESS TO THE TREE, PROMOTE ROOT GROWTH, AND ENSURE SURVIVAL, THROUGHOUT THE CONSTRUCTION PERIOD AND THE FIRST THREE GROWING SEASONS AFTER PLANTING. TREES SHALL BE MULCHED WITH COMPOST MULCH, SEE SPECIFICATIONS. PROTECTIVE BARRIERS SHALL STAY IN PLACE UNTIL PLANNING OFFICIAL AUTHORIZES THEIR REMOVAL OR A FINAL CERTIFICATE OF OCCUPANCY IS ISSUED, WHICHEVER OCCURS FIRST. STAKING & FERTILIZING SHALL BE REQUIRED WHERE NECESSARY BY PLANNING OFFICIAL. SEE SECTION 015639 FOR ADDITIONAL REQUIREMENTS.
9. ALL LANDSCAPE AREAS THAT HAVE A SLOPE GREATER THAN 1 VERTICAL FOOT IN 3 HORIZONTAL FEET SHALL RECEIVE JUTE MATTING, SEE SPECIFICATIONS.
10. ALL PLANTING AREAS ARE TO BE IRRIGATED WITH A PERMANENT AUTOMATIC IRRIGATION SYSTEM EXCEPT RESEDED DISTURBED AREAS, THOSE ARE ARE TO BE NON-IRRIGATED.
11. ALL PARKING LOT AND STREET TREES MUST HAVE 6' CLEAR HEIGHT TO LOWEST BRANCHES.
12. SEE L204 FOR PLANTING SCHEDULE.

LANDSCAPE ARCHITECTS P.C.  
**lango. hansen**  
 1100 nw glisan #3A portland OR 97209 T 503.295.2437

**THE CANNERY**  
 1105 FRONT ST NE,  
 SALEM, OR 97301

LAND USE SUBMITTAL

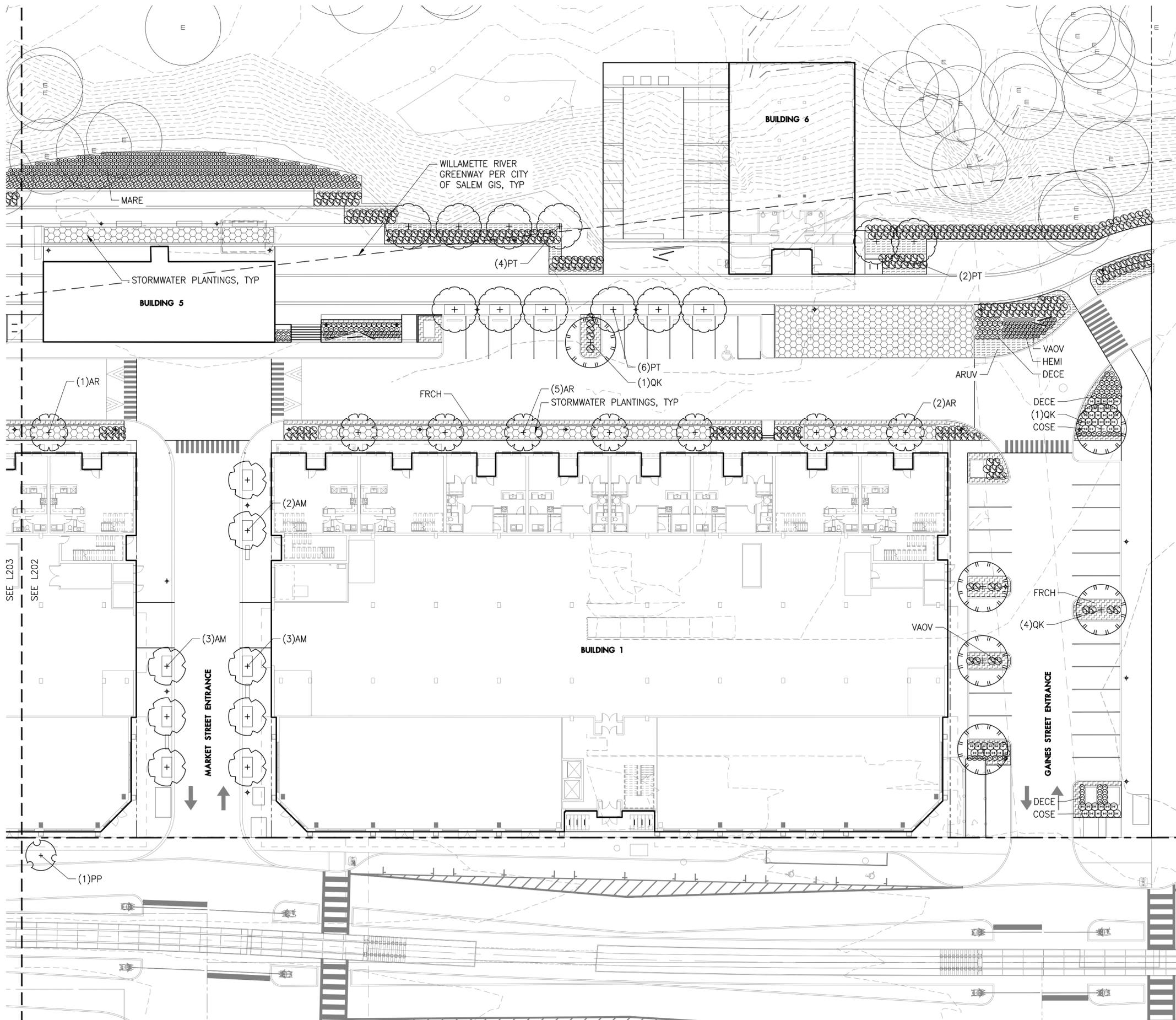
PLANTING PLAN LEVEL 1 OVERALL

REVISIONS

SCALE  
 DRAWN BY  
 DATE 2024.03.15  
 PROJECT NO. 2346-SAC

SHEET

L201



- LEGEND**
- WILLAMETTE RIVER GREENWAY
  - - - PROPERTY LINE/RIGHT-OF-WAY
  - - - INTERNAL PROPERTY LINE
  - CONCRETE CURB
  - BIKE RACK
  - + LIGHT POLE
  - E EXISTING TREE TO REMAIN
  - ▨ STORMWATER FACILITY PLANTED TO CITY OF SALEM STANDARDS
- PLANTING NOTES**
1. SEE L201 FOR GENERAL NOTES AND ABBREVIATIONS.
  2. SEE L204 FOR PLANTING SCHEDULE.

LANDSCAPE ARCHITECTS P.C.  
**lango.hansen**  
 1100 nw glisan #3A portland OR 97209 T 503.295.2437

**THE CANNERY**

1105 FRONT ST NE,  
 SALEM, OR 97301

LAND USE SUBMITTAL  
 PLANTING PLAN LEVEL 1  
 NORTH

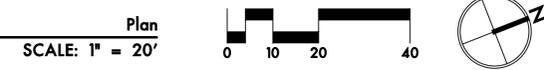
REVISIONS

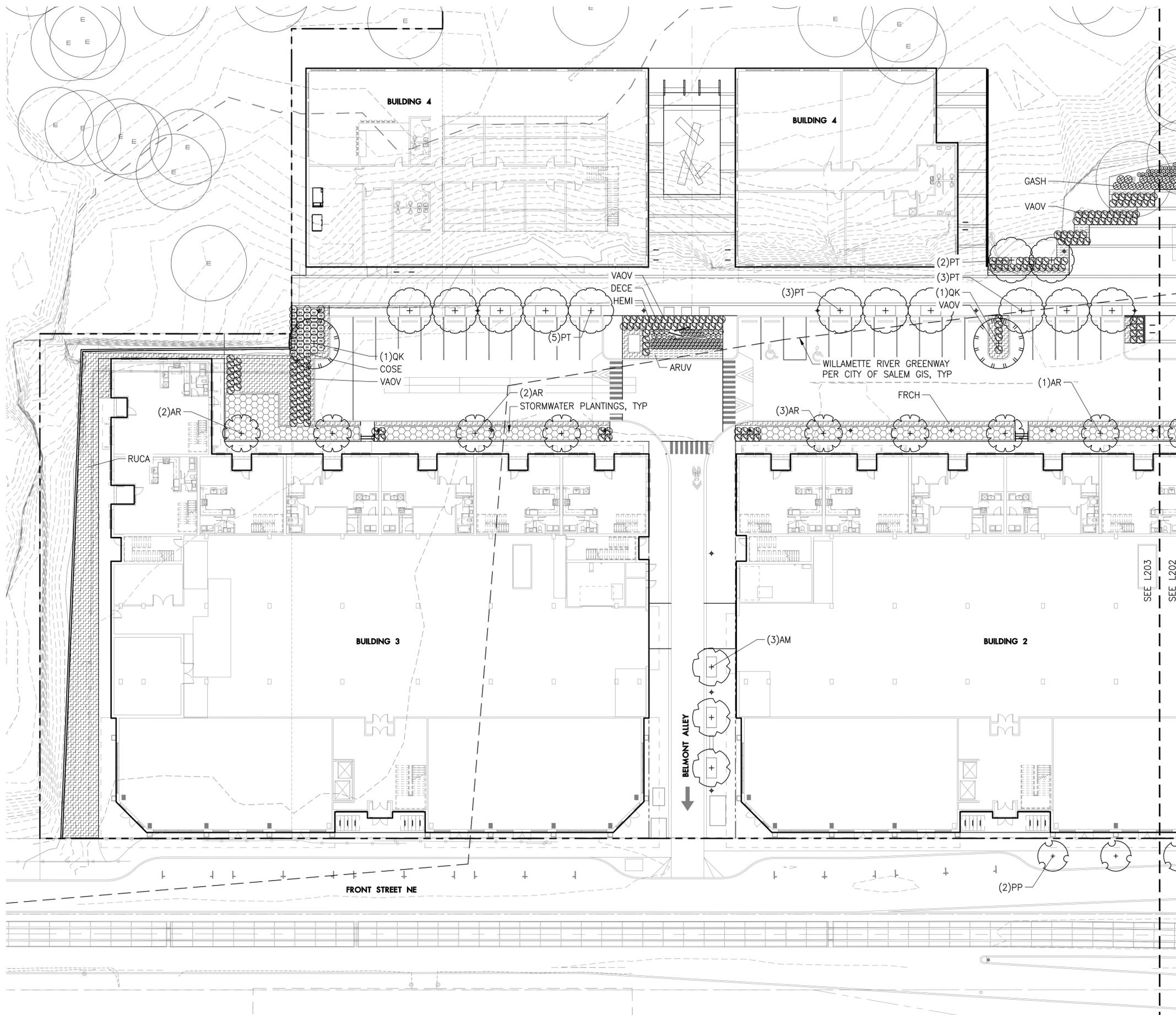
NO.	DATE	DESCRIPTION

SCALE  
 DRAWN BY  
 DATE 2024.03.15  
 PROJECT NO. 2346-SAC

SHEET  
**L202**

**1 PLANTING PLAN LEVEL 1 NORTH**





**LEGEND**

- WILLAMETTE RIVER GREENWAY
- - - PROPERTY LINE/RIGHT-OF-WAY
- - - INTERNAL PROPERTY LINE
- CONCRETE CURB
- BIKE RACK
- + LIGHT POLE
- ⊙ EXISTING TREE TO REMAIN
- ◻ STORMWATER FACILITY PLANTED TO CITY OF SALEM STANDARDS

**PLANTING NOTES**

1. SEE L201 FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE L204 FOR PLANTING SCHEDULE.

LANDSCAPE ARCHITECTS P.C.  
**lango. hansen**  
 1100 nw glisan #3A portland OR 97209 T 503.295.2437

**THE CANNERY**

1105 FRONT ST NE,  
 SALEM, OR 97301

LAND USE SUBMITTAL  
 PLANTING PLAN LEVEL 1  
 SOUTH

REVISIONS

SCALE  
 DRAWN BY  
 DATE 2024.03.15  
 PROJECT NO. 2346-SAC

SHEET

**L203**



PLANT SCHEDULE – ONSITE TREES							
SYMBOL	ABBR	BOTANICAL NAME	COMMON NAME	NATIVE	SIZE/ CONDITION	SPACING	QUANTITY
TREES							
	AM	Acer macrophyllum	Big Leaf Maple	YES	3" CAL B&B	AS SHOWN	11
	AR	Alnus rubra	Red Alder	YES	3" CAL B&B (SMALL)	AS SHOWN	16
	PP	Parrotia persica 'Vanessa'	Vanessa Ironwood	NO (STREET TREE)	3" CAL B&B	AS SHOWN	3
	PT	Populus tremuloides	Quaking Aspen	YES	3" CAL B&B (SMALL)	AS SHOWN	25
	QK	Quercus kelloggii	California Black Oak	YES	3" CAL B&B (LARGE)	AS SHOWN	8

PLANT SCHEDULE – ONSITE PLANTINGS							
SYMBOL	ABBR	BOTANICAL NAME	COMMON NAME	NATIVE	SIZE/ CONDITION	SPACING	QUANTITY
SHRUBS							
	COSE	Cornus sericea 'Arctic Fire'	Arctic Fire Redosier Dogwood	YES	#5/CONT. 6'+HT (MATURE)	AS SHOWN	86
	MARE	Mahonia repens	Creeping Oregon Grape	YES	#1/CONT.	AS SHOWN	462
	GASH	Gaultheria shallon	Salal	YES	#1/CONT.	AS SHOWN	100
	VAOV	Vaccinium ovatum	Evergreen Huckleberry	YES	#5/CONT. 6'+HT (MATURE)	AS SHOWN	505
GROUNDCOVER AND GRASSES							
	ARUV	Arctostaphylos uva-ursi	Kinnikinnick	YES	#1/CONT.	18" O.C.	662
	DECE	Deschampsia cespitosa	Tufted Hairgrass	YES	#3/CONT.	AS SHOWN	130
	FRCH	Fragaria chiloensis	Coast Strawberry	YES	#1/CONT.	18" O.C.	2369
	HEMI	Heuchera micrantha	Smallflowered Alumroot	YES	#1/CONT.	AS SHOWN	159
STORMWATER PLANTINGS – 5,233 SF							
	CADE	Carex densa	Dense Sedge	YES	#1/CONT.	12" O.C.	
	DECE	Deschampsia cespitosa	Tufted Hair Grass	YES	#1/CONT.	12" O.C.	
	JUPA	Juncus patens	Spreading Rush	YES	#1/CONT.	12" O.C.	

**THE CANNERY**

1105 FRONT ST NE,  
 SALEM, OR 97301

LAND USE SUBMITTAL

**PLANTING SCHEDULE  
LEVEL 1**

REVISIONS

SCALE  
 DRAWN BY  
 DATE 2024.03.15  
 PROJECT NO. 2346-SAC

SHEET

**L204**

**LEGEND**

- — — — — LIMIT OF WORK
- - - - - METAL EDGE
- / / / — RAISED PLANTER
- · · · · · SCREEN FENCE

**PLANTING NOTES**

1. SEE L201 FOR GENERAL NOTES AND ABBREVIATIONS.

LANDSCAPE ARCHITECTS PC  
**lango. hansen**  
1100 nw glisan #3A portland OR 97209 T 503.295.2437

**THE CANNERY**

1105 FRONT ST NE,  
SALEM, OR 97301

LAND USE SUBMITTAL

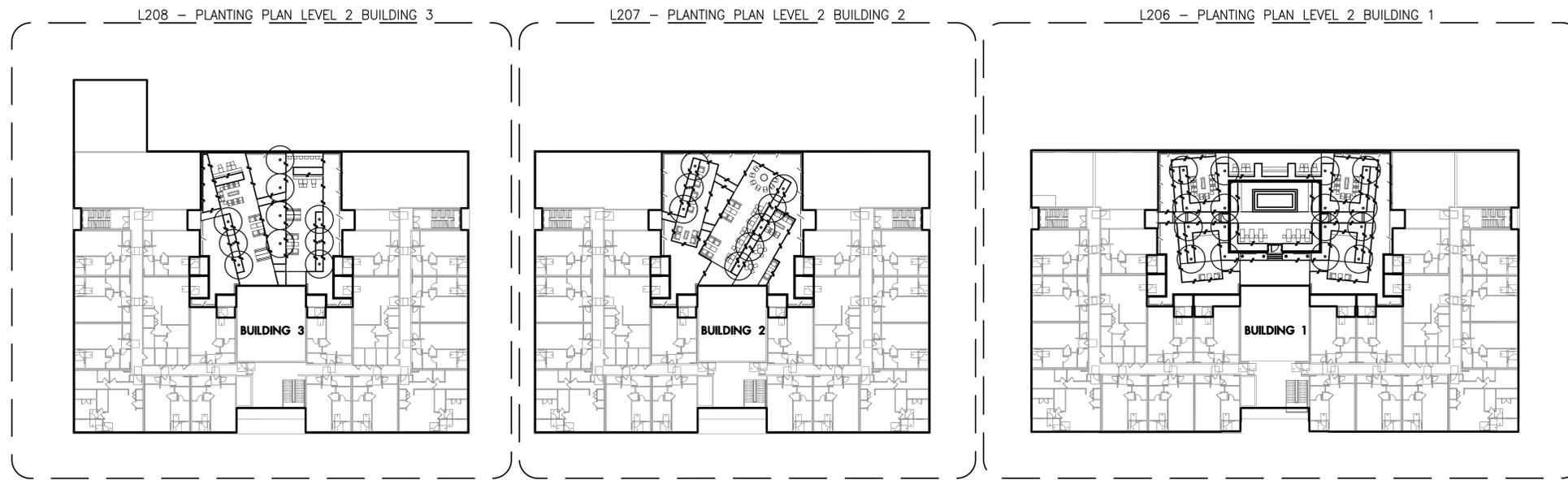
PLANTING PLAN LEVEL 2  
OVERALL

REVISIONS

SCALE  
DRAWN BY  
DATE 2024.03.15  
PROJECT NO. 2346-SAC

SHEET

**L205**



**1 PLANTING PLAN LEVEL 2 OVERALL**

Plan  
SCALE: 1" = 40'

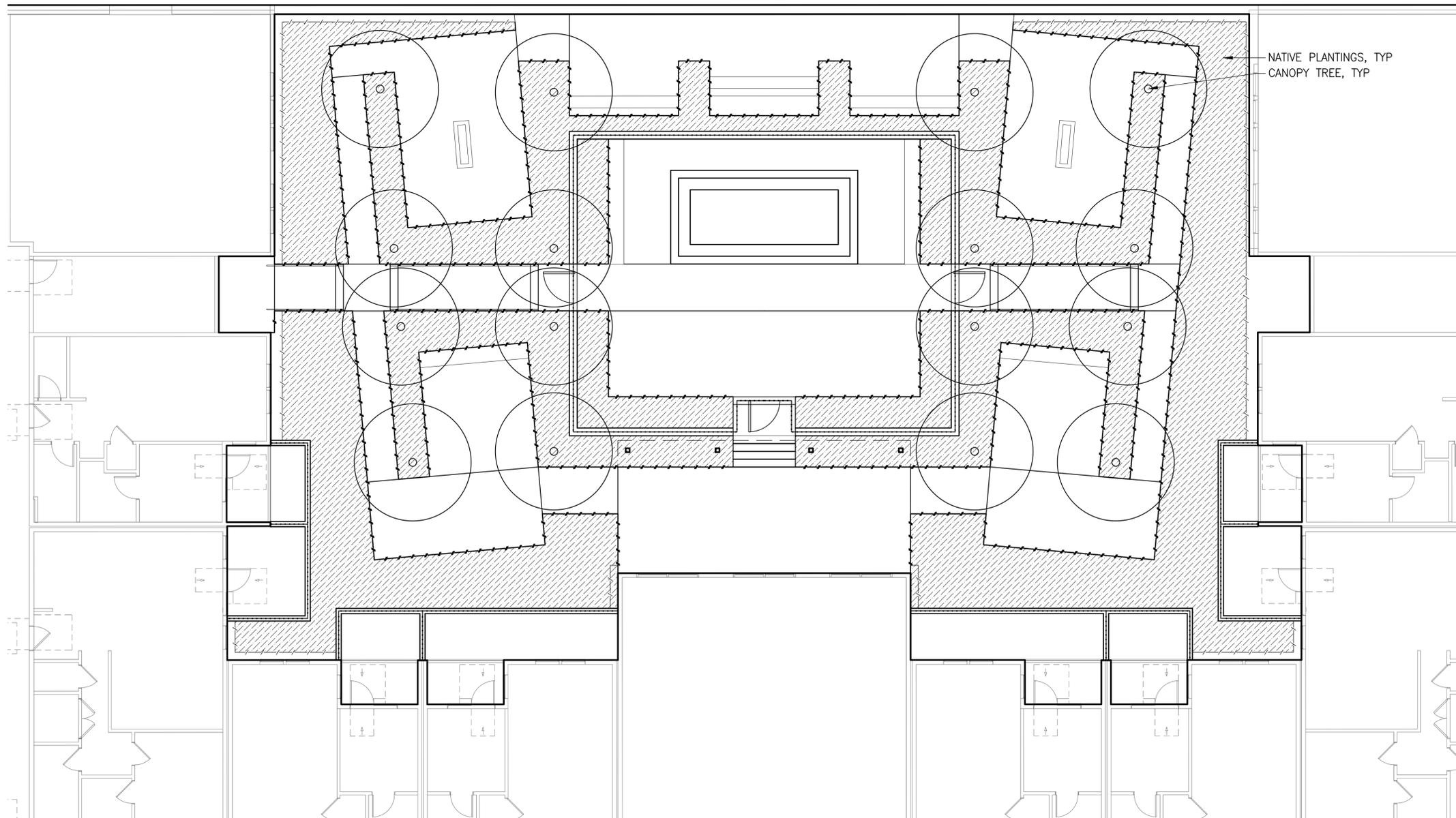


**LEGEND**

- LIMIT OF WORK
- - - METAL EDGE
- - - RAISED PLANTER
- - - SCREEN FENCE
- ▨ NATIVE PLANTINGS
- CANOPY TREE

**PLANTING NOTES**

1. SEE L201 FOR GENERAL NOTES AND ABBREVIATIONS.



NATIVE PLANTINGS, TYP  
CANOPY TREE, TYP

1 PLANTING PLAN LEVEL 2 BUILDING 1

Plan  
SCALE: 1/8" = 1'-0"



**THE CANNERY**

1105 FRONT ST NE,  
SALEM, OR 97301

LAND USE SUBMITTAL

PLANTING PLAN LEVEL 2  
BUILDING 1

REVISIONS

SCALE  
DRAWN BY  
DATE 2024.03.15  
PROJECT NO. 2346-SAC

SHEET

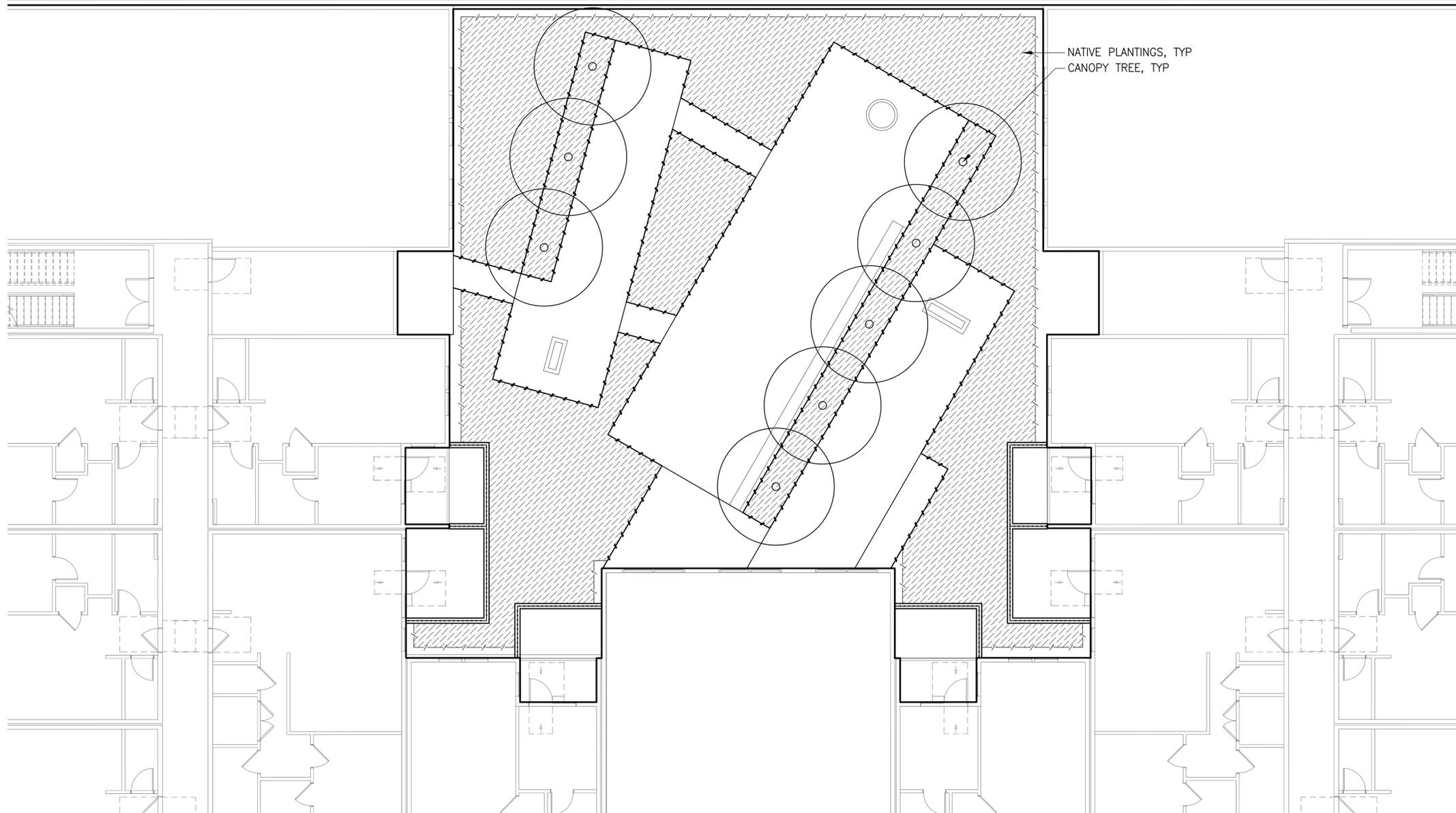
**L206**

**LEGEND**

- — — — — LIMIT OF WORK
- - - - - METAL EDGE
- - - - - RAISED PLANTER
- - - - - SCREEN FENCE
- ▨ NATIVE PLANTINGS
- CANOPY TREE

**PLANTING NOTES**

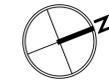
1. SEE L201 FOR GENERAL NOTES AND ABBREVIATIONS.



NATIVE PLANTINGS, TYP  
CANOPY TREE, TYP

1 PLANTING PLAN LEVEL 2 BUILDING 2

Plan  
SCALE: 1/8" = 1'-0"



LANDSCAPE ARCHITECTS P.C.  
**lango. hansen**  
1100 nw glisan #3A portland OR 97209 T 503.295.2437

**THE CANNERY**

1105 FRONT ST NE,  
SALEM, OR 97301

LAND USE SUBMITTAL  
PLANTING PLAN LEVEL 2  
BUILDING 2

REVISIONS

SCALE  
DRAWN BY  
DATE 2024.03.15  
PROJECT NO. 2346-SAC

SHEET

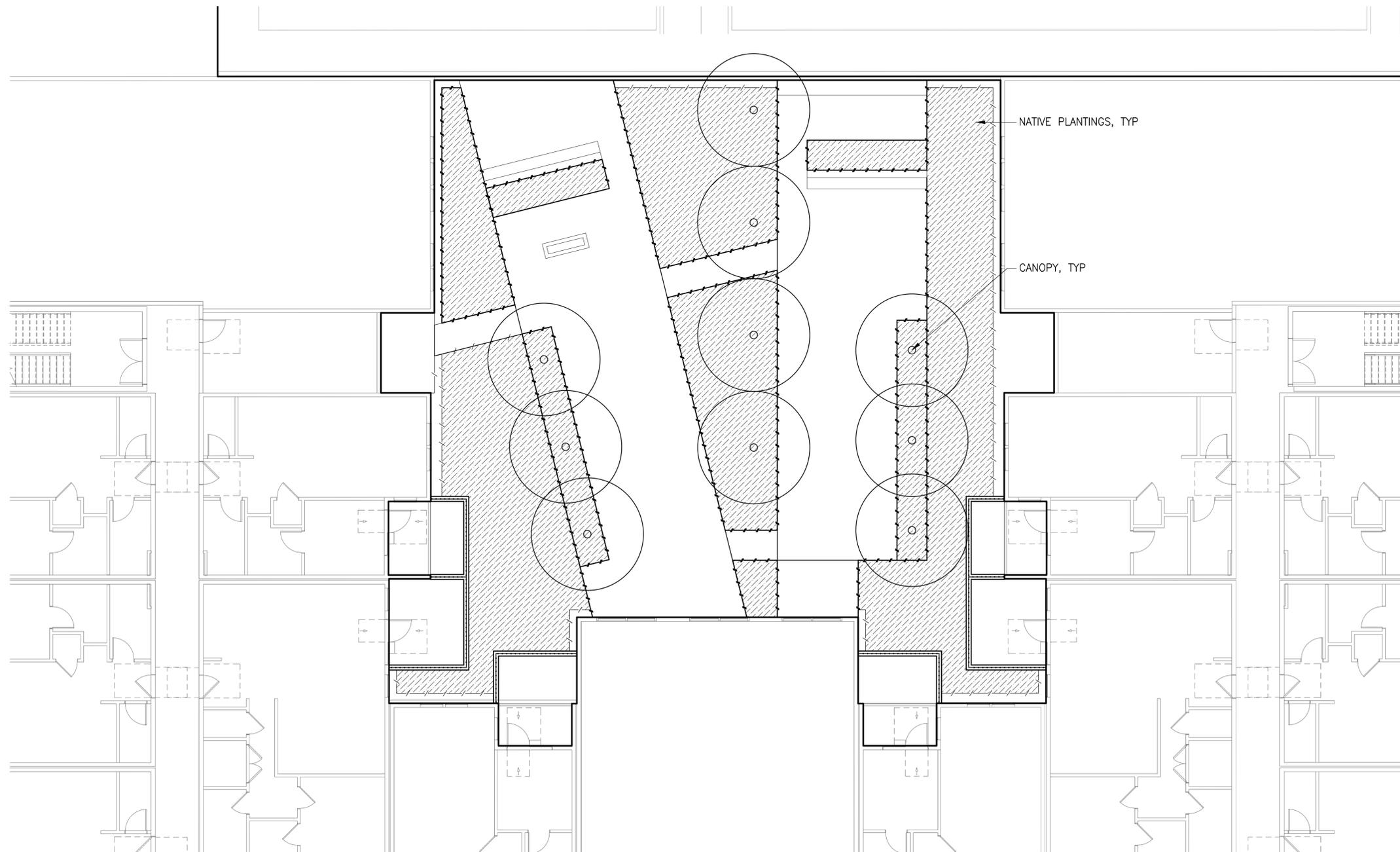
**L207**

**LEGEND**

- — — — — LIMIT OF WORK
- - - - - METAL EDGE
- - - - - RAISED PLANTER
- - - - - SCREEN FENCE
-  NATIVE PLANTINGS
-  CANOPY TREE

**PLANTING NOTES**

1. SEE L201 FOR GENERAL NOTES AND ABBREVIATIONS.



1 PLANTING PLAN LEVEL 2 BUILDING 3

Plan  
SCALE: 1/8" = 1'-0"



**THE CANNERY**

1105 FRONT ST NE,  
SALEM, OR 97301

LAND USE SUBMITTAL

PLANTING PLAN LEVEL 2  
BUILDING 3

REVISIONS

SCALE  
 DRAWN BY  
 DATE 2024.03.15  
 PROJECT NO. 2346-SAC

SHEET

**L208**

# **Attachment I: Marion County Subdivision/Condominium Name Request Forms**

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# Submittal Transmittal

AKS Engineering & Forestry LLC

FROM: Paige VanLaanen  
AKS Engineering & Forestry LLC  
vanlaanenp@aks-eng.com  
503-400-6028

TO: Marion County Surveying  
Marion County Surveyor  
5155 Silverton Road NE, Bldg #1  
Salem, OR 97305  
marioncountysurveyor@co.marion.or.us  
503-588-5155

PROJECT:	The Cannery 5968-01	DATE SENT:	5/28/2024
SUBJECT:	Subdivision Name Reservation	ID:	00225
PURPOSE:	For Review	VIA:	Email

REMARKS: [Subd Name Reservation Rqst; MarCo Sub 2](#)

#### CONTENTS

QTY:	DATED	DESCRIPTION:	ACTION:
1	5/28/2024	5968-01 20240528 MarCo Name Reservation_TL600.pdf	

QTY:	DATED	DESCRIPTION:	ACTION:
1	5/28/2024	5968-01 20240528 MarCo Name Reservation_TL300&900.pdf	

#### COPIES

Grace Wolff (AKS Engineering & Forestry LLC)

**MARION COUNTY  
SUBDIVISION/CONDOMINIUM NAME REQUEST**

Marion County Surveyor – 5155 Silverton Road NE, Salem, OR 97305  
Fax: 503-588-7970 Phone: 503-588-5155 Email: [MarionCountySurveyor@co.marion.or.us](mailto:MarionCountySurveyor@co.marion.or.us)

Proposed Subdivision Name\*: \_\_\_\_\_  
(Please do not use the word "Subdivision" in the name.)

Proposed Condominium Name\*: \_\_\_\_\_  
(Must include either the word Condominium, Condominiums, or A Condominium)

**\*Subject to consent by prior party if name was previously used in a recorded plat, per ORS 92.090(1).**

**NOTE: Reserved names expire 2 years from original approval date.**

Renewal? Yes No  
\_\_\_\_\_

Owner Name: \_\_\_\_\_

Address: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_ Date: \_\_\_\_\_

Location: Is the subdivision in a city? Yes No  
\_\_\_\_\_

City Name: \_\_\_\_\_

Tax Map and Taxlot Number: 07 3W 22AB, Tax Lot 600

**Office Use Only**

Date Received: \_\_\_\_\_

\_\_\_\_\_ Approved as Submitted **(approval expires in 2 years)**

\_\_\_\_\_ Not Approved for the following reason(s):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_  
Marion County Surveyor

**MARION COUNTY  
SUBDIVISION/CONDOMINIUM NAME REQUEST**

Marion County Surveyor – 5155 Silverton Road NE, Salem, OR 97305  
Fax: 503-588-7970 Phone: 503-588-5155 Email: [MarionCountySurveyor@co.marion.or.us](mailto:MarionCountySurveyor@co.marion.or.us)

Proposed Subdivision Name\*: \_\_\_\_\_  
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Proposed Condominium Name\*: \_\_\_\_\_  
(Must include either the word Condominium, Condominiums, or A Condominium)

**\*Subject to consent by prior party if name was previously used in a recorded plat, per ORS 92.090(1).**

**NOTE: Reserved names expire 2 years from original approval date.**

Renewal? Yes No

Owner Name: \_\_\_\_\_

Address: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_ Date: \_\_\_\_\_

Location: Is the subdivision in a city? Yes No

City Name: \_\_\_\_\_

Tax Map and Taxlot Number: 07 3W 22AB, Tax Lots 300 & 900

**Office Use Only**

Date Received: \_\_\_\_\_

\_\_\_\_\_ Approved as Submitted **(approval expires in 2 years)**

\_\_\_\_\_ Not Approved for the following reason(s):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_  
Marion County Surveyor

# Attachment J: Responses to Additional SRC Standards

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## SALEM REVISED CODE: TITLE X – UNIFIED DEVELOPMENT CODE

### Chapter 250 Adjustments

#### 250.005. Adjustments.

##### (a) Applicability.

##### (1) Classes.

- (A) A Class 1 adjustment is an adjustment to any numerical development standard in the UDC that increases or decreases the standard by not more than 20 percent.
- (B) A Class 2 adjustment is an adjustment to any development standard in the UDC other than a Class 1 adjustment, including an adjustment to any numerical development standard in the UDC that increases or decreases the standard by more than 20 percent.

**Response:** The following Class 2 Adjustments are requested as a part of this completeness response:

- Class 2 Adjustment to reduce the required 5-foot landscape setback for parking garages abutting interior property lines, per SRC 806.035(c)(5), to 0 feet (100 percent reduction).
- Class 2 Adjustment to reduce the required 5-foot landscape setback for vehicle use areas abutting interior property lines, per SRC 536.015(c), to 0 feet (100 percent reduction).
- Class 2 Adjustment for an alternative vision clearance area standard for Belmont Alley.

##### (2) Prohibition. Notwithstanding subsection (a)(1) of this section, an adjustment shall not be granted to:

- (A) Allow a use or activity not allowed under the UDC;
- (B) Change the status of a use or activity under the UDC;
- (C) Modify a definition or use classification;
- (D) Modify a use standard;
- (E) Modify the applicability of any requirement under the UDC;
- (F) Modify a development standard specifically identified as non-adjustable;
- (G) Modify a development standard that contains the word "prohibited";
- (H) Modify a procedural requirement under the UDC;
- (I) Modify a condition of approval placed on property through a previous planning action;
- (J) A design review guideline or design review standard, except Multiple Family Design Review Standards in SRC Chapter 702, which may be adjusted; or
- (K) The required landscaping in the Industrial Business Campus (IBC) Zone.

**Response:** The requested Class 2 Adjustments included within this completeness response do not request an adjustment for any of the prohibited items listed above.

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[...]

(d) **Criteria.**

(2) **An application for a Class 2 adjustment shall be granted if all of the following criteria are met:**

(A) **The purpose underlying the specific development standard proposed for adjustment is:**

- (i) **Clearly inapplicable to the proposed development; or**
- (ii) **Equally or better met by the proposed development.**

**Response:**

The Class 2 Adjustments included in this completeness response address development standards that are clearly inapplicable to the project or are equally met by the project as detailed below.

- Class 2 Adjustment to reduce the required 5-foot landscape setback for parking garages abutting interior property lines, per SRC 806.035(c)(5), to 0 feet (100 percent reduction).

Parking garage setbacks are generally intended to screen vehicles from neighboring properties and create a more visually appealing pedestrian environment. The parking garages within Buildings 1, 2, and 3 abut interior property lines for a total of ±22 feet at each entrance. Although these portions of the parking garages abut interior property lines, they are a part of the same mixed-use community site. Furthermore, these portions of the parking garages are comprised of a wall that fully screens vehicles within the parking garage and is planned to include murals/public art which equally meets the purpose of the standard because it will create an engaging and appealing pedestrian environment. Adding a landscape setback along ±22 feet of the building would decrease the space provided for pedestrian access and create an inconsistent frontage of the buildings. This criterion is met.

- Class 2 Adjustment to reduce the required 5-foot landscape setback for vehicle use areas abutting interior property lines, per SRC 536.015(c), to 0 feet (100 percent reduction).

Setbacks from internal property lines typically aim to enhance safety, functionality, and aesthetics between neighboring properties and developments. The subject internal property lines where the vehicle use areas are required to have a 5-foot landscape setback are internal to the overall mixed-use community site. Furthermore, Buildings 1, 2, and 3 are located along the internal property line as permitted in SRC 536.015(c). Although Buildings 1, 2, and 3 are located on separate lots, they are a part of the same mixed-use community site. Per SRC 806.035(c)(4), when a vehicle use area is located internally to the site, the required 5-foot setback from a building may be fulfilled by a minimum 5-foot-wide paved pedestrian walkway. Pedestrian walkways exceeding 5 feet in width are provided between the site entrance driveways and the buildings which are located along the property line as permitted in SRC 536.015(c). This equally meets the purpose of the standard by providing a setback

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that better fits the character of the mixed-use community and enhances the aesthetics and functionality of the pedestrian circulation. This criterion is met.

Setbacks from internal property lines typically aim to enhance safety, functionality, and aesthetics within a development. In this case, the requested setback applies to vehicle use areas bordering internal lines at a mixed-use community. While Buildings 1, 2, and 3 are planned as separate lots, they are all part of the same development complex. This is important because SRC 806.035(c)(4) allows alternative solutions for internal setbacks. For instance, the code permits a minimum 5-foot-wide paved pedestrian walkway to replace the standard 5-foot landscape setback for internal vehicle use areas. The Cannery adheres to this by providing pedestrian walkways exceeding 5 feet in width, as permitted by SRC 536.015(c). This wider walkway effectively fulfills the safety, functionality, and aesthetic goals traditionally achieved by a landscape setback, and may even better suit the character of the mixed-use community.

- Class 2 Adjustment for an alternative vision clearance area standard for Belmont Alley.

Belmont Alley does not meet the vision clearance standards of SRC Chapter 805. Alternative vision clearance area standards are required. Measuring vision clearance triangles along the property line and the sides of the driveway does not give consideration to the location of the drivers when turning out of the property. Drivers will position themselves closer to the intersection due to the longer driveway approach that extends past the property line, the sidewalk configuration along the stretch of Front Street, and the location of on-street parking as determined through the coordination between the Applicant, the City, and affected rail stakeholders regarding the ultimate design for Front Street NE. At a location closer to the intersection of the vehicle travel lanes of the driveway and Front Street NE, vision clearance will be unobstructed. The TIA in Attachment L provides justification for the alternative vision clearance standard and demonstrates that it meets acceptable sight distance requirements. This criterion is met.

(B) If located within a residential zone, the proposed development will not detract from the livability or appearance of the residential area.

**Response:** The subject property is within the MU-R zoning district, not a residential zone. This criterion does not apply.

(C) If more than one adjustment has been requested, the cumulative effect of all the adjustments result in a project which is still consistent with the overall purpose of the zone.

**Response:** The purpose of the MU-R zoning district is to enhance the overall community experience along Salem’s historic riverfront by creating a district where residents can live, work, and engage in social and recreational activities in proximity to the Willamette River. As detailed in the responses above, the requested adjustments are consistent with the overall purpose of the standards and cumulatively create a more harmonious neighborhood that reflects the unique characteristics of the site. This criterion is met.

600.010. Willamette Greenway Overlay Zone boundary; compatibility review boundary.

- (a) Willamette Greenway Overlay Zone boundary. The boundary of the Willamette Greenway Overlay Zone shall be the Willamette Greenway Boundary, as mapped by the Oregon Department of Transportation. At the time of annexation, the Willamette Greenway Overlay Zone shall be automatically applied to any land, or portion thereof, within the annexed territory that lies within the Willamette Greenway Boundary.

**Response:** The Willamette River Greenway Overlay Zone boundary is defined as that boundary which is mapped by the Oregon Department of Transportation (ODOT). Applicant's surveyor utilized the legal description of the Willamette River Greenway per ODOT's Willamette River Greenway Plan for the City of Salem from September 10, 1979. However, the legal description provided within the document is vague and the boundary's location could be interpreted in a variety of ways. For simplicity, the Willamette Greenway Boundary per City data has been added to the revised Preliminary Site Plan and other applicable revised plans in Attachment F.

- (b) **Compatibility Review Boundary.** The Compatibility Review Boundary is that area within the Willamette Greenway Overlay Zone that is located along each bank of the Willamette River, and lying 150 feet from the ordinary low water line of the Willamette River.

**Response:** The Compatibility Review Boundary, measured 150-foot landward of the ordinary low water line mapped by Applicant's surveyor, has been added to the revised Preliminary Site Plan and other pertinent revised plans in Attachment F. Please note that City data indicates the Compatibility Review Boundary extends further into the site. However, this additional area is not depicted on the Site Plan but will be considered when determining the class of Willamette Greenway development permit required.

600.015. Willamette Greenway development permit.

- (a) Applicability.

- (1) Except as provided under subsection (a)(2) of this section, no intensification, change of use, or development within the Willamette Greenway Overlay Zone shall occur unless a greenway development permit has been issued pursuant to this chapter.
- (2) Exceptions. A greenway development permit is not required for:
- (A) Maintenance of scenic easements acquired under ORS 390.368;
  - (B) Addition or modification of existing utility lines, wires, fixtures, equipment, circuits, appliances, and conductors by public or municipal utilities;
  - (C) Flood emergency procedures, and maintenance and repair of existing flood control facilities;
  - (D) Placement of signs, markers, aids, etc., by a public agency to serve the public;
  - (E) Residential accessory uses, such as lawns, gardens, and play areas in existence prior to June 9, 2004;
  - (F) Landscaping undertaken in accordance with this chapter;

- 
- (G) Storage of material or equipment associated with uses permitted outright within RA (Residential Agricultural) and RS (Single Family Residential) Zones, provided that the storage complies with all applicable provisions of the UDC;
  - (H) Seasonal increases in gravel operations, subject to any conditions imposed by law, ordinance, or conditional use approval;
  - (I) Improvement of a public park, in accordance with an officially approved master plan and the setback requirements of this chapter;
  - (J) Alterations of buildings or accessory structures which do not increase the size or alter the configuration of the building or accessory structure footprint;
  - (K) Activities allowed within the underlying zone which are usual and necessary for the use and enjoyment of an existing residence, including the modification of existing accessory structures;
  - (L) Ordinary maintenance and repair of buildings, structures, parking lots, or other site improvements that were in existence prior to June 9, 2004;
  - (M) Removal of nuisance or invasive non-native vegetation identified on the City of Salem Plant List, and consistent with erosion prevention and sediment control standards in SRC chapter 75; or
  - (N) Development of a Willamette Greenway trail or access paths, provided that all development and management standards meet the requirements of adopted parks management plans.

**Response:** As indicated in the written narrative of the original submittal, while a portion of the subject site is located within the Willamette River Greenway boundary, great care has been taken to design the project in a manner that does not result in impacts to this area. Planned activities in the Willamette River Greenway boundary include alterations to existing buildings that do not increase the size or alter the configuration of building footprints (SRC 600.015[a][2][J]); ordinary maintenance and repair of buildings that existed prior to June 9, 2024 (SRC 600.015[a][2][L]); and, development of a Willamette Greenway trail or public access path (SRC 600.015[a][2][N]). Per SRC 600.015(a)(2), a greenway development permit is not required for this work. Please see the City's August 8, 2023, interpretation decision in Exhibit K of the original submittal confirming these exceptions.

City staff have determined that the Willamette River Greenway Boundary identified per City data extends further into the site compared to the boundary originally identified by the Applicant. This necessitates review of additional site improvements through a Willamette Greenway development permit. As shown on the revised Preliminary Site Plan in Attachment F, these additional improvements consist of: 1) a portion of the parking area located between Buildings 2,3 and 4; and 2) a portion of Building 3. A Willamette Greenway development permit is included with this completeness response.

(b) Classes.

- (1) Class 1 greenway development permit. A Class 1 greenway development permit is a permit for any intensification, development, or change of use occurring within the Willamette Greenway, but outside of the compatibility review boundary.

- 
- (2) Class 2 greenway development permit. A Class 2 greenway development permit is a permit for any intensification, development, or change of use occurring inside of the compatibility review boundary.

**Response:** City data indicates the Compatibility Review Boundary extends further into the site than the boundary measured 150 feet from the ordinary low water line mapped by Applicant's surveyor. Although this additional area is not depicted on the Site Plan, a Class 2 greenway development permit is included in this completeness response, as requested by City staff.

(c) Procedure type.

- (1) Class 1 greenway development permit. A Class 1 greenway development permit is processed as a Type II procedure under SRC chapter 300.
- (2) Class 2 greenway development permit. A Class 2 greenway development permit is processed as a Type III procedure under SRC chapter 300.

**Response:** With the addition of this Class 2 greenway development permit, this consolidated land use application will be elevated to the Type III procedure under SRC Chapter 300.

(d) Submittal requirements. In addition to the submittal requirements under SRC chapter 300, an application for a Class 1 or Class 2 greenway development permit shall include the following:

- (1) An existing conditions plan, of a size and form and in the number of copies meeting the standards established by the Director, containing the following information:
  - (A) The total site area, dimensions, and orientation relative to north;
  - (B) Site topography shown at five-foot contour intervals, or two-foot contour intervals for areas within a floodplain;
  - (C) The location of existing buildings, accessory structures, and other improvements on the site, including parking areas, loading areas, driveways and driveway approaches, fences, and walls, and whether they are to be removed;
  - (D) The location of the 100 year floodplain, if applicable; and
  - (E) The location of drainage patterns and drainage courses, if applicable.

**Response:** An Existing Conditions Plan is included in the revised Preliminary Land Use Plans in Attachment F of this completeness response. This requirement is met.

- (2) A site plan, of a size and form and in the number of copies meeting the standards established by the Director, containing the following information:
  - (A) The total site area, dimensions, and orientation relative to north;
  - (B) The use, location, distance to property lines, and height of all proposed buildings and accessory structures;
  - (C) The location, distance to property lines, and layout of all proposed parking areas, including the size, number, and dimensions of proposed spaces;
  - (D) The location of all proposed driveways and driveway approaches;
  - (E) The location and square footage of all proposed landscaping;
  - (F) The location, height, and material of all proposed fences, walls, berms, and other proposed screening;

- 
- (G) The location of all trees and vegetation required to be protected pursuant to SRC chapter 808;
  - (H) The location of the riparian buffer required under SRC 600.025(c)(2);
  - (I) The location of the ordinary low water line and the ordinary high water line; and
  - (J) The location of proposed pedestrian circulation areas.

**Response:** All applicable information listed above is included on the Preliminary Site Plan in the revised Preliminary Land Use Plans in Attachment F, revised Preliminary Landscape Plans in Attachment H, and the revised Preliminary Building Elevations and Floor Plans in Attachment K of this completeness response. This requirement is met.

- (3) Identification of the color and exterior surface materials of all proposed buildings, structures, fences, walls, and mechanical equipment.

**Response:** The color and exterior surface materials of all proposed buildings, structures, fences, walls and mechanical equipment are identified on the revised Preliminary Building Elevations and Floor Plans in Attachment K of this completeness response, as applicable. This requirement is met.

- (4) A mitigation plan containing the following:
  - (A) Identification of a wider riparian buffer, in compliance with the standards set forth in SRC 600.025(c)(3)(A), if a greater riparian buffer is chosen as a mitigation measure under SRC 600.025(c)(3).
  - (B) An enhancement plan, in accordance with the Willamette Greenway Riparian Buffer Enhancement Guide, if riparian buffer enhancement is chosen as a mitigation measure under SRC 600.025(c)(3).
  - (C) An off-street parking stormwater management plan, in compliance with the standards set forth in SRC 600.025(c)(3)(C), if off-street parking design standards for stormwater quantity and quality are chosen as a mitigation measure under SRC 600.025(c)(3).
  - (D) A tree planting plan, in compliance with the standards set forth in SRC 600.025(c)(3)(D) if tree planting for stormwater management is chosen as a mitigation measure under SRC 600.025(c)(3).
  - (E) The location and design of proposed alternative paving techniques, in accordance with the standards set forth in SRC 600.025(c)(3)(E), if utilization of alternative paving techniques is chosen as a mitigation measure under SRC 600.025(c)(3).

**Response:** A wider riparian buffer will not be utilized as a mitigation measure. This requirement is not applicable.

- (5) A report by a certified engineering geologist or geotechnical engineer demonstrating that the standards specified in SRC 600.025(a)(2) have been met.

**Response:** A Geotechnical Engineering Report was included in the original submittal as Exhibit G. This requirement is met.

- (6) A report by a registered professional engineer detailing the hydraulic and flood carrying capacity of the river.

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**Response:** Per coordination with City staff, a report detailing the hydraulic and flood carrying capacity of the river may not be required due to the project only impacting currently disturbed areas and because no work will occur within the floodplain.

(e) **Criteria.**

[...]

(2) **Class 2 greenway development permit. An application for a Class 2 greenway development permit shall be granted if all of the following criteria are met:**

(A) **The proposed intensification, development, or change of use is consistent with:**

(i) **The Willamette River Greenway Plan;**

(ii) **The Willamette Greenway Riparian Buffer Enhancement Guide;**

**Response:** The Willamette River Greenway Plan was adopted to achieve the following objectives:

- To protect and enhance the natural, scenic, recreational, historical, and economic resources of the Willamette River corridor.
- To make the natural, scenic, recreational, historical, and economic resources available for the proper use and enjoyment of the Salem urban area resident.
- To balance the needs and demands of commerce, industry, and people for access to the unique resources of the river.
- To allow for use and development consistent with the Greenway concept and the Salem Area Comprehensive Plan policies.
- To allow and encourage a variety of recreational developments and types of public access to and along the river while preserving, protecting, and enhancing the scenic qualities of the river and the riparian environment.

Planned improvements within the Willamette River Greenway Boundary encompass an extension of the Willamette Greenway Path, adaptive reuse of existing structures, and landscape and open space elements designed to enhance river views and create a more integrated outdoor experience for tenants and guests. An area within the Willamette River Greenway Boundary, which is currently developed with pavement and a structure will also accommodate a portion of the parking area serving the mixed-use community and a mixed-use building. These improvements are not located within the riparian buffer and will result in a reduction of permanent ground-disturbing activities on site and create new areas for riparian vegetation, open space, and opportunities for active and passive enjoyment of the Willamette River while allowing existing urban uses that promote economic viability, all of which are consistent with the Willamette River Greenway Plan. These criteria are met.

(iii) **The applicable standards of this chapter; and**

**Response:** Conformance with the applicable standards of this chapter is detailed in this completeness response. This criterion is met.

- 
- (iv) Where applicable, the stormwater runoff water quality standards adopted and administered by the Public Works Department.

**Response:** A Preliminary Stormwater Report was provided as Exhibit H of the original submittal which details how the stormwater quantity and quality management is planned to comply with all applicable standards. Additional comments received from City staff as a part of this completeness review are being coordinated (Attachment M). This criterion is met.

- (B) The proposed intensification, development, or change of use complies with all applicable development standards in the UDC.

**Response:** Conformance with all applicable development standards in the UDC are detailed in the original application submittal and these additional SRC responses. This criterion is met.

- (C) The proposed intensification, development, or change of use will, to the greatest extent possible, provide the maximum possible landscaped area, open space, or vegetation.

**Response:** The revised Preliminary Landscape Plans in Attachment H detail the planned landscaping, which prioritizes conserving and restoring native vegetative cover within the Willamette Greenway Boundary and the entire site. All new plantings will be native species. Furthermore, most of the site area subject to the greenway development permit is currently developed with pavement and structures and has minimal vegetation. The planned improvements will significantly improve the landscaped area, open space, and vegetation on site as shown on the Preliminary Landscape Plans. This standard is met.

- (f) Conditions of approval.

- (1) Conditions may be imposed on any greenway development permit necessary to insure that proposed intensification, development, or change of use complies with the Willamette River Greenway Plan and the purpose of this chapter, and preserves and enhances the natural, scenic, historic, and recreational qualities of the Willamette River Greenway.

**Response:** This provision is understood. Conformance with the Willamette River Greenway Plan and the purpose of this chapter is detailed above. No additional conditions of approval are anticipated to ensure conformance.

- (2) In addition to any conditions imposed under subsection (f)(1) of this section, every greenway development permit shall include the following conditions:

- (A) Prior to any excavation, grading, or construction, a survey map, certified by a licensed professional land surveyor, shall be submitted to the Director showing the Willamette Greenway Boundary and its relationship to the site and survey monuments thereon.

- (B) Prior to any excavation, grading, or construction, plans for removal and replacement of any native vegetation shall be submitted to and approved by the Director.

**Response:** This provision is understood.

Development within the Willamette Greenway Overlay Zone must comply with the development standards applicable in the underlying zone and the development standards set forth in this section. The development standards in this section are in addition to, and not in lieu of, all other applicable development standards in the underlying zone. Where the development standards in this section conflict with the development standards applicable in the underlying zone or any other overlay zone, the development standards in this section shall be the applicable development standard.

(a) General standards.

- (1) Existing predominant topographical features of the bank and escarpment shall be preserved and maintained, with the exception of disturbance necessary for:
  - (A) The construction or establishment of a water-related, water-dependent, or river-oriented use or activity; and
  - (B) Measures necessary to reduce existing or potential bank and escarpment erosion, landslides, or flood hazard conditions.

**Response:** As indicated in the original submittal, existing predominant topographical features of the bank and escarpment will be preserved and maintained as shown on the Preliminary On-Site Demolition Plan in Attachment F. This standard is met.

- (2) The slope, soil characteristics, and other physiographic conditions existing within the land area between the ordinary low water line and the Willamette Greenway Boundary shall be considered to assure that the proposed intensification, development, or change of use will not adversely affect the stability of the land area.

**Response:** Only minor improvements (e.g. building maintenance, reducing the footprint of an existing building, and a public pathway) and improvements over currently developed areas on site are planned in the Willamette River Greenway boundary. A Geotechnical Engineering Report was provided in Exhibit G of the original submittal to ensure that the project would not adversely affect the stability of the land area. This standard is met.

- (3) The hydraulic effect of the Willamette River on the bank shall be considered in the design of any proposed intensification, development, or change of use.
- (4) The hydraulic and flood carrying capacity of the river shall be considered in the design of any proposed intensification, development, or change of use.

**Response:** Only minor improvements (e.g. building maintenance, reducing the footprint of an existing building, and a public pathway) and improvements over currently developed areas on site are planned in the Willamette River Greenway boundary. The hydraulic effect of the Willamette River on the bank and the flood carrying capacity of the river were considered in the design of the project, and should not be impacted. This standard is met.

- (5) Impact on the riparian buffer resulting from the proposed intensification, development, or change in use shall be minimized.

**Response:** As indicated in the original submittal, the project's impact on the riparian buffer is minimized to only those actions exempt from a Willamette Greenway permit. This standard is met.

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(b) Landscaping.

- (1) Landscaping shall conserve, or if disturbed by the development activity restore to the greatest extent possible, vegetative cover within the Willamette Greenway Boundary. Landscaping is not required where it would significantly interfere with a water-dependent or water-related use or activity.

**Response:** As indicated in the original submittal, the planned landscaping as shown on the revised Preliminary Landscape Plans in Attachment H, will conserve and restore, to the greatest extent possible, vegetative cover within the Willamette Greenway Boundary. All new landscaping will be comprised of native species. This standard is met.

- (2) Native vegetation removed from the riparian buffer shall be replaced with native vegetation which is compatible with and enhances the functions of the riparian buffer.

**Response:** No native vegetation is planned for removal from the riparian buffer. All new vegetation planned for the site, including that to be placed within the riparian buffer will be native vegetation that is compatible with and enhances the functions of the riparian buffer as shown on the Preliminary Landscape Plans in Exhibit C. This standard is met.

- (3) Trees and shrubs shall be provided as follows:

- (A) A minimum of one tree shall be provided for every 20 feet of river frontage.
- (B) A minimum of one shrub shall be provided for every two feet of river frontage.
- (C) All trees and shrubs shall be planted within and generally riverward of the Willamette Greenway Boundary.
- (D) The planting standards included under subsections (b)(3)(A) and (B) of this section are for calculation purposes only, and do not require linear planting. Groupings of trees, shrubs, or both are encouraged, particularly along the riverbank.

**Response:** As detailed on the revised Preliminary Landscape Plans in Attachment H, the project site has ±894 feet of river frontage which requires a minimum of 45 trees ( $894/20 = 44.7$ ) and 447 shrubs ( $894/2 = 447$ ). Fifty-seven existing trees on-site are located within the Willamette Greenway Boundary and six additional trees are planned to be planted within the boundary, providing a total of 63 trees. Additionally, 699 new shrubs are planned to be provided within the Willamette Greenway Boundary. These standards are met.

- (4) Areas which are not paved or revetted shall be planted with living ground cover.

**Response:** As indicated in the original submittal, areas that are not paved or revetted will be planted with living ground cover. This standard is met.

(c) Water quality.

- (1) Water quality development standards, generally. In order to protect and improve water quality within the Willamette Greenway Boundary, a riparian buffer, as set forth in subsection (c)(2) of this section, along with one or more of the mitigation measures, as set forth in subsection (c)(3) of this section, shall be established.

- 
- (2) Riparian buffer. A riparian buffer shall be established as set forth in this subsection.
- (A) Boundary. The applicant shall establish the riparian buffer boundary by choosing one of the following two methods:
- (i) Method 1. Method 1 provides a relatively simple methodology for establishing a uniform riparian buffer boundary based on three bank slope measurements. The three bank slope measurements shall be taken along the Willamette River, one at each property line and one located at the center of the property, as determined by measuring the property line parallel to the Willamette River, and dividing it by two. Example: A 150-foot property line adjoining the Willamette River would result in bank slope measurements starting at the first property line, the 75-foot mark, and then the other property line. The riparian buffer boundary pursuant to Method 1 shall be established as set forth in Table 600-1.
- (ii) Method 2. Method 2 enables properties with varying bank slopes to establish a varying riparian buffer boundary reflecting site conditions and maximizing the area available for development. Bank slope measurements shall be taken along the Willamette River spaced at intervals no greater than 20 feet along ordinary high water line. The riparian buffer boundary pursuant to Method 2 shall be established as set forth in Table 600-2.
- (B) When the riparian buffer measures more than 100 feet or 125 feet, depending on the bank slope, from the ordinary high water line, the property shall receive credit for meeting the wider riparian buffer mitigation measure under SRC 600.025(c)(3)(A).

**Response:** The riparian buffer boundary is shown on the Preliminary Site Plan in Exhibit A. The boundary was established through Method 2. Refer to Attachment P of this completeness response. This standard is met.

- (3) Mitigation measures. A mitigation plan, to mitigate the effects of any intensification, development, or change of use, shall be provided based on one of the following mitigation measures:

**Response:** As indicated in the original submittal, mitigation measure (C) will be utilized to mitigate any effects of the planned improvements within the Willamette Greenway Boundary, as detailed below.

[...]

- (C) Off-street parking stormwater quantity and quality. Parking lot construction which gives consideration to the quantity and quality of stormwater generated by any new or expanded impervious surface area may be provided as a mitigation measure when such parking lot construction complies with the following standards:
- (i) On-site stormwater detention shall be provided in accordance with the City's Stormwater Management Design Standards. On-site retention facilities, with no direct discharge into the Willamette River, shall be used to the maximum extent practicable.

- 
- (ii) Any new parking lot that creates more than 500 square feet of impervious surface, or any parking lot that redevelops more than 500 square feet of impervious surface, may use parking area landscaping required under SRC chapter 806 to manage stormwater from the new or redeveloped area. If such landscaped area does not allow for adequate sizing of the stormwater facilities, the applicant may choose one of following options:
    - (aa) Increase the landscape area within the parking lot to accommodate the required stormwater facility size; or
    - (bb) Use additional stormwater management facilities, which may include non-landscaped approaches, to obtain the required level of treatment.
  - (iii) Stormwater treatment facilities shall be designed in accordance with the City's Stormwater Management Design Standards, or in the absence of specific design criteria therein, in accordance with generally accepted standards in the industry. All treatment facilities shall be designed to remove pollutants, including, but not limited to, principally settleable solids, total suspended solids, oil, and grease, to the maximum extent practicable. Any of the following approaches may be used to remove pollutants:
    - (aa) Landscape planters;
    - (bb) Trees;
    - (cc) Landscape vegetated or grassy swales;
    - (dd) Vegetative filters;
    - (ee) Landscape filters;
    - (ff) Sand filters;
    - (gg) Permeable or porous pavement;
    - (hh) Soakage trenches;
    - (ii) Infiltration trenches;
    - (jj) Proprietary engineered devices approved by the Director, when supporting technical information from the manufacturer is provided including hydraulic design criteria, particulate removal efficiency, and operations and maintenance requirements and schedule; or
    - (kk) Other site-specific measures sufficient to remove pollutants to the maximum extent practicable, as approved by the Director.
  - (iv) All approved stormwater quantity and quality facilities shall be carefully and properly designed and subsequently operated and maintained so as to avoid groundwater contamination, erosion and off-site sediment transport, landslide hazards, and other similar concerns identified in the City's Stormwater Management Design Standards.

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**Response:** A Preliminary Stormwater Report was provided as Exhibit H of the original submittal which details how the stormwater quantity and quality management is planned to comply with all applicable standards. Additional comments received from City staff as a part of this completeness review are being coordinated (Attachment M). These standards are met.

[...]

- (d) Structures. All buildings, structures, and exterior mechanical equipment shall be screened, colored, or surfaced so as to blend with the riparian area. Colors shall be natural earth or leaf tones. Surfaces shall be non-reflective. Screening shall be sight-obscuring.

**Response:** As indicated in the original submittal, all structures within the Willamette Greenway Boundary are designed with natural earth and leaf tones as shown on the revised Preliminary Building Elevations and Floor Plans in Attachment K. Additionally, existing vegetation and grade differences screen these structures from the river. This standard is met.

- (e) Lighting.
- (1) Lighting shall not flash, if visible from the Willamette River, and shall not be focused or oriented onto the surface of the Willamette River.
  - (2) The maximum aggregate intensity of all lighting falling on the surface of the Willamette River shall not exceed one-tenth foot-candle per square foot.
  - (3) No red or green lights shall be visible from the Willamette River.
  - (4) Notwithstanding any other provision of this section, lighting necessary for safety of pedestrians may be provided for public or private walkways.

**Response:** As indicated in the original submittal, planned lighting will confirm to the standards of this subsection. Lighting will not be focused on or oriented onto the surface of the Willamette River. Furthermore, no red or green lights are planned. The standards are met.

- (f) Screening of parking and unenclosed storage areas. Parking, loading, and unenclosed storage areas shall be screened from the Willamette River and from adjacent properties by:
- (1) A sight-obscuring berm; or
  - (2) A sight-obscuring hedge, a minimum of six feet in height at maturity. Hedges shall, when planted, be no less than three feet in height and shall be of a species capable of attaining a minimum height of six feet within three years after planting.

**Response:** A portion of the off-street parking area is located within the Willamette Greenway Boundary (per City data) as shown on the revised Preliminary Site Plan in Attachment F. This portion of the off-street parking area subject to the Willamette Greenway development permit will be screened from the Willamette River and adjacent properties with a sight-obscuring hedge reaching a minimum of six feet in height at maturity, as shown in the revised Preliminary Land Use Plans in Attachment H. No unenclosed storage areas are planned. These standards are met.

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- (g) View corridors.
- (1) Whenever right-of-way located wholly or partially within the Willamette Greenway Overlay Zone is vacated, the City shall retain a scenic easement or other equivalent interest in the area vacated to provide visual access to the Willamette River across the entire width of the vacated right-of-way, or for a width of 30 feet, whichever is less, and along the entire length of the vacated right-of-way. Subject to approval by the Council, the abutting property owner, or owners, may substitute an area with equivalent size and dimensions under like restriction, if the substitute area provides comparable or better visual access to the Willamette River.
  - (2) The area covered by the scenic easement or other equivalent interest shall be limited to use for walkways, bicycle paths, and berms or landscaped areas; provided, however, that within an area of 7.5 feet on either side of the centerline of the scenic easement or other equivalent interest, landscaping and berms shall not exceed three feet in height.

**Response:** No right-of-way that is wholly or partially within the Willamette Greenway Overlay Zone is planned to be vacated. These standards do not apply.

- (h) Public access. Where practical, public access to and along the Willamette River should be provided by easement, dedicated right-of-way, or other appropriate legal means.

**Response:** An extension of the Willamette Greenway Path, identified in both the Salem Comprehensive Park System Master Plan Update and the TSP, will be provided, including a 10-foot-wide paved walkway within a 15-foot public access easement, as shown on the revised Preliminary Site Plan in Attachment F. This standard is met.

Chapter 803 Streets and Right-of-Way Improvements.

[...]

803.065. Alternative street standards.

- (a) The Director may authorize the use of one or more alternative street standards:
  - (1) Where existing development or physical constraints make compliance with the standards set forth in this chapter impracticable;
  - (2) Where the development site is served by fully developed streets that met the standards in effect at the time the streets were originally constructed; or
  - (3) Where topography or other conditions make the construction that conforms to the standards impossible or undesirable.
- (b) Authorization of an alternative street standard may require additional or alternative right-of-way width, easements, and improvements to accommodate the design and construction using the alternative standard.

**Response:** As detailed in the original submittal, planned frontage improvements to Front Street NE are illustrated on the Preliminary Land Use Plans (Exhibit A of original submittal, Attachment F of this completeness response) and have been designed in consultation with the City of Salem, ODOT Rail, and Portland and Western Railroad. Final design of the planned frontage improvements to Front Street NE is currently under formal review as part of ODOT's rail diagnostic program, and a final decision on the roadway design is expected in Fall 2024.

The City can find that an alternative street standard is appropriate here given the pattern of existing development, right-of-way constraints, and the presence of the active Portland

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and Western Railroad line in Front Street NE. The criteria can be met with the imposition of the condition of approval discussed above, under the response to SRC 803.035.

Three alternative street standards are requested as a part of this consolidated application as listed below:

- Block spacing – The Front Street NE block spacing exceeds the 600-foot block length standard. Per subsection (a)(3) above, the location of the subject site makes the construction of additional streets through the site undesirable. The planned driveways provide sufficient site access. Staff indicated support for an alternative street standard so long as a 10-foot shared path is provided consistently throughout the site that provides connectivity. Such pedestrian connectivity is provided as detailed on the Preliminary Site Plan in Attachment F.
- 30-foot half width right-of-way and Front Street NE design – The Front Street NE design does not conform to the 30-foot half width right-of-way or minor arterial standards. As detailed above, an alternative street standard is appropriate per subsection (a)(1), due to the presence of the active Portland and Western Railroad line in Front Street NE which makes compliance with these standards impracticable.

These standards are met.

Chapter 805 Vision Clearance

[...]

805.005. Vision clearance areas.

Vision clearance areas that comply with this section shall be provided at the corners of all intersections; provided, however, vision clearance areas are not required in the Central Business (CB) Zone.

[...]

(b) Intersections with driveways, flag lot accessways, and alleys. Vision clearance areas at intersections of streets and driveways, streets and flag lot accessways, streets and alleys, and alleys and driveways shall comply with the following:

(1) Driveways.

(A) Driveways serving single family and two family uses. Driveways serving single family and two family uses shall have a vision clearance area on each side of the driveway. The vision clearance area shall have ten-foot legs along each side of the driveway, and ten-foot legs along the intersecting street or alley (see Figure 805-4).

(B) Driveways serving uses other than single family and two family. Driveways serving uses other than single family and two family shall have a vision clearance area on each side of the driveway. The vision clearance area shall have ten-foot legs along the driveway and 50-foot legs along the intersecting street or alley (see Figure 805-5).

**Response:**

Each of the three site driveways are subject to this standard. Vision clearance triangles with 10-foot legs along each side of the driveway and 50-foot legs along Front Street NE are shown on the Preliminary Site Plan in Exhibit A. The Gaines Street Entrance meets this standard. The Market Street Entrance and Belmont Alley have a small portion of Buildings

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1, 2, and 3 within the vision clearance triangle. Alternative vision clearance standards are requested as a part of this Consolidated Land Use Application. With the requested alternative vision clearance standards, the criterion can be met.

[...]

805.015. Alternative standards.

Alternative vision clearance standards that satisfy the purpose of this chapter, and that are consistent with recognized traffic engineering standards, may be approved where a vision clearance area conforming to the standards of this chapter cannot be provided because of the physical characteristics of the property or street, including, but not limited to, grade embankments, walls, buildings, structures, or irregular lot shape, or where the property has historic neighborhood characteristics, including, but not limited to, established plantings or mature trees, or buildings or structures constructed before 1950. Alternative vision clearance standards shall be approved through a Class 2 Adjustment under SRC chapter 250.

**Response:** The Market Street Entrance and Belmont Alley driveway cannot meet the vision clearance standards of this section; therefore, alternative vision clearance standards are being requested through a Class 2 Adjustment, which is included in this Consolidated Land Use Application. A small portion of Buildings 1, 2, and 3 encroach into the vision clearance triangles for the Market Street Entrance and Belmont Alley, as shown on the revised Preliminary Site Plan in Attachment F. An alternative vision clearance area consistent with recognized traffic engineering standards is provided. The TIA in Attachment L provides justification for the alternative vision clearance standard and demonstrates that it meets acceptable sight distance requirements. This standard is met.

Chapter 806 Off Street Parking, Loading, and Driveways

[...]

806.035 Off-street parking and vehicle use area development standards for uses or activities other than single family, two family, three family, and four family.

[...]

(n) Additional standards for new off-street surface parking areas more than one-half acre in size. When a total of more than one-half acre of new off-street surface parking is proposed on one or more lots within a development site, the lot(s) proposed for development shall comply with the additional standards in this subsection. For purposes of these standards, the area of an off-street surface parking area is the sum of all areas within the perimeter of the off-street parking area, including parking spaces, aisles, planting islands, corner areas, and curbed areas, but not including interior driveways and off-street loading areas.

(1) Climate mitigation. Except for development that includes a public building as defined in OAR 330-135-0200 that must otherwise comply with Chapter 330, Division 135 of the Oregon Administrative Rules, development that includes a total of more than one-half acre of new off-street surface parking shall provide one or more of the following climate mitigation measures, which may be used in combination. When used in combination, each climate mitigation measure shall be counted as a proportion of the total amount of mitigation required, as shown in Figure 806-11. (Example: A development with one half acre of new off-street surface parking, including 80 parking spaces, may provide solar power generation infrastructure of 20 kilowatts; thereby meeting 50 percent of the total amount of mitigation required. The remainder may be accomplished by providing tree canopy area covering 20 percent of the new

off-street parking and vehicle use areas; thereby meeting the remaining 50 percent of the total amount of mitigation required.) This requirement cannot be adjusted or varied.

Figure 806-11. Formulas for Calculating Climate Mitigation

$$\begin{array}{r}
 \text{Tree canopy:} \\
 \left( \frac{1}{\text{area of the parking lot} \times 0.4} \right) \div \left( \frac{1}{\text{area of tree canopy provided}} \right) \times 100 = \text{\% of mitigation} \\
 \text{requirement met via} \\
 \text{tree canopy} \\
 \\
 + \\
 \text{Solar Power Generation:} \\
 \left( \frac{1}{\text{number of parking spaces}} \right) \div \left( \frac{1}{\text{kilowatts of solar} \times 0.5} \right) \times 100 = \text{\% of mitigation} \\
 \text{requirement met via} \\
 \text{solar power generation} \\
 \\
 + \\
 \text{Payment in Lieu:} \\
 \left( \frac{1}{\text{number of parking spaces}} \right) \div \left( \frac{1}{\text{number of spaces offset by} \right. \\
 \left. \text{payment in lieu}} \right) \times 100 = \text{\% of mitigation} \\
 \text{requirement met via} \\
 \text{payment in lieu} \\
 \\
 = \\
 \text{Total percentage of} \\
 \text{mitigation} \\
 \text{requirement met}
 \end{array}$$

- (A) Solar power generation. On-site solar power generation infrastructure shall be provided with a capacity of at least 0.5 kilowatts per new off-street parking space. The solar power generation infrastructure shall be located on the lot(s) proposed for development but need not be located in parking or vehicle use areas.
  - (B) Payment into city's equitable renewable energy fund. A payment shall be made into the city's equitable renewable energy fund at a rate of not less than \$1,500.00 per parking space and tied to inflation. The per parking space fee, adopted through Ordinance Bill No. 7-23, effective November 27, 2023, shall increase by an amount equal to any percentage increase in the consumer price index for urban wage earners and clerical workers for the Portland-Salem, Oregon region effective on July 1 of each year, unadjusted for seasonal variations, as determined by the Bureau of Labor Statistics of the Department of Labor.
  - (C) Increased tree canopy coverage. Increased on-site tree canopy area shall be provided, in conformance with the standards included under subsection (n)(3) of this section, covering at least 40 percent of new off-street parking and vehicle use areas in no more than 15 years. For purposes of this calculation, paved areas used for loading, outdoor storage of goods and materials, and solid waste services are not included in the off-street parking and vehicle use area.
- (2) Provision of tree canopy. Development that includes a total of more than one-half acre of new off-street surface parking shall provide tree canopy in conformance with one or more of the following:
- (A) Trees along driveways. Trees shall be provided along both sides of driveways in conformance with the standards included under subsection (n)(3) of this section; or
  - (B) Tree canopy coverage. On-site tree canopy area shall be provided, in conformance with the standards included under subsection (n)(3) of

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this section, covering at least 30 percent of new off-street surface parking and vehicle use areas in no more than 15 years. For purposes of this calculation, paved areas used for loading, outdoor storage of goods and materials, and solid waste services are not included in the off-street parking and vehicle use area.

- (3) Tree canopy standards. To ensure new off-street surface parking totaling more than one-half acre in size meets minimum tree canopy coverage requirements, new trees shall be planted and/or existing trees shall be preserved in conformance with the following standards:
- (A) Expected tree canopy area.
- (i) Expected on-site tree canopy area shall be based on the standards set forth in Table 806-7.
  - (ii) New trees that are planted shall be selected from Table 806-7. When a tree proposed to be planted is not identified in Table 806-7, the tree may be approved by the Planning Administrator if it is a native, drought resistant, species that will provide tree canopy area commensurate with either large or small trees as specified in Table 806-7.
  - (iii) Existing trees that are preserved may be included in expected tree canopy area, regardless of species, so long as they conform to the other standards of this subsection. Mature trees 15 years of age or older may be counted with their existing canopy area at the time of application. Immature trees shall be categorized as either small or large trees based on how their species is identified in Table 806-7. Immature trees of a species not listed in Table 806-7 shall be categorized by the Planning Administrator as either small or large based on the average spread of the species at maturity.
  - (iv) Each tree meeting the requirements of this subsection may be counted toward the total expected tree canopy area so long as the trunk of each tree is located within 10 feet of the parking area.
  - (v) Exclusions to expected tree canopy area. The following portions of tree canopy shall not be counted as part of the expected tree canopy area:
    - (aa) Where trees are planted in such proximity that their expected tree canopy area at 15 years will overlap by more than five linear feet, portions of the expected tree canopy area exceeding five feet of overlap shall not count toward the expected tree canopy coverage area.
    - (bb) Portions of expected tree canopy that overlap with any portion of an existing or proposed building shall not be counted for the purposes of meeting tree canopy requirements.
- (B) Tree planting standards. Trees provided to meet tree canopy coverage requirements shall be:
- (i) Planted in such proximity that they form a continuous canopy within 15 years of planting based on the expected tree canopy area of the trees set forth in Table 806-7, except where interrupted by vehicle use areas, solid waste service

areas, buildings, power lines, stormwater infrastructure, and children's play areas;

- (ii) Planted in planting islands containing a minimum of three trees per planting island and the minimum required soil amount per tree type specified in Table 806-7;
- (iii) Planted to ensure that no more than 20 percent of their expected canopy overlaps with existing or proposed buildings;
- (iv) Not less than 1.5 inch caliper in size at the time of planting; and
- (v) Planted and maintained to meet, at minimum, the standards in the 2021 ANSI A300 handbook.

(C) **Tree Location/Utility Coordination.** Coordination shall be demonstrated with the local electric utility to ensure the compatibility of tree canopy and root systems with planned and existing utility infrastructure.

Table 806-7. Tree Planting Standards for Calculation of On-Site Tree Canopy				
Tree Type	Tree Species	Expected 15-Year Tree Canopy Diameter	Soil Requirements	
			Minimum Soil Volume	Minimum Soil Depth
Small Trees	American hornbeam American yellowwood Bald cypress Black gum Bloodgood Japanese maple Casacara Chinese pistache Dura heat river birch Eastern redbud European hornbeam Frontier elm Golden rain tree Natchez crape myrtle Oregon white oak Parrotia, Persian ironwood Silver linden Silverleaf oak Yoshino cherry	35 ft.	1,000 cubic feet	2 ft.

Table 806-7. Tree Planting Standards for Calculation of On-Site Tree Canopy				
Tree Type	Tree Species	Expected 15-Year Tree Canopy Diameter	Soil Requirements	
			Minimum Soil Volume	Minimum Soil Depth
Large Trees	Accolade elm Chinese elm Hackberry Holly oak Honey locust London plane tree Ponderosa pine Red oak Scarlet oak Swamp white oak Willow oak Zelkova	50 ft	1,500 cubic feet	2 ft.

**Response:** The new off-street parking and vehicle use areas total ±28,050 square feet (±0.64 acres); therefore, conformance with the additional standards in this subsection is required. Applicant will meet the mitigation requirements through increased tree canopy coverage, as shown on sheet L104 of the revised Preliminary Landscape Plans in Attachment H. Per subsection (n)(1)(C) above, increased tree canopy coverage is required over at least 40 percent of new off-street parking and vehicle use areas which would equal ±11,220 square feet (28,050 \* 0.4 = 11,220). The provided tree canopy coverage is ±15,339 square feet or 55 percent of the new off-street parking and vehicle use areas (15,339 / 28,050 = 0.55). This standard is met.

# Attachment K: Revised Preliminary Building Elevations and Floor Plans

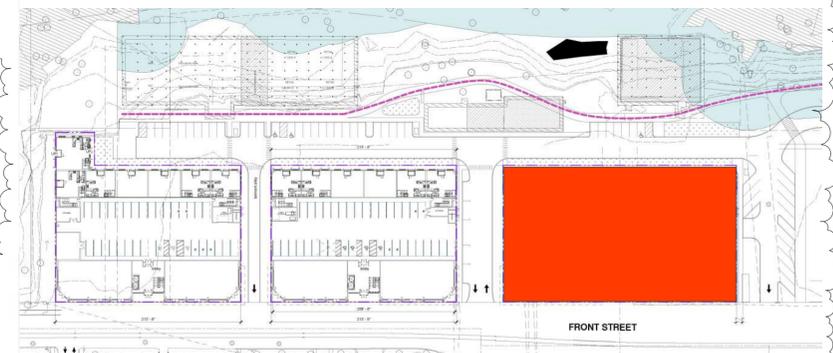
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FLOOR	BLDG I	BLDG II	BLDG III
1ST	8	6	7
2ND	22	18	18
3RD	27	23	23
4TH	27	23	23
5TH	27	23	23
6TH	27	23	23
<b>TOTAL</b>	<b>138</b>	<b>116</b>	<b>117</b>

**TOTAL NO. OF UNITS: 371**





# REVISION DATE  
 1 Revision 1 05/07/2024

81% GLAZING\*  
 91% WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)



60% GLAZING\*  
56% WEATHERPROTECTION

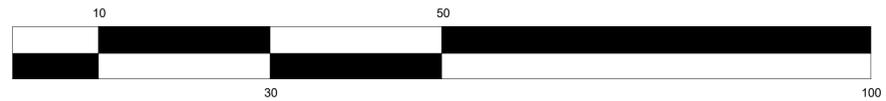
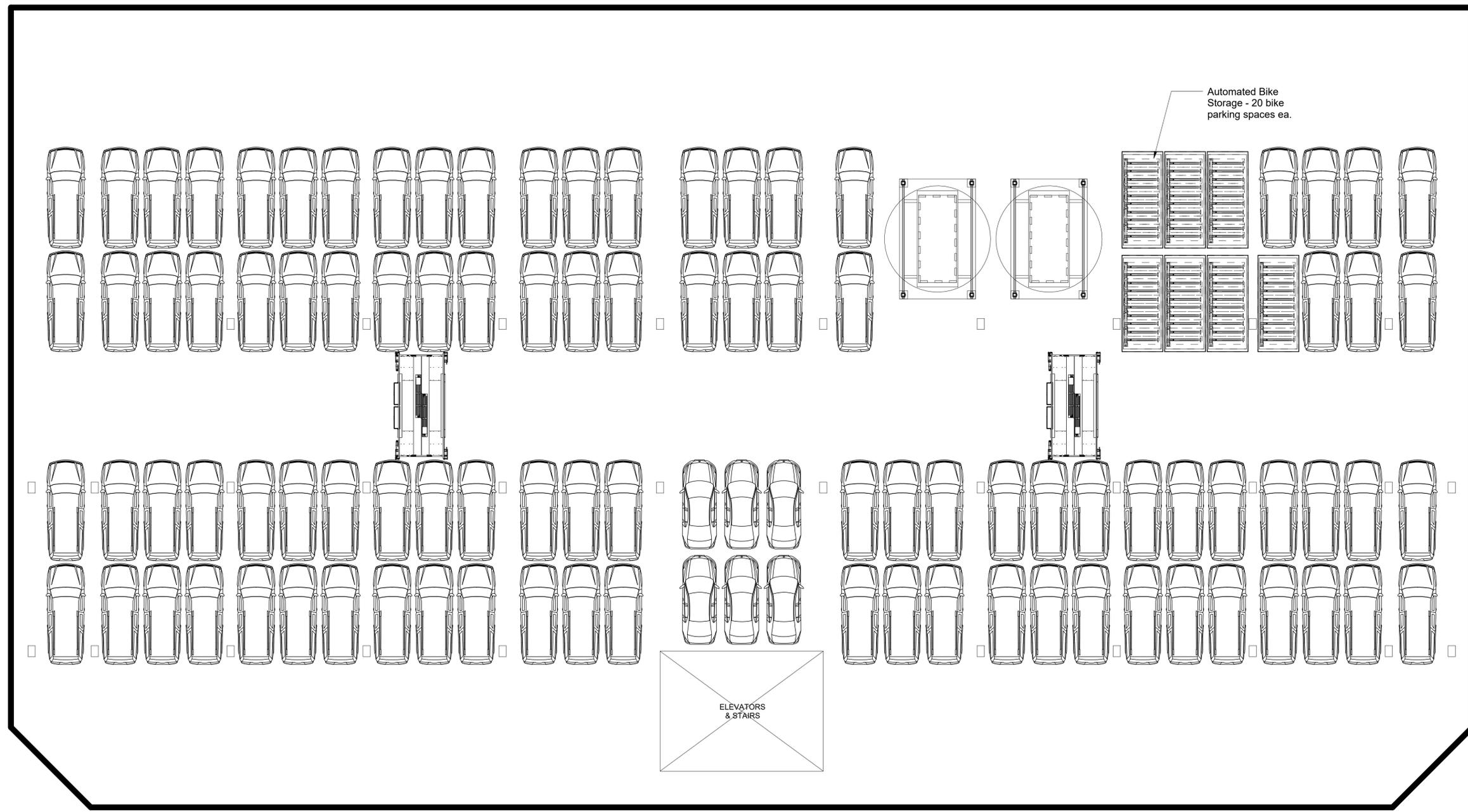
\*Calculated per SRC 112.030 (b)



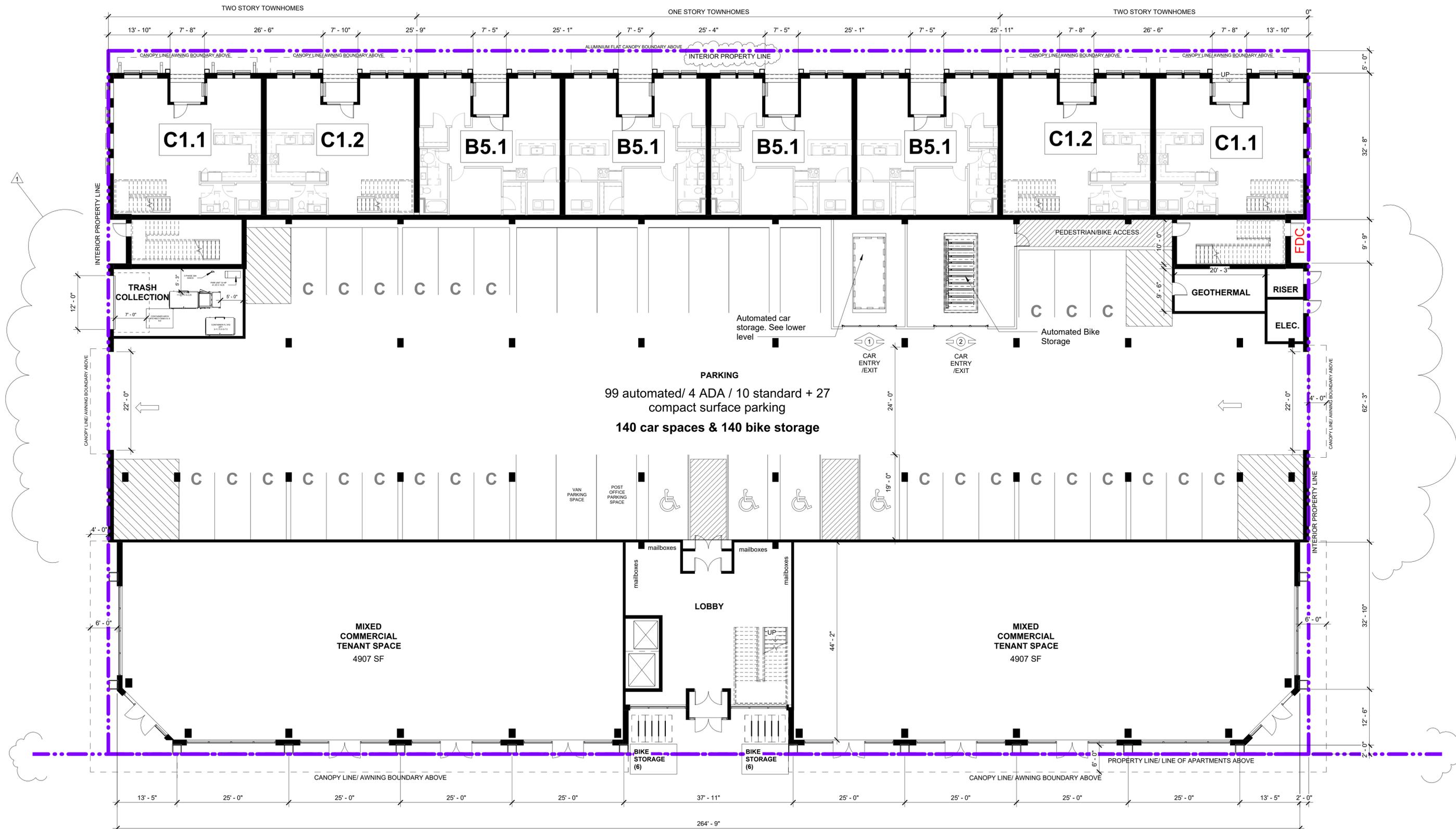
#	REVISION	DATE
1	Revision 1	05/07/2024



#	REVISION	DATE
1	Revision 1	05/07/2024



#	REVISION	DATE
NEW SHEET	1 Revision 1	05/07/2024



INSIGHT ARCHITECTS



#	REVISION	DATE
1	Revision 1	05/07/2024

268' - 8"

69' - 8"

129' - 5"

69' - 8"

INTERIOR PROPERTY LINE

TWO-STORY TOWNHOME

TWO-STORY TOWNHOME

TWO-STORY TOWNHOME

TWO-STORY TOWNHOME

### COMMUNITY EXTERIOR SPACE ON 2ND FLOOR

271 SF  
ELECTRICAL

S1.1

S1.1

S1.1

S1.1

S1.1

A2.1

S1.1

S1.1

WELLNESS/FITNESS  
1480 SF

S1.1

S1.1

A2.1

S1.1

S1.1

MECH. JAN. STOR. STOR.

STOR. STOR. STOR. MECH.

FOYER

B2.1

S1.1

S1.1

S2.1

S2.1

S1.1

S1.1

B2.1

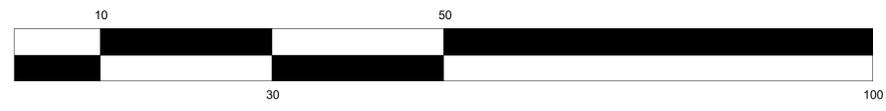
INTERIOR PROPERTY LINE

CANOPY LINE/AWNING BOUNDARY BELOW

PROPERTY LINE  
ALONG FRONT STREET

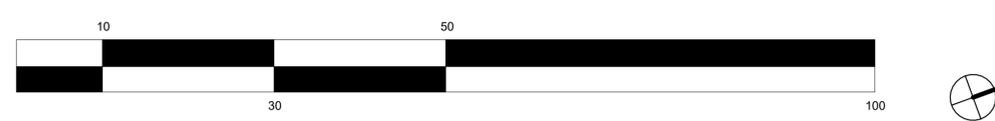
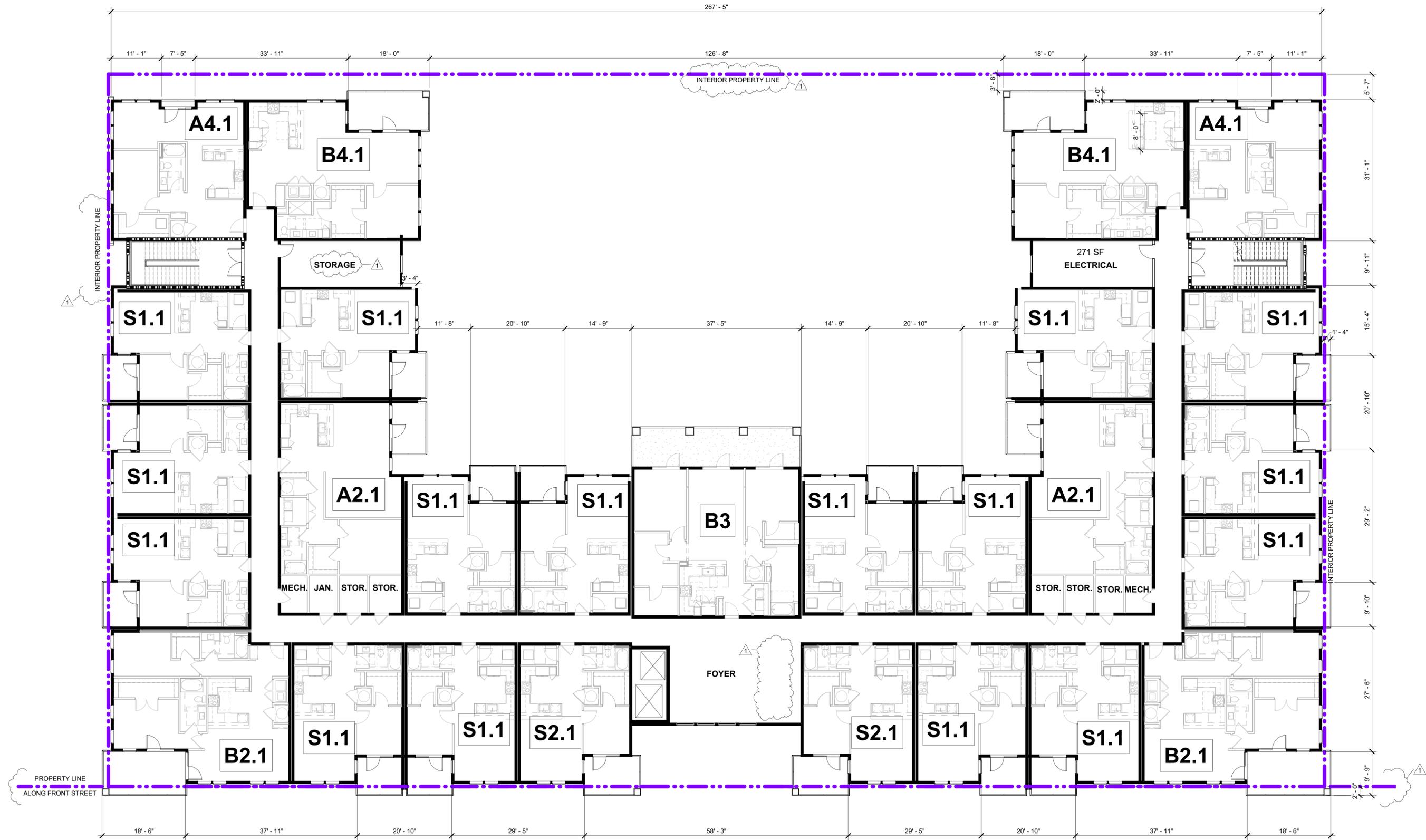
INTERIOR PROPERTY LINE

154' - 0"



# REVISION  
1 Revision 1

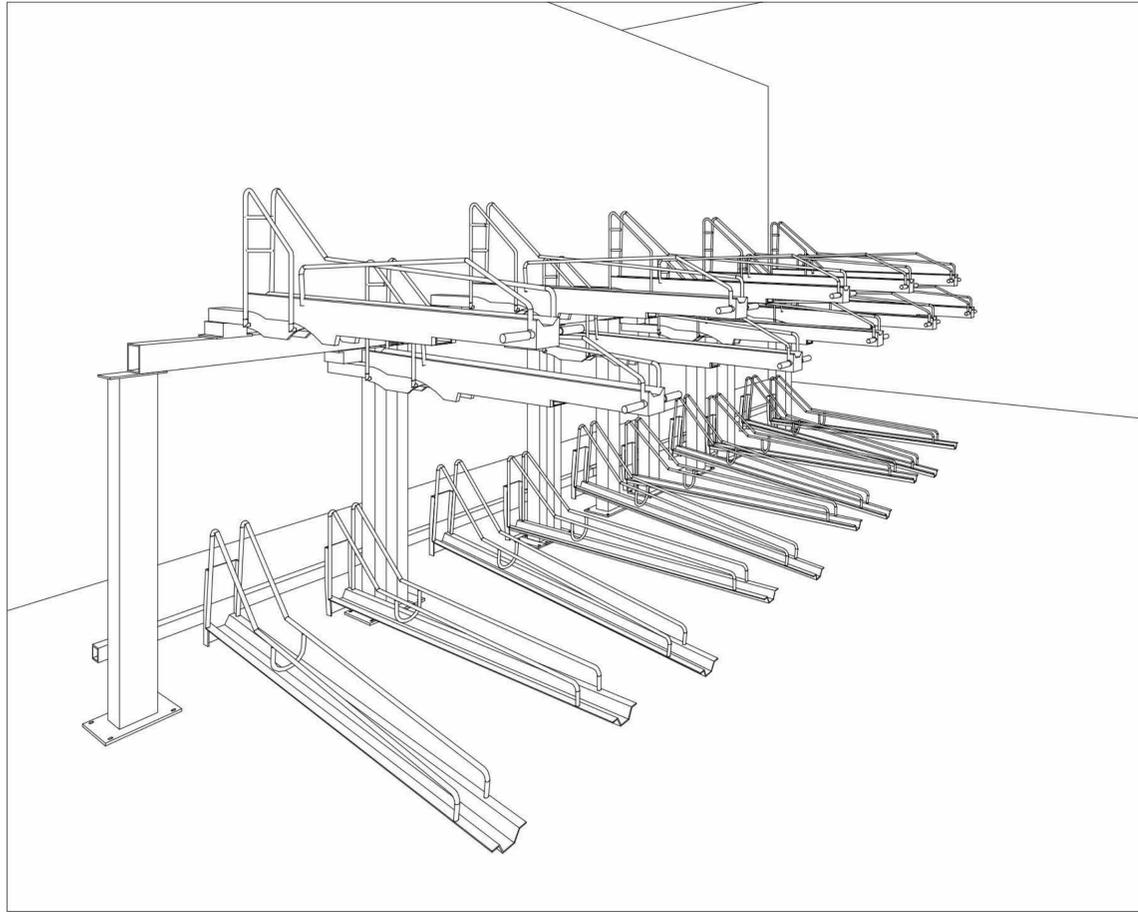
DATE  
05/07/2024



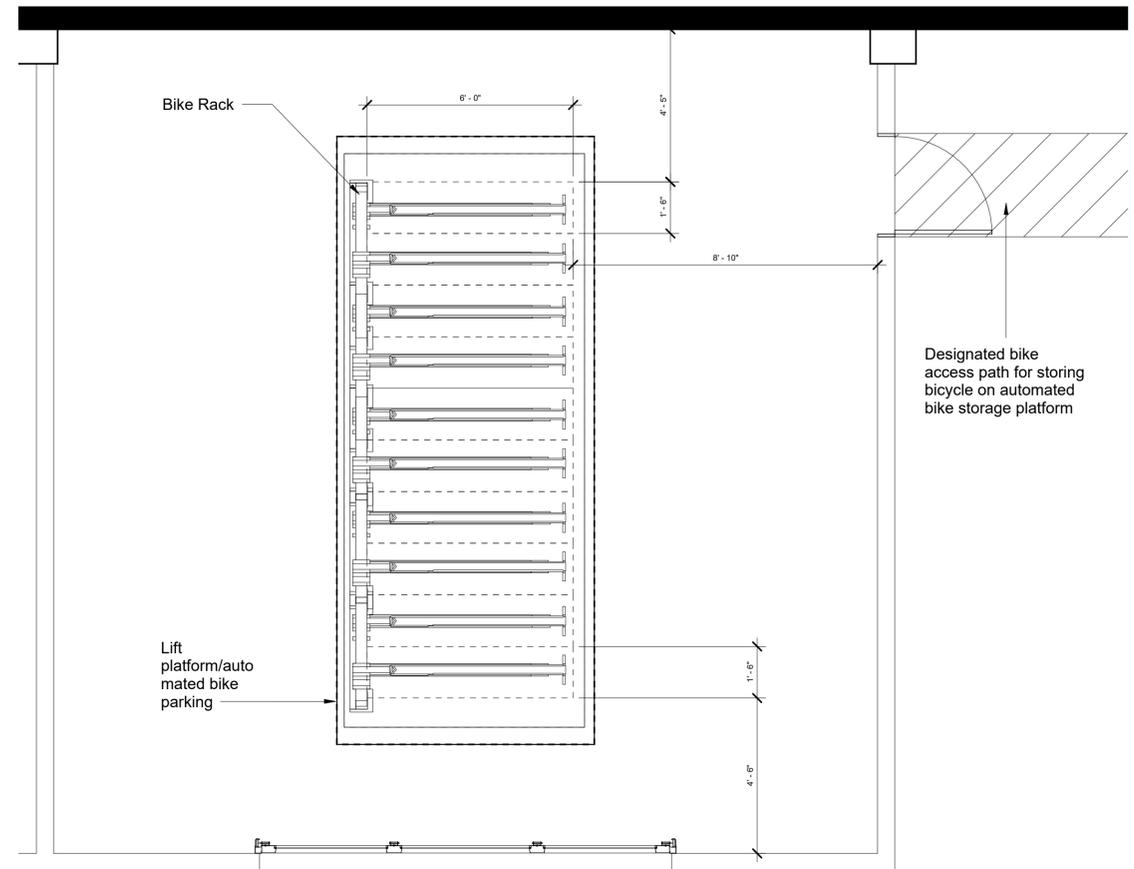
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1	Revision 1	05/07/2024

INSIGHT ARCHITECTS

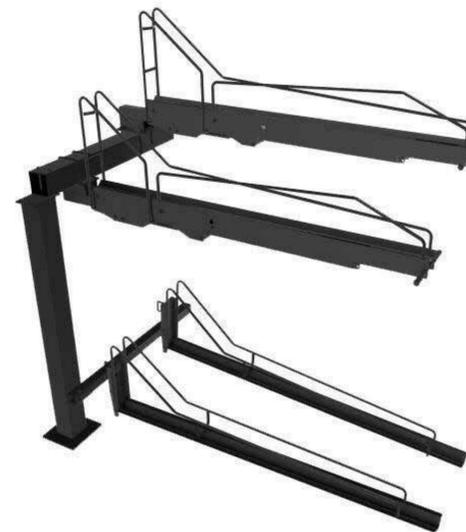




3D SKETCH OF BIKE STORAGE PLATFORM - 20 BIKES PER CAR SPACE.



**1 ENLARGED BIKE PLAN**  
3/8" = 1'-0"



BIKE BOOST STORAGE SYSTEM BY MADDRAX



<https://www.madrax.com/bike-boost-storage-bbs>

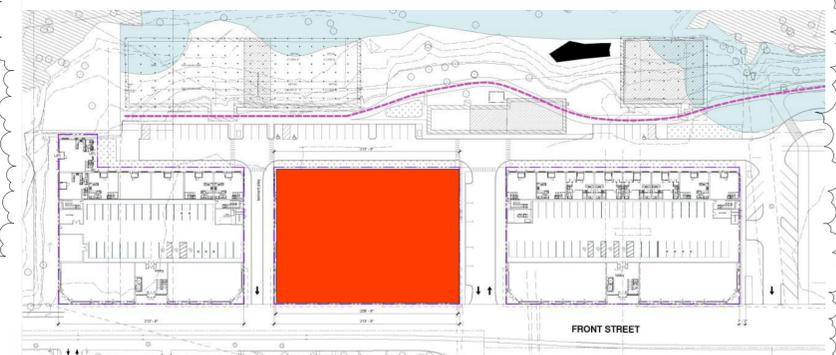
#	REVISION	DATE
1	Revision 1	05/07/2024

NEW SHEET



FLOOR	BLDG I	BLDG II	BLDG III
1ST	8	6	7
2ND	22	18	18
3RD	27	23	23
4TH	27	23	23
5TH	27	23	23
6TH	27	23	23
<b>TOTAL</b>	<b>138</b>	<b>116</b>	<b>117</b>

**TOTAL NO. OF UNITS: 371**





# REVISION DATE  
 1 Revision 1 05/07/2024

83% GLAZING\*  
 89% WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)



56% GLAZING\*  
59% WEATHERPROTECTION

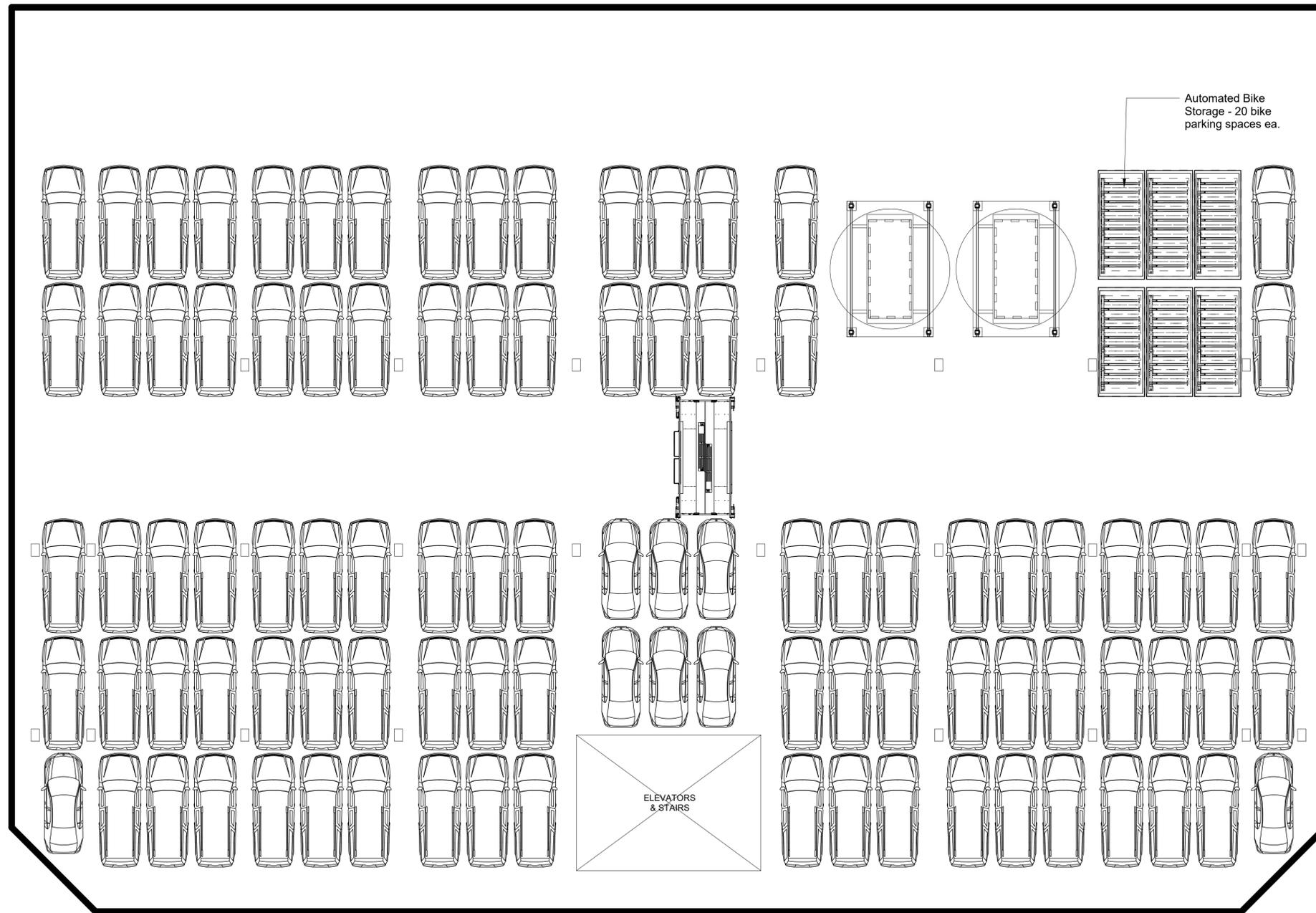
\*Calculated per SRC 112.030 (b)



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1	Revision 1	05/07/2024



#	REVISION	DATE
1	Revision 1	05/07/2024

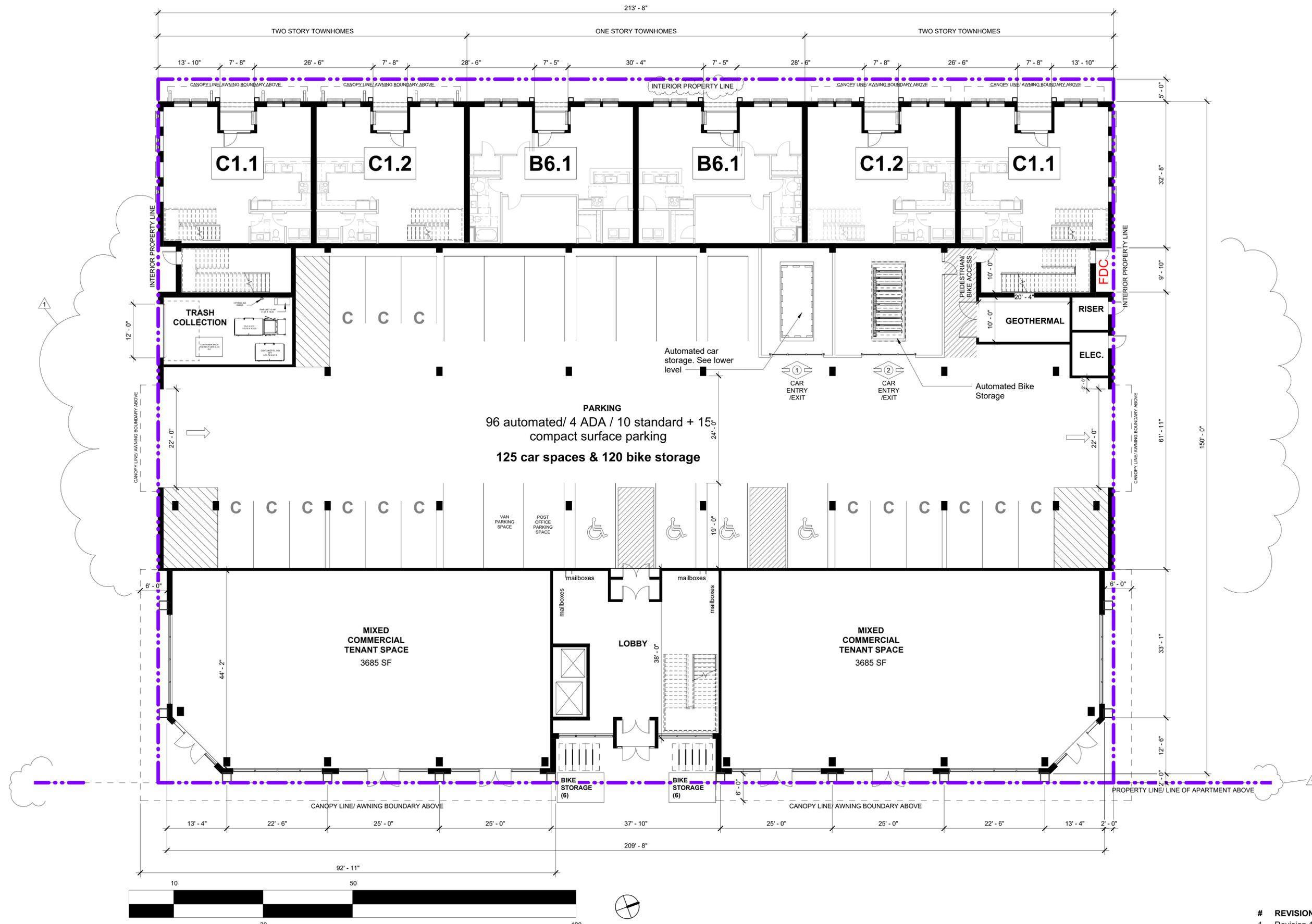


Automated Bike Storage - 20 bike parking spaces ea.

ELEVATORS & STAIRS

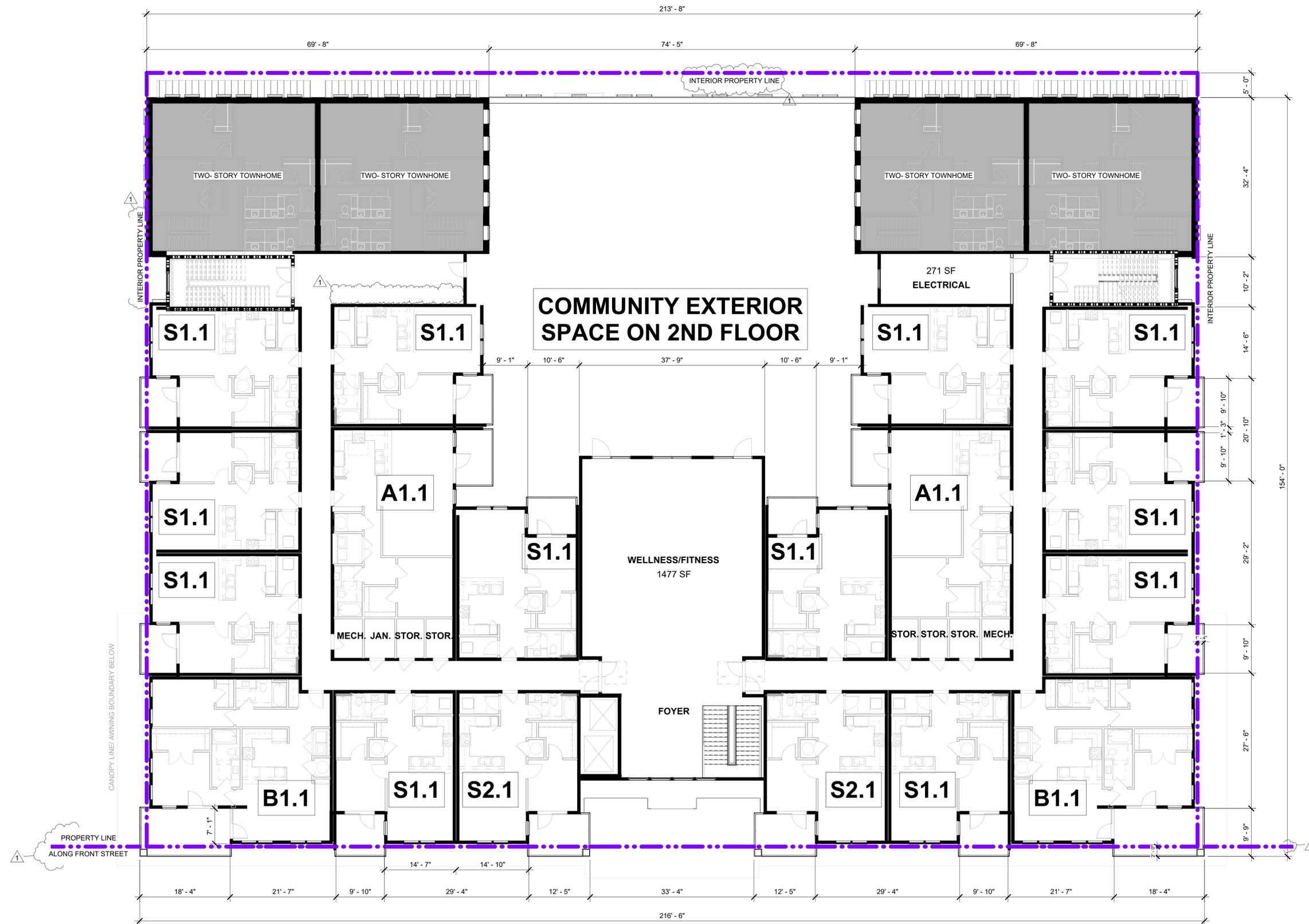


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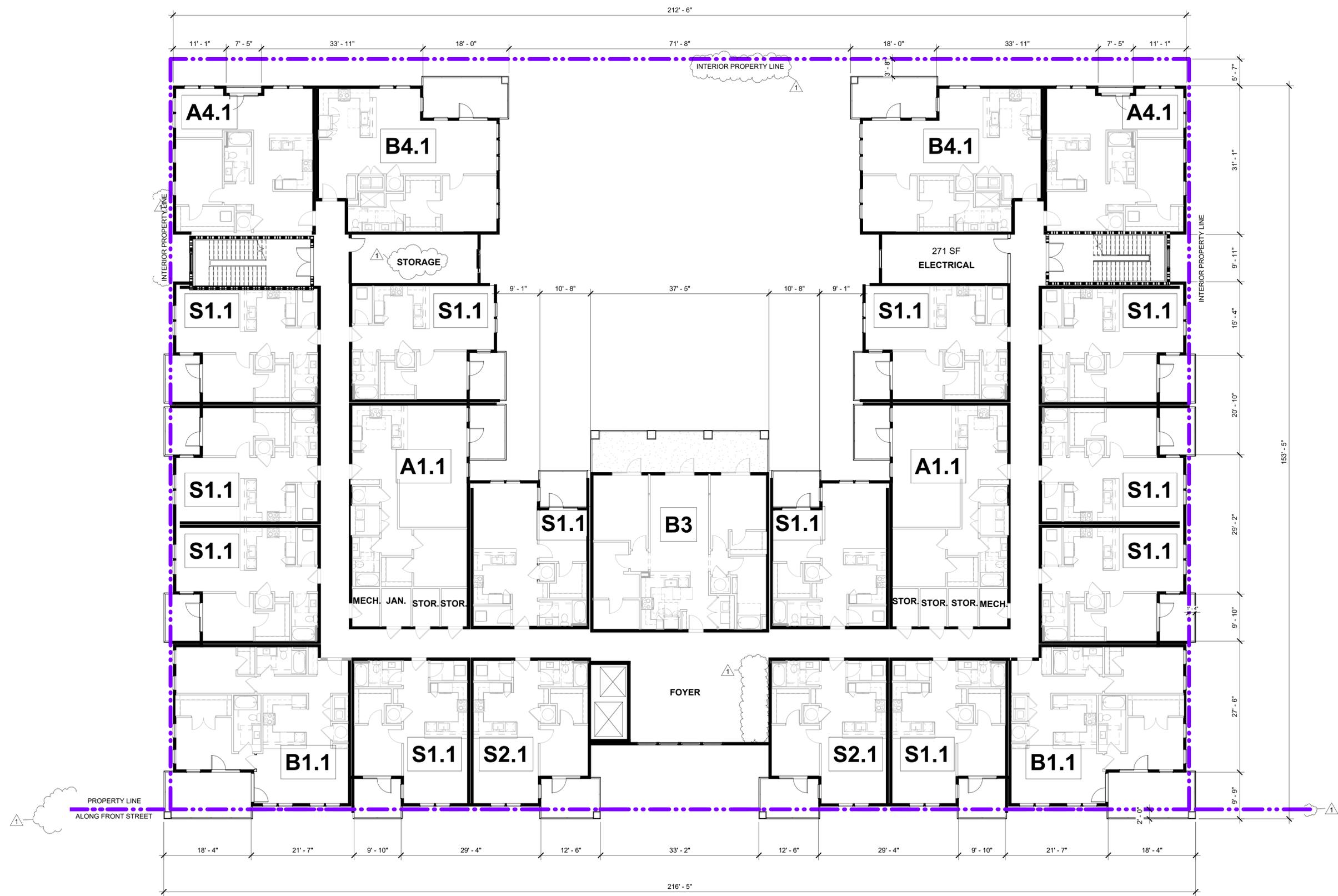


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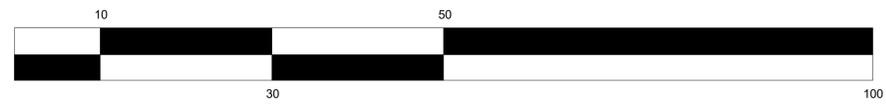
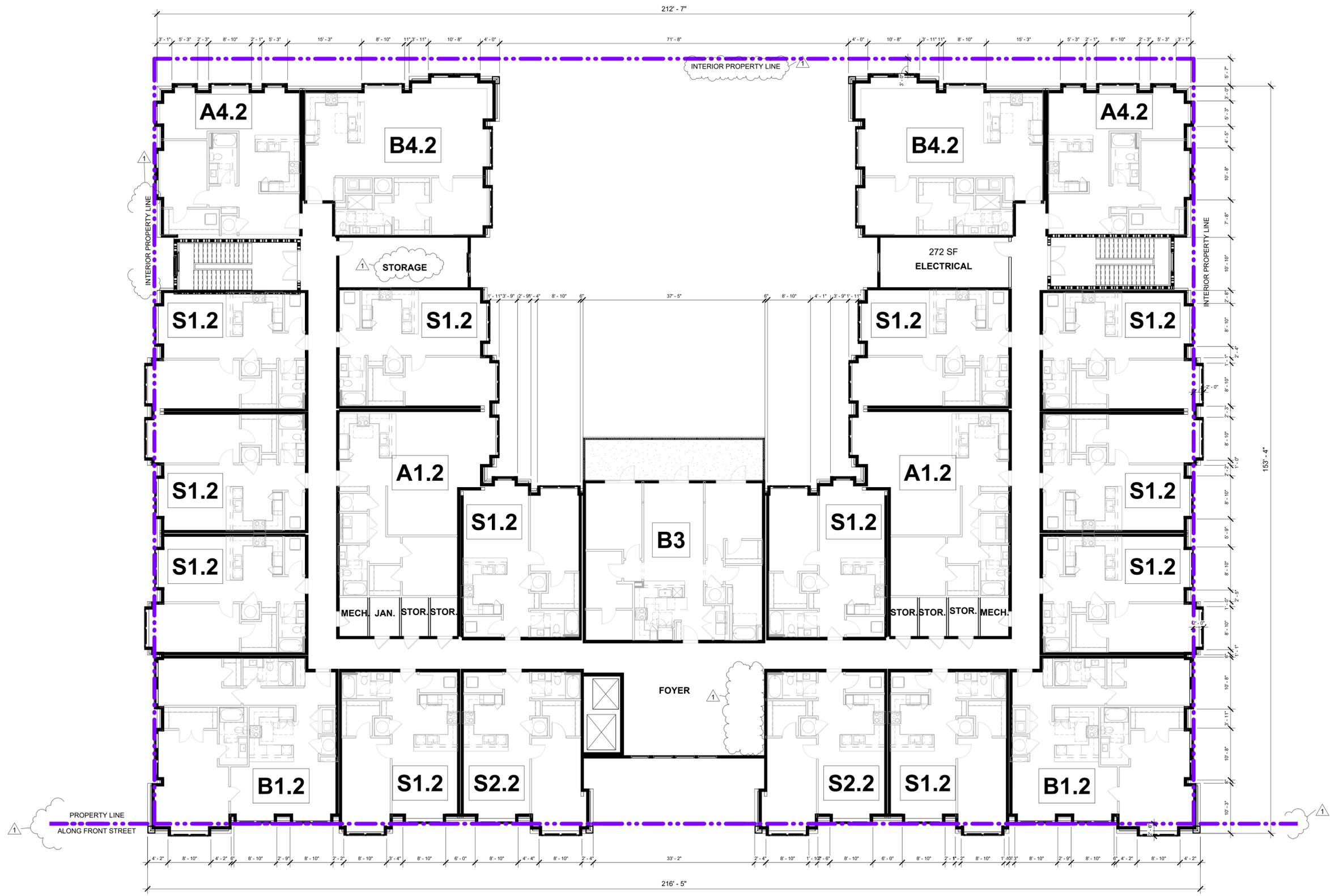
INSIGHT ARCHITECTS



#	REVISION	DATE
1	Revision 1	05/07/2024



#	REVISION	DATE
1	Revision 1	05/07/2024

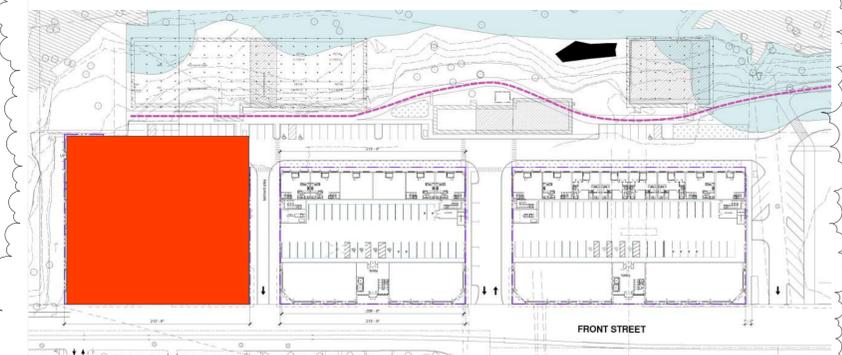


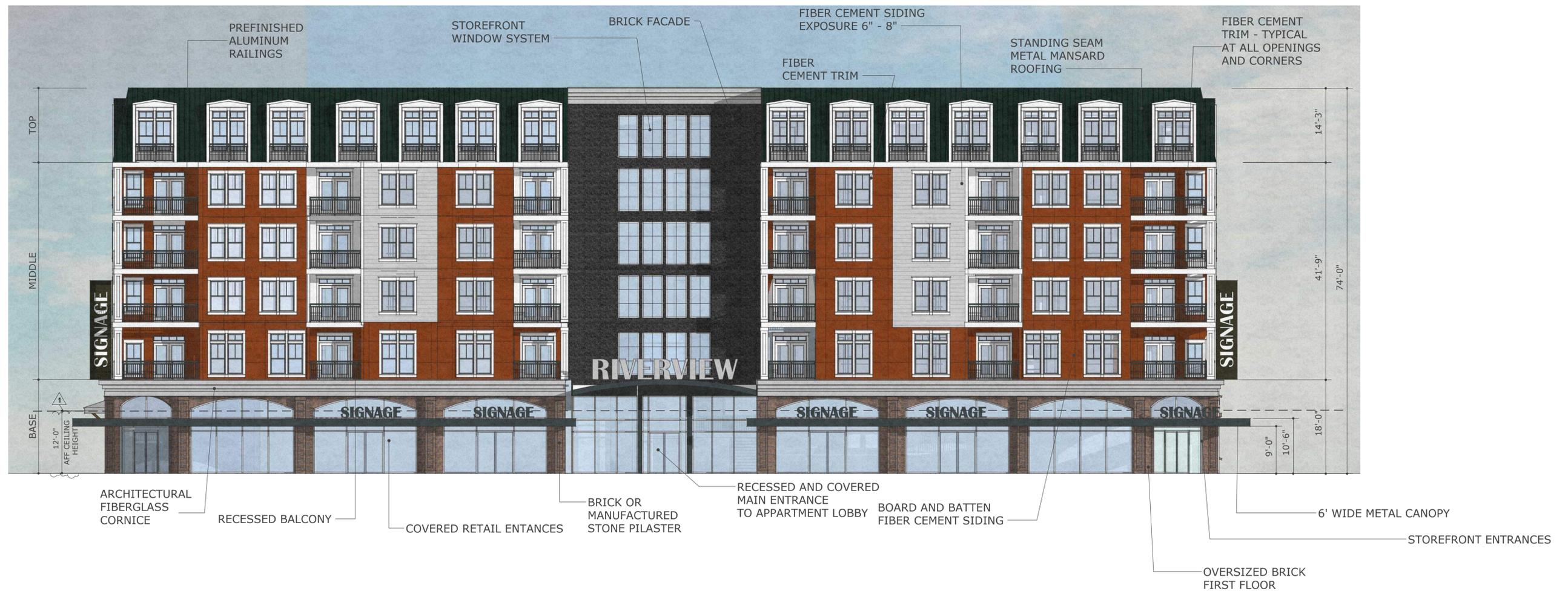
#	REVISION	DATE
1	Revision 1	05/07/2024



FLOOR	BLDG I	BLDG II	BLDG III
1ST	8	6	7
2ND	22	18	18
3RD	27	23	23
4TH	27	23	23
5TH	27	23	23
6TH	27	23	23
<b>TOTAL</b>	<b>138</b>	<b>116</b>	<b>117</b>

**TOTAL NO. OF UNITS: 371**





# REVISION  
1 Revision 1

DATE  
05/07/2024

83% GLAZING\*  
89% WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)



RECESSED BALCONIES

ARCHITECTURAL STANDING SEAM METAL MANSARD ROOF

ARCHITECTURAL FIBERGLASS CORNICE

6" EXPOSURE FIBER CEMENT LAP SIDING

FIBER CEMENT BOARD

TOP

MIDDLE

BASE

14'-3"

30'-9"

74'-0"

29'-0"

FACE BRICK

ROWLOCK BRICK

SOLDIER COURSE OVER WINDOWS (TYP.)

RECESSED ENTRANCES TO GROUND FLOOR LIVING UNITS

COMMUNITY AMENITY SPACE ON SECOND FLOOR TERRACE

1 STEP (6" RISER) TO MEET GRADE CHANGE

STANDING SEAM METAL (OR METAL SHINGLE) ROOF OVERHANG PROJECTING 5' FROM FACE OF FACADE

GROUND FLOOR SIDE VIEW OF TOWNHOME UNIT

52% GLAZING\*  
59% WEATHERPROTECTION

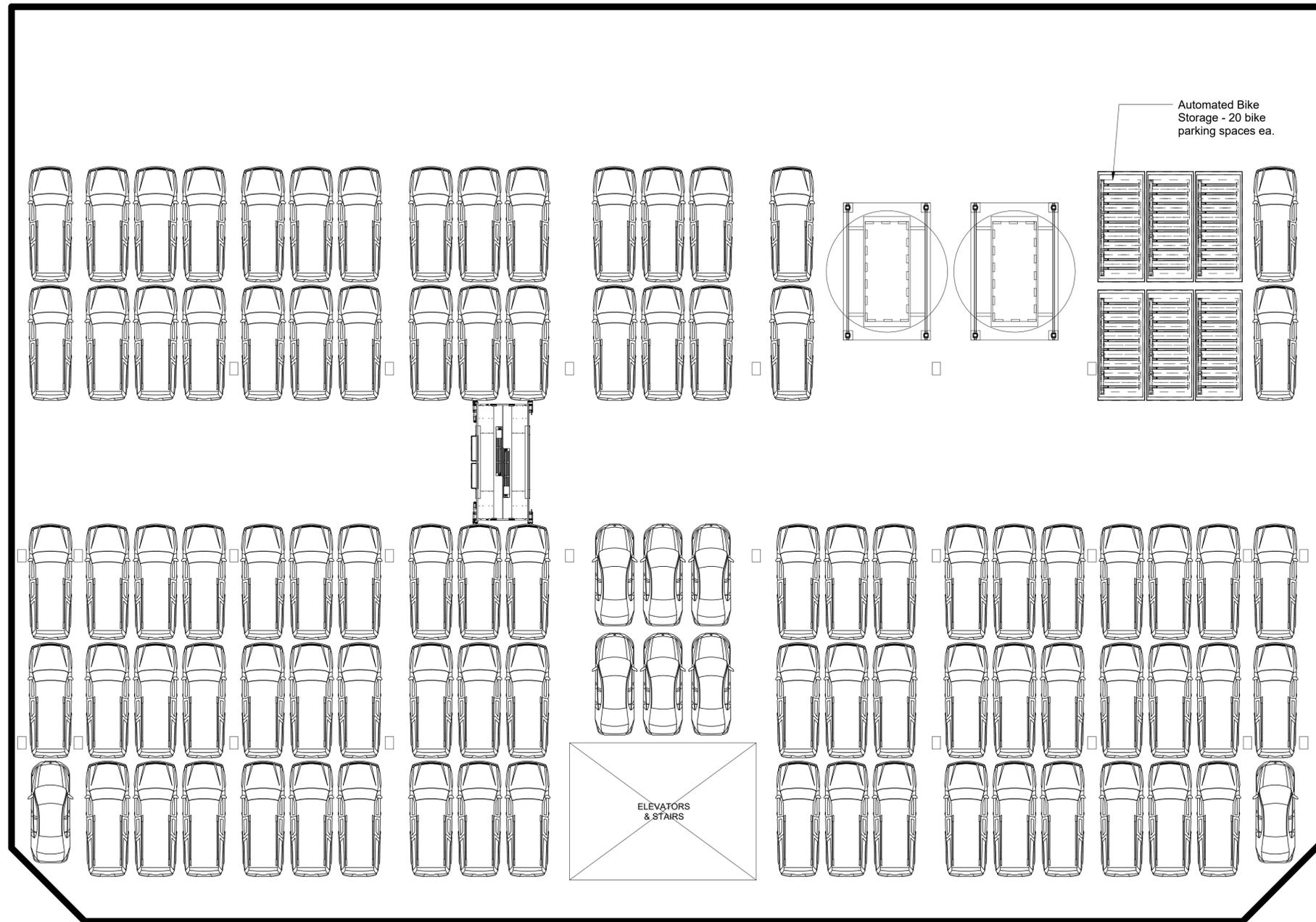
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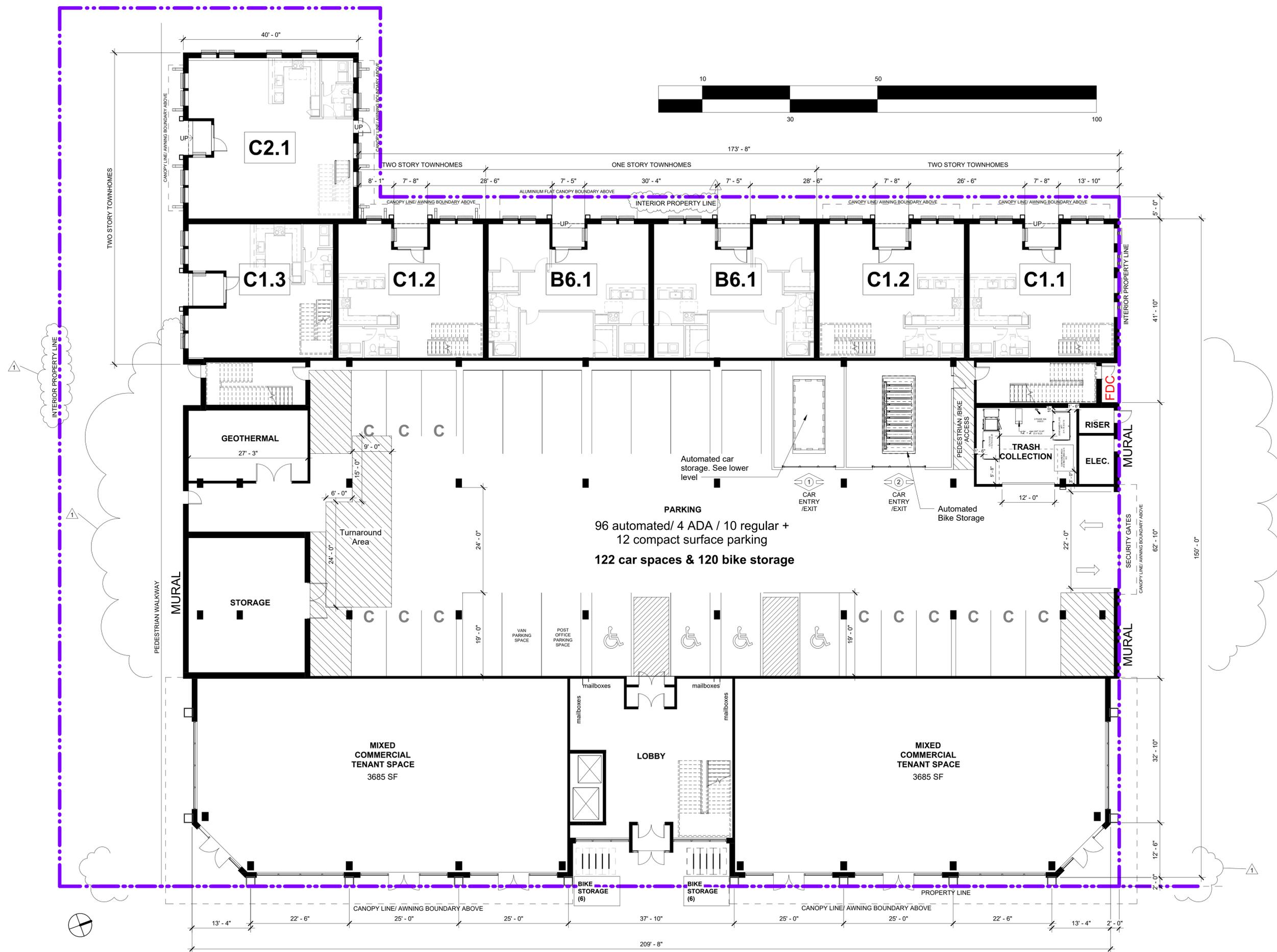
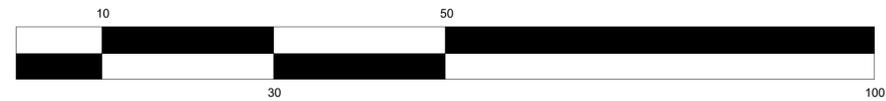


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1	Revision 1	05/07/2024



#	REVISION	DATE
1	Revision 1	05/07/2024

NEW SHEET



**PARKING**  
 96 automated/ 4 ADA / 10 regular +  
 12 compact surface parking  
 122 car spaces & 120 bike storage

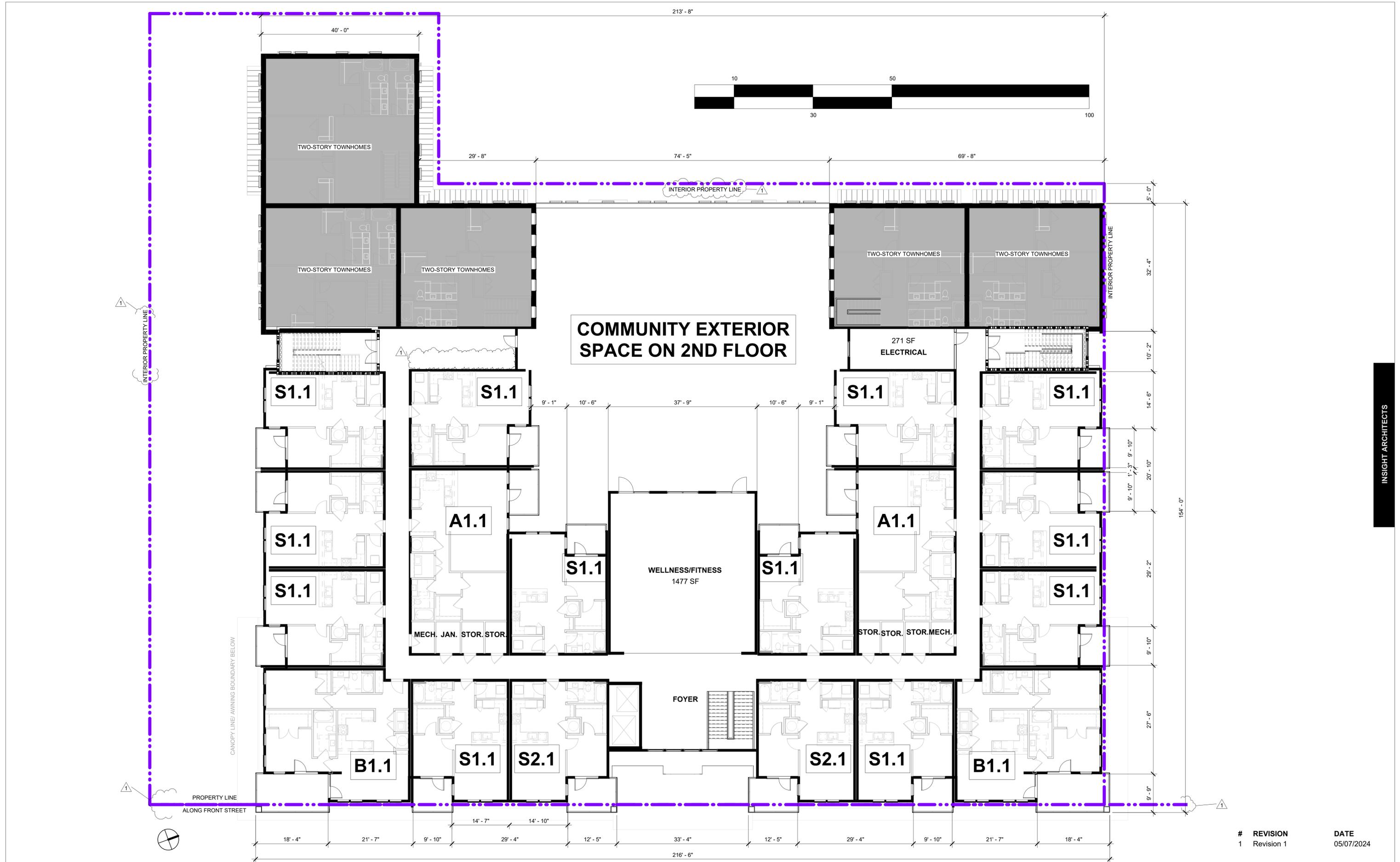
MIXED  
 COMMERCIAL  
 TENANT SPACE  
 3685 SF

LOBBY

MIXED  
 COMMERCIAL  
 TENANT SPACE  
 3685 SF

# REVISION  
 1 Revision 1

DATE  
 05/07/2024



**COMMUNITY EXTERIOR SPACE ON 2ND FLOOR**

WELLNESS/FITNESS  
1477 SF

271 SF  
ELECTRICAL

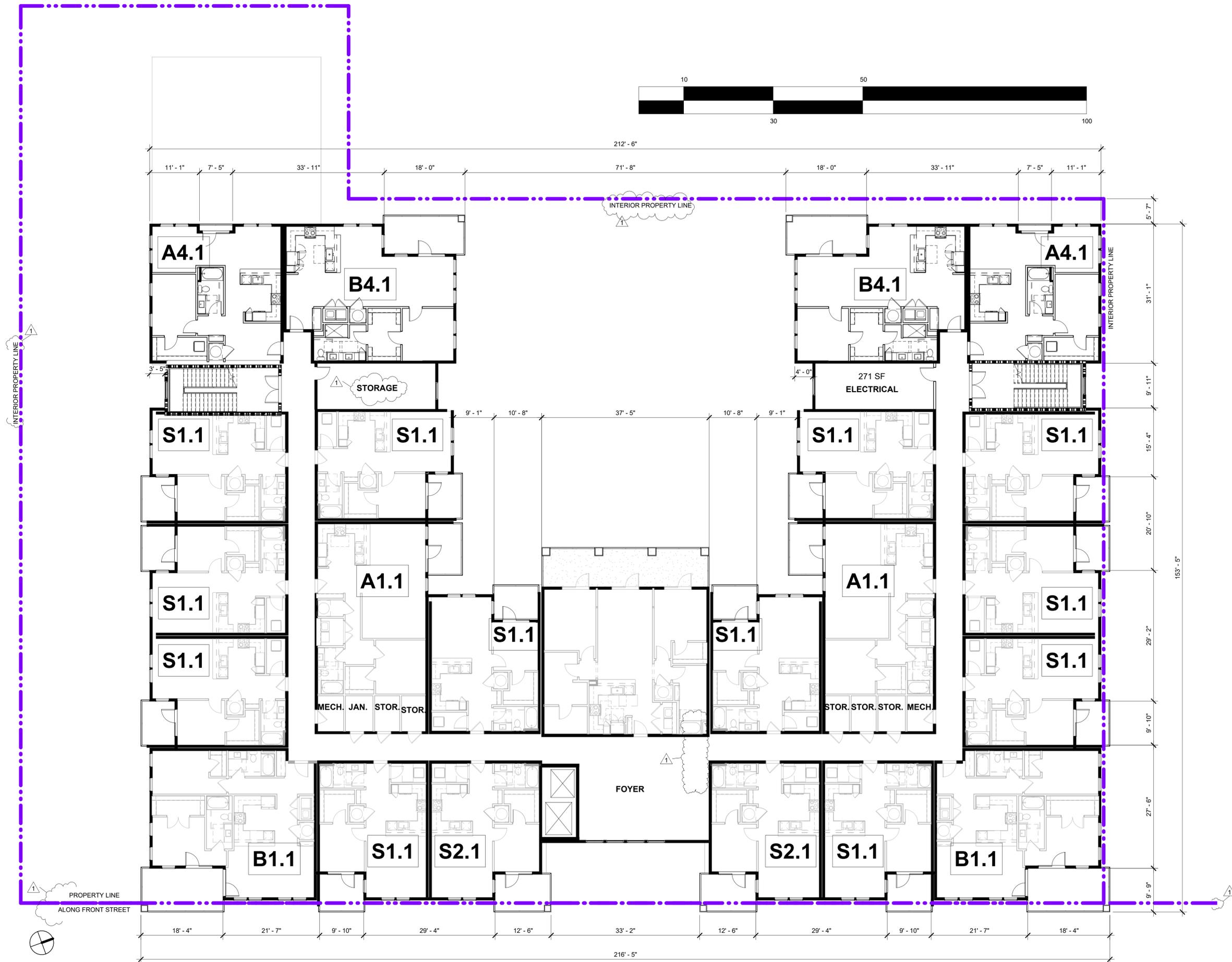
FOYER

MECH. JAN. STOR. STOR.

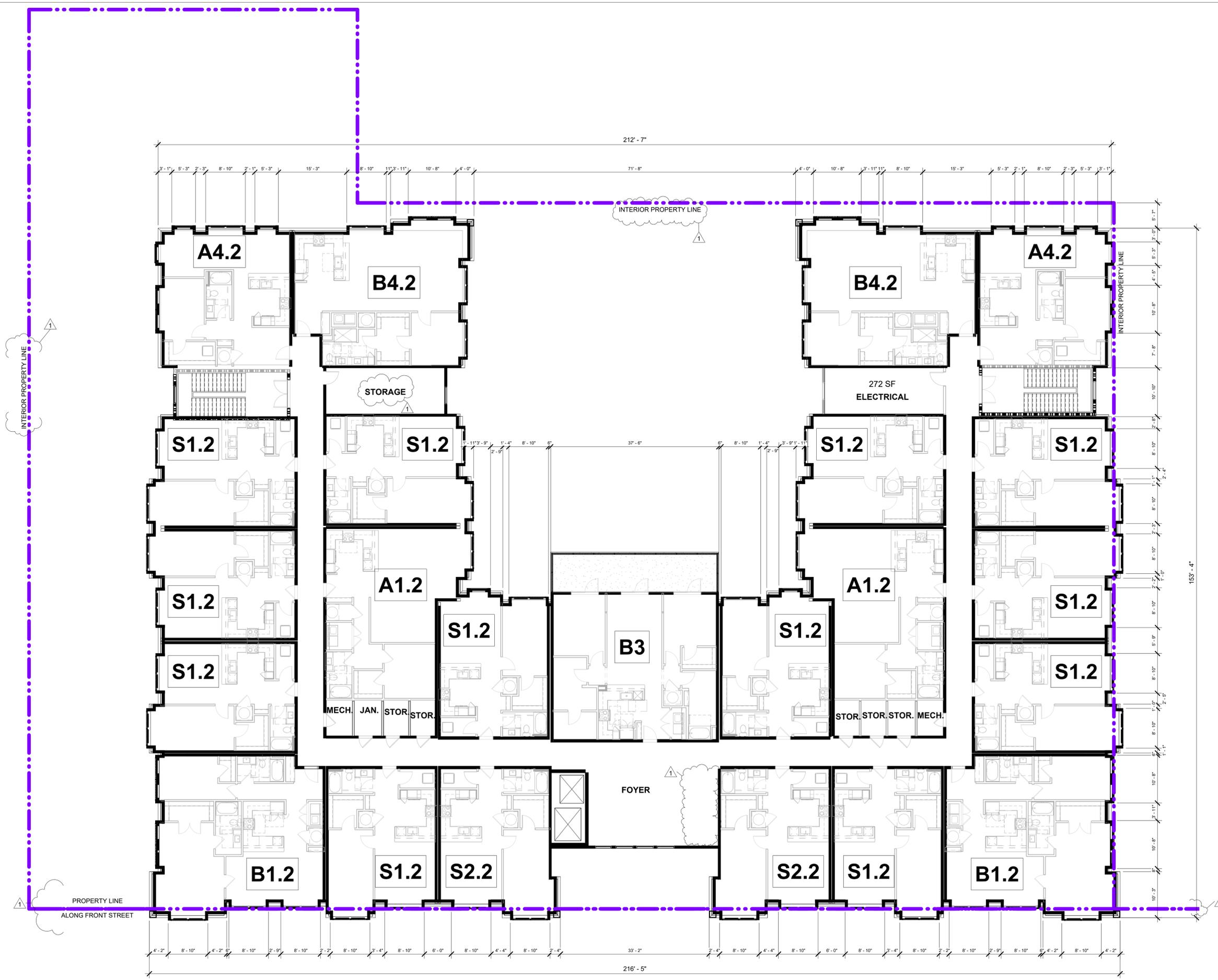
STOR. STOR. STOR. MECH.

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1	Revision 1

DATE  
05/07/2024

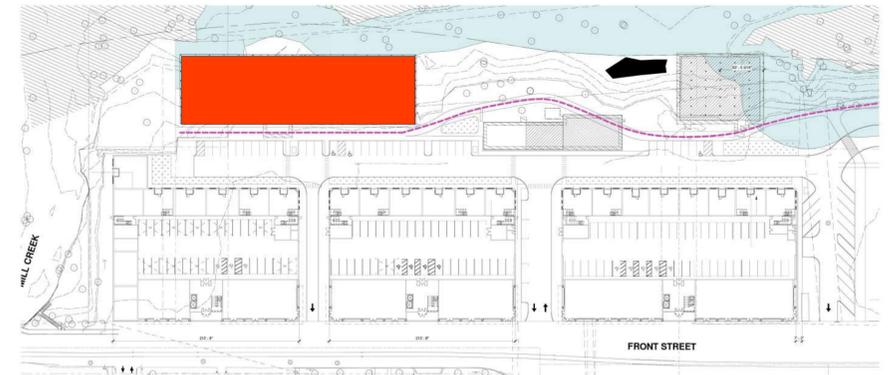


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1	Revision 1	05/07/2024



INSIGHT ARCHITECTS

#	REVISION	DATE
1	Revision 1	05/07/2024



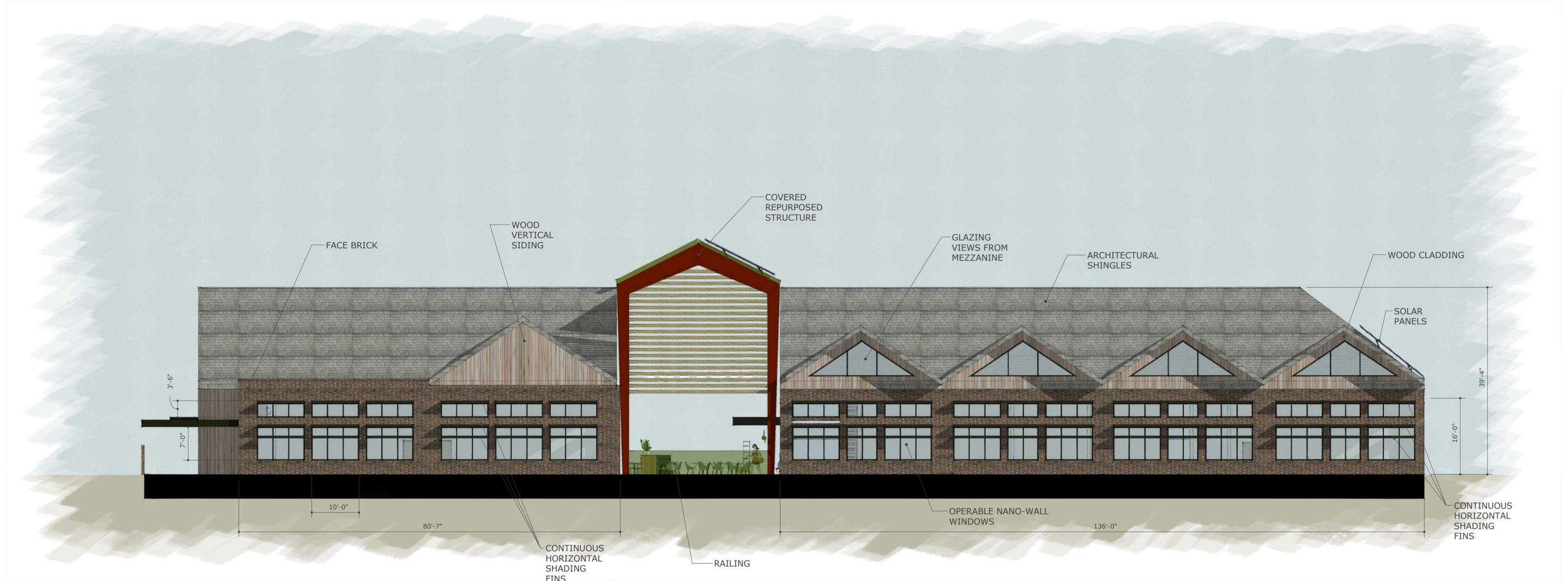


**SOUTH SECTION**

58% GLAZING\*  
 82% WEATHERPOTECTION.  
 Pedestrian traffic between the two building sections.  
 \*Calculated per SRC 112.030 (b)

**NORTH SECTION**

68% GLAZING\*  
 91% WEATHERPOTECTION.  
 Pedestrian traffic between the two building sections.  
 \*Calculated per SRC 112.030 (b)



**NORTH SECTION**

75% GLAZING\*  
 NO WEATHERPOTECTION.  
 Pedestrian traffic between the two building sections.  
 \*Calculated per SRC 112.030 (b)

**SOUTH SECTION**

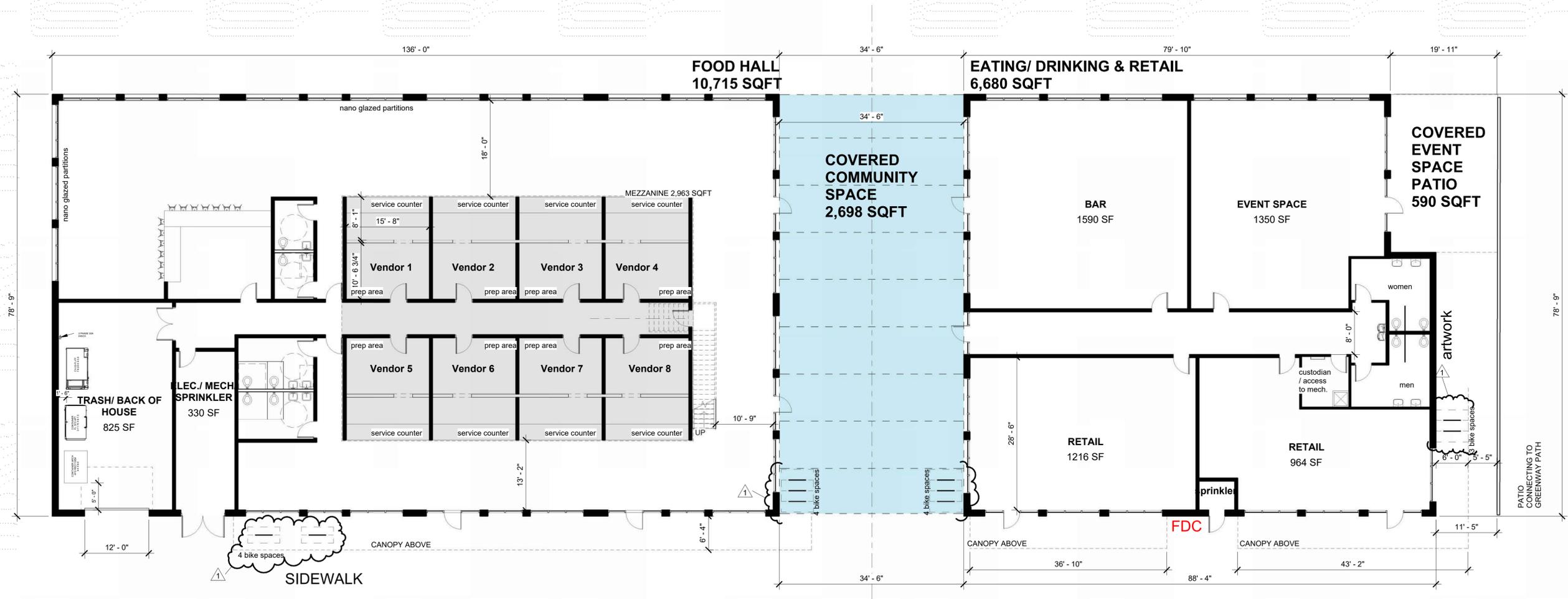
78% GLAZING\*  
 NO WEATHERPOTECTION.  
 Pedestrian traffic between the two building sections.  
 \*Calculated per SRC 112.030 (b)



**NORTH ELEVATION**



**SOUTH ELEVATION**



**1 FOOD HALL**  
 3/32" = 1'-0"



INSIGHT ARCHITECTS

#	REVISION	DATE
1	Revision 1	05/07/2024





MAINTAIN ALL EXISTING DIMENSIONS



MAINTAIN ALL EXISTING DIMENSIONS



NOTE: CURRENTLY, THIS FACADE IS COVERED BY A PREVIOUS ADDITION, WHICH IS TO BE DEMOLISHED. ALTERED PORTION OF FACADE IS LESS THAN 10% OF THE OVERALL FACADE.

MAINTAIN ALL EXISTING DIMENSIONS



+/- 92'-0"  
EXISTING

ARCHITECTURAL SHINGLES

EXISTING BRICK  
DETAILING  
TO REMAIN (TYP.)

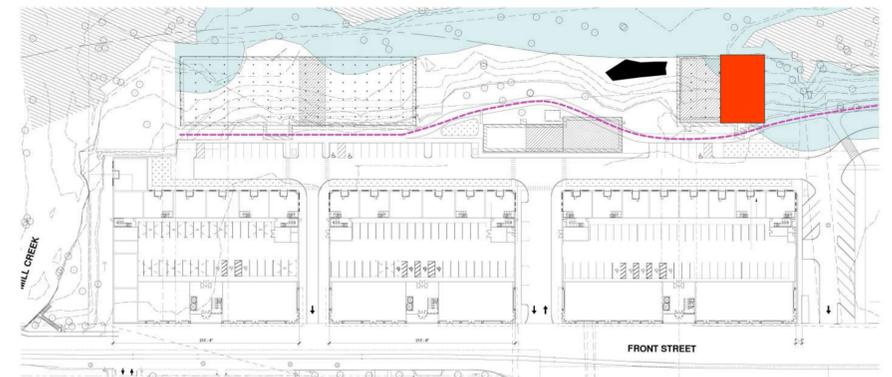
ALL EXISTING WINDOWS TO REMAIN  
FOR SOUTH, EAST AND WEST FACADE

EXISTING POURED IN PLACE CONCRETE  
STRUCTURE PAINTED WHITE

ALL EXISTING WINDOWS  
TO REMAIN (TYP.)

EXISTING CHIMNEY

MAINTAIN ALL EXISTING DIMENSIONS





#	REVISION	DATE
1	Revision 1	05/07/2024

77% GLAZING\*  
100% WEATHERPROTECTION

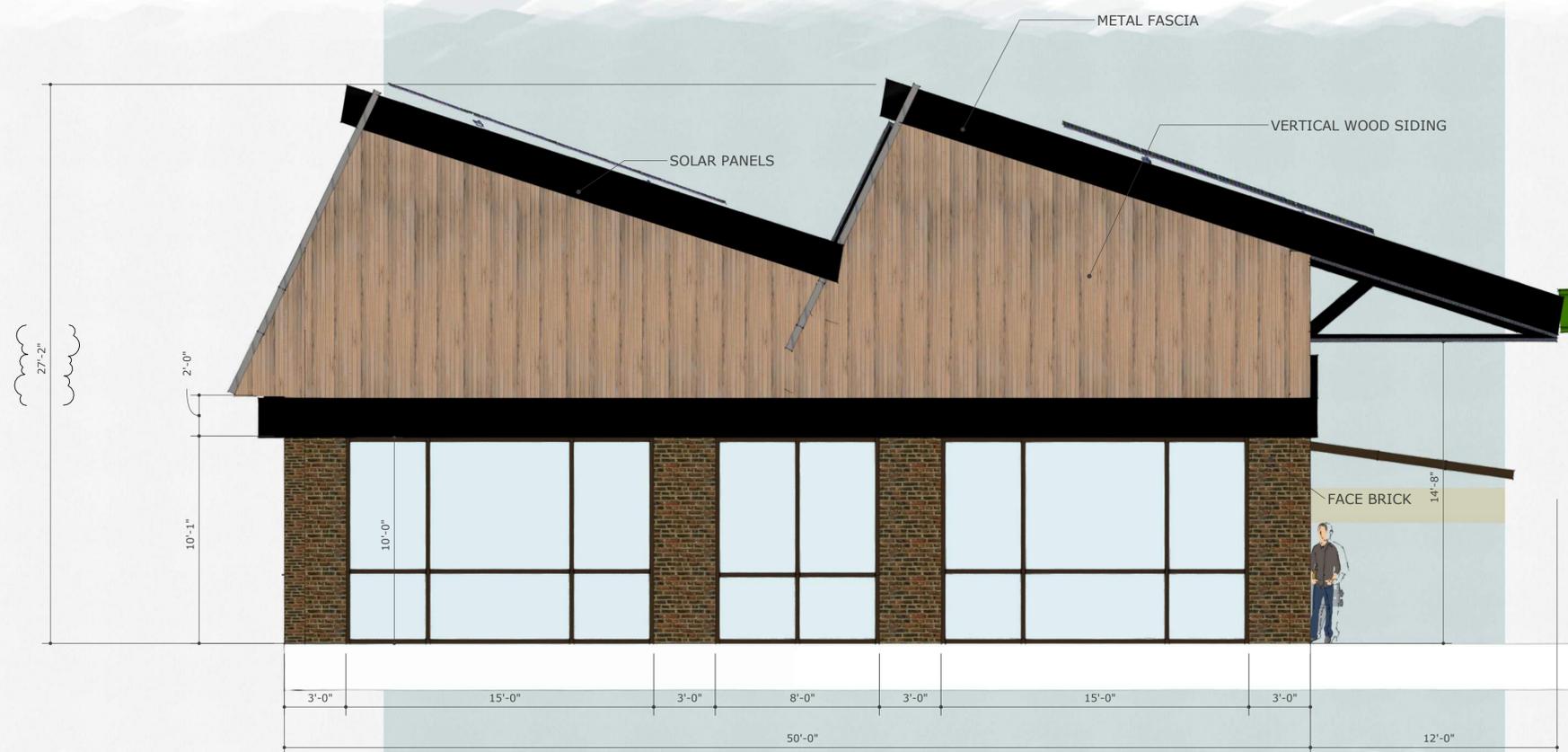
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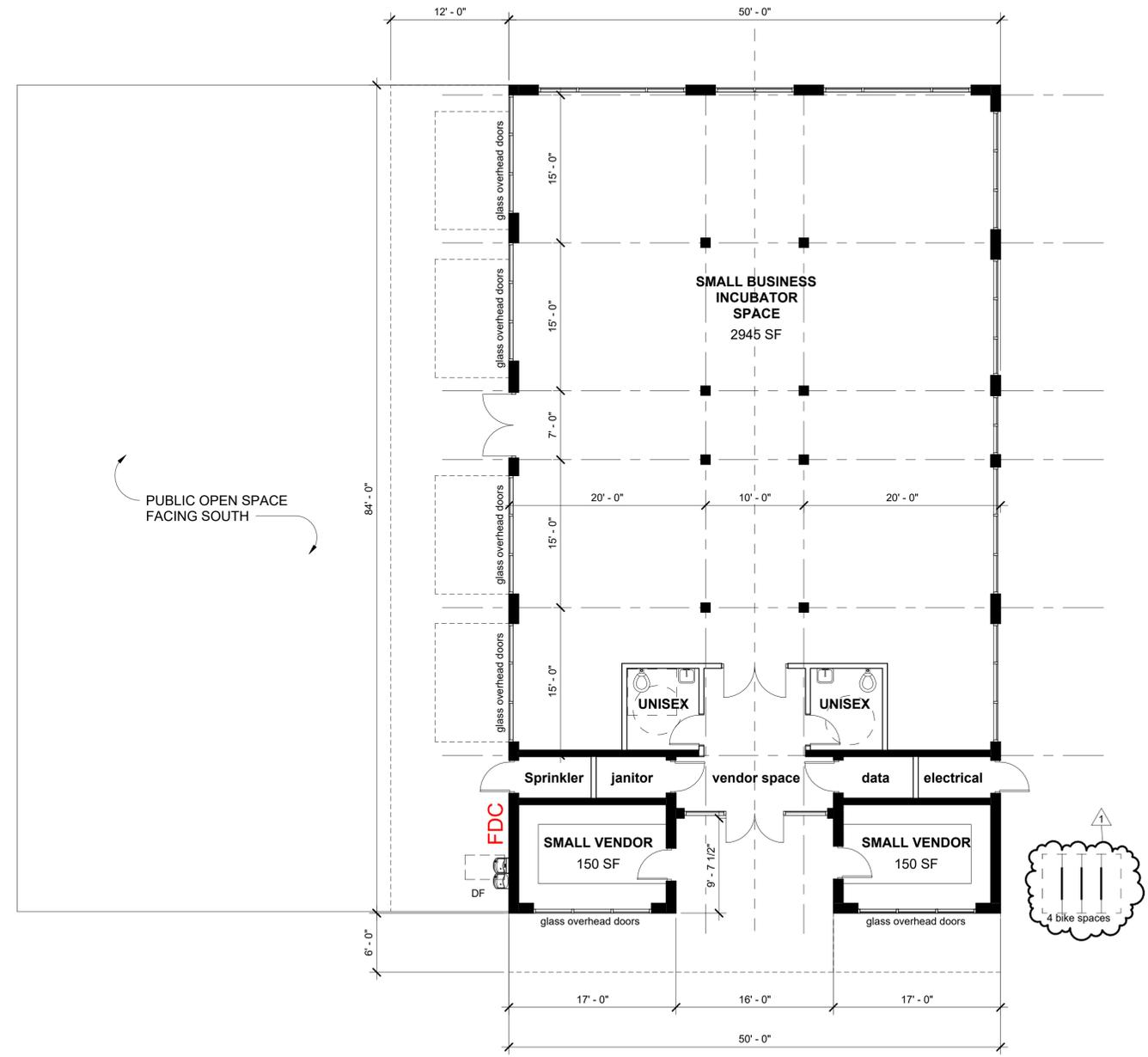
#	REVISION	DATE
1	Revision 1	05/07/2024



#	REVISION	DATE
1	Revision 1	05/07/2024

76% GLAZING\*  
NO WEATHERPROTECTION

\*Calculated per SRC 112.030 (b)



**1 1st FLOOR PLAN**  
 1/8" = 1'-0"



TOTAL BUILDING SQFT 4,046 sf  
 COVERED AREA SOUTH 1,154 sf  
 TOTAL 5,200 sf

# REVISION  
 1 Revision 1

DATE  
 05/07/2024

## **Attachment L: Traffic Impact Analysis**

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**lancaster  
moble**

## The Cannery

### Transportation Impact Analysis

### Salem, Oregon

Date:

June 3, 2024

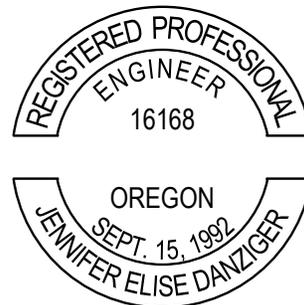
Prepared for:

Trent Michels, FUND

Prepared by:

Jennifer Danziger, PE

Ken Kim, PE



RENEWS: 12/31/2025

Executive Summary	3
Project Description	5
Introduction	5
Project Description	5
Transit	9
Site Trips	11
Trip Generation	11
Trip Distribution	13
Traffic Volumes	17
Existing Conditions	17
Background Year 2029 Conditions	17
Buildout Year 2029 Conditions	17
Safety Analysis	24
Crash History Review	24
Sight Distance	27
Vision Clearance Triangles	29
Warrant Analysis	29
Operational Analysis	30
Intersection Capacity Analysis	30
Queuing Analysis	32
Potential Mitigation	36
Operational Mitigation	36
Safety Mitigation	39
Conclusions	40

## List of Appendices

- Appendix A – Site Information
- Appendix B – Volumes
- Appendix C - Safety
- Appendix D - Operations



## List of Figures

Figure 1: Vicinity Map (Image from Google Earth)	6
Figure 2: Vicinity Map	10
Figure 3: Trip Distribution & Assignment – AM Peak Hour	15
Figure 4: Trip Distribution & Assignment – PM Peak Hour	16
Figure 5: 2024 Existing Conditions - AM Peak Hour	18
Figure 6: 2024 Existing Conditions - PM Peak Hour	19
Figure 7: Background Year 2029 Conditions – AM Peak Hour	20
Figure 8: Background Year 2029 Conditions – PM Peak Hour	21
Figure 9: Buildout Year 2029 Conditions – AM Peak Hour	22
Figure 10: Buildout Year 2029 Conditions – PM Peak Hour	23

## List of Tables

Table 1: Estimated Breakdown of Proposed Site Uses	7
Table 2: Vicinity Roadway Descriptions	7
Table 3: Study Intersection Descriptions	9
Table 4: Transit Line Description	9
Table 5: Trip Generation Summary – Proposed Development	12
Table 6: Trip Generation Comparison – Proposed vs. Prior Uses	13
Table 7: Collision Type Summary	24
Table 8: Crash Severity and Rate Summary	25
Table 9: Capacity Analysis Summary	30
Table 10: Queuing Analysis Summary	33
Table 11: Potential Mitigation Options - Market Street NE/Center Access & Front Street NE	36
Table 12: Alternative Performance Measures at Market Street NE/Center Access & Front Street NE	37
Table 13: Simulated Delays at Market Street NE/Center Access & Front Street NE	38

## Executive Summary

1. The property located at 1105 Front Street NE in Salem, Oregon has been proposed for mixed-use development consisting of three new buildings and three repurposed buildings. The three new 6-story buildings will provide 371 multifamily homes with ground floor commercial space. The three repurposed buildings will house a mix of commercial uses that include a food hall, eating/drinking establishments, event space, a winery, and small business incubator and vendor spaces. These buildings will also include covered outdoor spaces and a flexible plaza space. Buildout of the site is anticipated to be completed by the year 2029.
2. Total external trip generation was estimated at 268 morning peak hour, 318 evening peak hour, and 3,764 daily trips. After deducting pass-by traffic, the proposed development is anticipated to generate 256 primary trips during the morning peak hour, 288 primary trips during the evening peak hour, and 3,466 primary trips each weekday.
3. Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections; therefore, no safety mitigation is recommended per the crash data analysis.
4. Adequate sightlines are available at all three proposed sight accesses without obstruction from the proposed buildings; however, vehicles utilizing the on-street parking may be present in the sight triangles. Parked vehicles are considered an acceptable temporary obstruction under the vision clearance standards. Additionally, vehicles approaching on the major roadway have adequate SSD looking towards all three access intersections.
5. The proposed buildings lie within the vision clearance areas at the center (Market Street NE) and south (Belmont Alley NE) accesses. Sight distance is an acceptable alternative standard and adequate sight lines are available at these accesses.
6. The preliminary traffic signal analysis determined that signal warrants are not projected to be met at any of the site access intersections under 2029 buildout conditions.
7. All study intersections are projected to operate within standards under all analysis scenarios, except for Market Street NE/Center Access & Front Street NE. Operations on the westbound approach of Market Street NE are anticipated to exceed LOS E during the evening peak hour under 2029 buildout conditions although the approach is not expected to be over capacity.
8. In general, changes in 95th percentile queuing between the year 2029 background and buildout conditions are anticipated to be small, one vehicle or two vehicles.
9. Only one intersection, Front Street NE & OR 99E, is expected to have queues which pose a safety concern. The queue on the southbound approach of Front Street NE to OR 99E is estimated to have the queues that will extend across the PWRR railroad tracks under both morning and evening peak hours for both background and buildout conditions.



10. The following mitigation is recommended based on the operations and safety analysis:

- Alternative performance measures, such as using average hourly operations, which meet the level of service (LOS) standard and/or traffic simulations of delay, which meet the delay standard are recommended for the Market Street NE/Center Access & Front Street NE intersection. Although traffic control changes were considered, all-way stop control would significantly increase overall intersection delay, traffic signal warrants are not satisfied with the forecast traffic volumes, and a roundabout is not considered feasible because of the PWRR line that runs through the intersection.
- To address existing and future queuing across the Portland & Western Railroad (PWRR) tracks on Front Street NE as it approaches OR 99E, signage, such as "DO NOT STOP ON TRACKS" (Sign R8-8) is recommended per MUTCD guidance. This recommendation is independent of the proposed project.
- The posted speed on Front Street NE is currently 35 mph which is typical for a minor arterial roadway; however, the proposed development and reconfiguration of Front Street NE supports consideration of a lower posted speed more appropriate for the active commercial area. Changing a speed zone is a complex process but should be considered as a long-term option for Front Street NE along the sight frontage.



# Project Description

## Introduction

The property located at 1105 Front Street NE in Salem, Oregon has been proposed for mixed-use development consisting of three new buildings and three repurposed buildings. The three new 6-story buildings will provide 371 multifamily homes with ground floor commercial space. The three repurposed buildings will house a mix of commercial uses that include a food hall, eating/drinking establishments, event space, a winery, and small business incubator and vendor spaces. These buildings will also include covered outdoor spaces and a flexible plaza space. Buildout of the site is anticipated to be completed by the year 2029.

This report examines the traffic impacts of the proposed development on the transportation system in the vicinity of the project site. Based on correspondence with the City of Salem and Oregon Department of Transportation (ODOT) staff, this report conducts safety and capacity/level of service analyses at 13 intersections:

1. Pine Street NE & Front Street NE
2. Pine Street NE & Commercial Street NE (OR 99E)
3. Pine Street NE & Liberty Street NE (OR 99E)
4. Shipping Street NE & Front Street NE
5. Hood Street NE & Front Street NE
6. Gaines Street NE/North Access & Front Street NE
7. Market Street NE/Center Access & Front Street NE
8. Market Street NE & Commercial Street NE (OR 99E)
9. Market Street NE & Liberty Street NE (OR 99E)
10. Market Street NE & Broadway Street
11. Belmont Alley NE/South Access & Front Street NE
12. Front Street NE & OR 99E
13. Union Street NE & Front Street NE (OR 99E)

All supporting data and calculations are included in the appendix of this report.

## Project Description

The site comprises tax lots 073W22AB 900, 600, and 300 outlined in yellow in Figure 1. However, part of lot 900 and all of the two northern lots 600 and 300, shaded in orange, will be developed at a future date. The portion of the site shaded in blue will be adapted for reuse while the portion of the site shaded yellow will be redeveloped. Plans for the site are included in Appendix A.



Figure 1: Vicinity Map (Image from Google Earth)

Three proposed access points, indicated with yellow arrows in Figure 1, will serve the site. The accesses aligned with Gaines Street NE and Market Street NE will have two-way traffic flow. The access aligned with Belmont Alley NE will be one-way outbound.

## Proposed Site Uses

An estimated breakdown of the proposed site uses by building is summarized in Table 1. The uses summarized in the table are for interior spaces only. Some of the outside spaces may host intermittent activities but the spaces are not anticipated to routinely generate peak hour trips independent of other site users.

**Table 1: Estimated Breakdown of Proposed Site Uses**

Site Designation	Residential Multifamily (DU)	Mixed Interior Commercial Tenant Space (SF)*			
		Eating/Drinking Establishments	Retail	Office	Total
<b>New Buildings</b>					
Building 1	138	4,907	3,907	1,000	9,814
Building 2	116	3,685	2,485	1,200	7,370
Building 3	117	3,685	0	3,685	7,370
Subtotal	371	12,277	6,392	5,885	24,554
<b>Repurposed Buildings</b>					
Food Hall	0	14,055	3,340	0	17,395
Winery	0	2,925	0	0	2,925
Market	0	1,618	2,428	0	4,046
Subtotal	0	18,598	5,768	0	24,366
<b>Total Site Development</b>					
Total	371	30,875	12,160	5,885	48,920

\* Mixed interior commercial tenant space composed of a mix of eating/drinking establishments, retail, and office space. The distribution of square footage per use is subject to change.

## Vicinity Streets

The planned development is expected to impact ten (10) roadways near the site. Table 2 describes each of the vicinity roadways under existing conditions.

**Table 2: Vicinity Roadway Descriptions**

Street Name	Functional Classification	Travel Lanes	Speed (MPH)	Curbs & Sidewalks	On-Street Parking	Bicycle Facilities
<b>ODOT Jurisdiction</b>						
Commercial St NE (OR 99E)	Regional Highway & Principal Arterial	1-5	25-55	Both Sides	Partially Permitted	Partially Both Sides
Liberty St NE (OR 99E)	Regional Highway & Principal Arterial	2-3	30-35	Both Sides	Prohibited	East Side

**Table 2: Vicinity Roadway Descriptions**

Street Name	Functional Classification	Travel Lanes	Speed (MPH)	Curbs & Sidewalks	On-Street Parking	Bicycle Facilities
City of Salem Jurisdiction						
Pine St NE	Minor Arterial	2-3	30	Both Sides	Partially Permitted	Both Sides
Shipping St NE	Local Street	2	25	Partially Both Sides	Permitted	None
Hood St NE	Minor Arterial	2	30	Both Sides	Partially Permitted	Partially Both Sides
Gaines St NE	Local Street	2	25	Both Sides	Permitted	None
Market St NE	Minor Arterial	2-4	25-30	Both Sides	Partially Permitted	Partially Both Sides
Union St NE	Collector	2-4	25	Both Sides	Partially Permitted	Partially Both Sides
Front St NE	Minor Arterial	2-6	35	Partially Both Sides	Partially Permitted	Partially Both Sides
Broadway St	Minor Arterial	2-4	30-35	Both Sides	Partially Permitted	None

*Table Notes: Functional classification based on Salem TSP*

One of the unique characteristics of the study area is the presence of the Portland & Western Railroad (PWRR) line that runs within the Front Street NE right-of-way from just north of the connection to OR 99E/Front Street NE to Norway Street NE. From the Mill Creek crossing north to Market Street NE, northbound traffic travels on the rail line as the roadway is not wide enough for a separate travel lane.

The proposed development will improve Front Street NE from Mill Creek to Shipping Street NE. The improvements were coordinated with the City and railroad and are still subject to rail diagnostic feedback. Channelizing islands from south of Market Street NE to north of Hood Street NE will prevent vehicles from crossing the tracks except at public, controlled crossings. Motorized safety gates will be added at the Market Street NE, Gaines Street NE, and Hood Street NE intersections. Pedestrian crossings are included on the east side of the Market Street NE and Gaines Street NE intersections and the west side of the Hood Street NE intersection. Other improvements include a multi-use path along the site frontage and a northbound bike lane north and sidewalks on the south side from Market Street NE north to Shipping Street NE. Intermittent on-street parking is present on both sides of the street with curb extensions defining the parking areas.

**Study Intersections**

Through coordination with the City of Salem and ODOT staff, 13 intersections were identified for analysis. A summarized description of the study intersections is provided in Table 3. A map showing the project site, vicinity streets, and study intersection configurations is shown in Figure 2.



**Table 3: Study Intersection Descriptions**

	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
1	Pine St NE & Front St NE	4-Leg	Stop-Controlled	EB/WB Stop
2	Pine St NE & Commercial St NE	4-Leg	Signalized	WB Permissive Left
3	Pine St NE & Liberty St NE	4-Leg	Signalized	EB Permissive Left
4	Shipping St NE & Front St NE	4-Leg	Stop-Controlled	EB/WB Stop
5	Hood St NE & Front St NE	4-Leg	Stop-Controlled	EB/WB Stop
6	Gaines St NE/North Access & Front St NE	4-Leg	Stop-Controlled	EB/WB Stop
7	Market St NE/Center Access & Front St NE	4-Leg	Stop-Controlled	EB/WB Stop
8	Market St NE & Commercial St NE	4-Leg	Signalized	WB Permissive Left
9	Market St NE & Liberty St NE	4-Leg	Signalized	EB Permissive Left
10	Market St NE & Broadway St	4-Leg	Signalized	EB/WB/NB/SB Permissive/ Protected Lefts
11	Belmont St NE/South Access & Front St NE	3-Leg	Stop-Controlled	EB Stop
12	Front St NE & OR 99E	3-Leg	Stop-Controlled	SB Stop
13	Union St NE & Front St NE	4-Leg	Signalized	EB/WB Permissive NB/SB Permissive/ Protected Lefts

## Transit

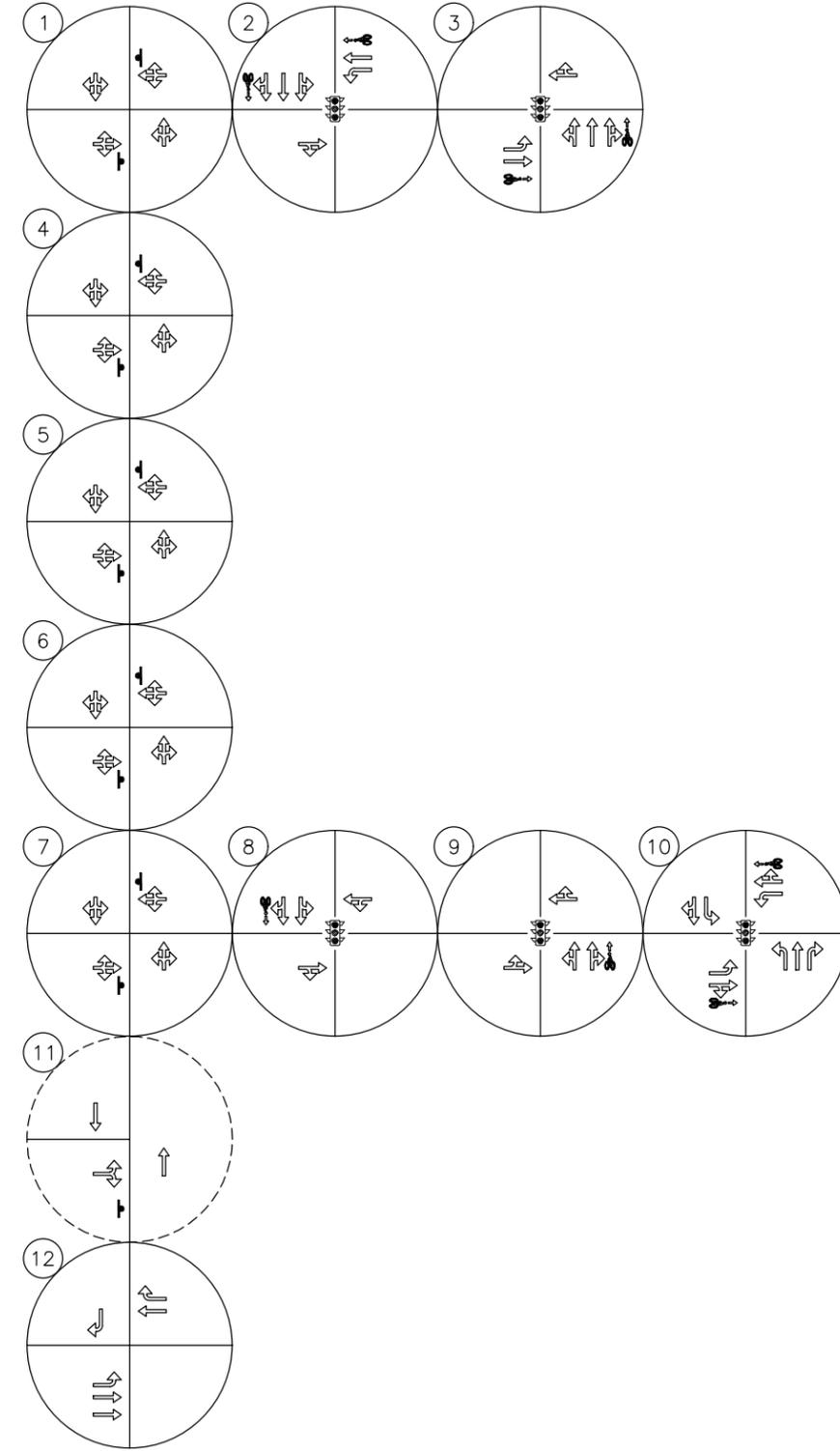
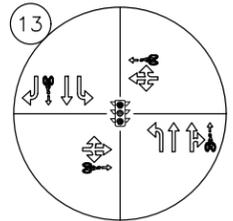
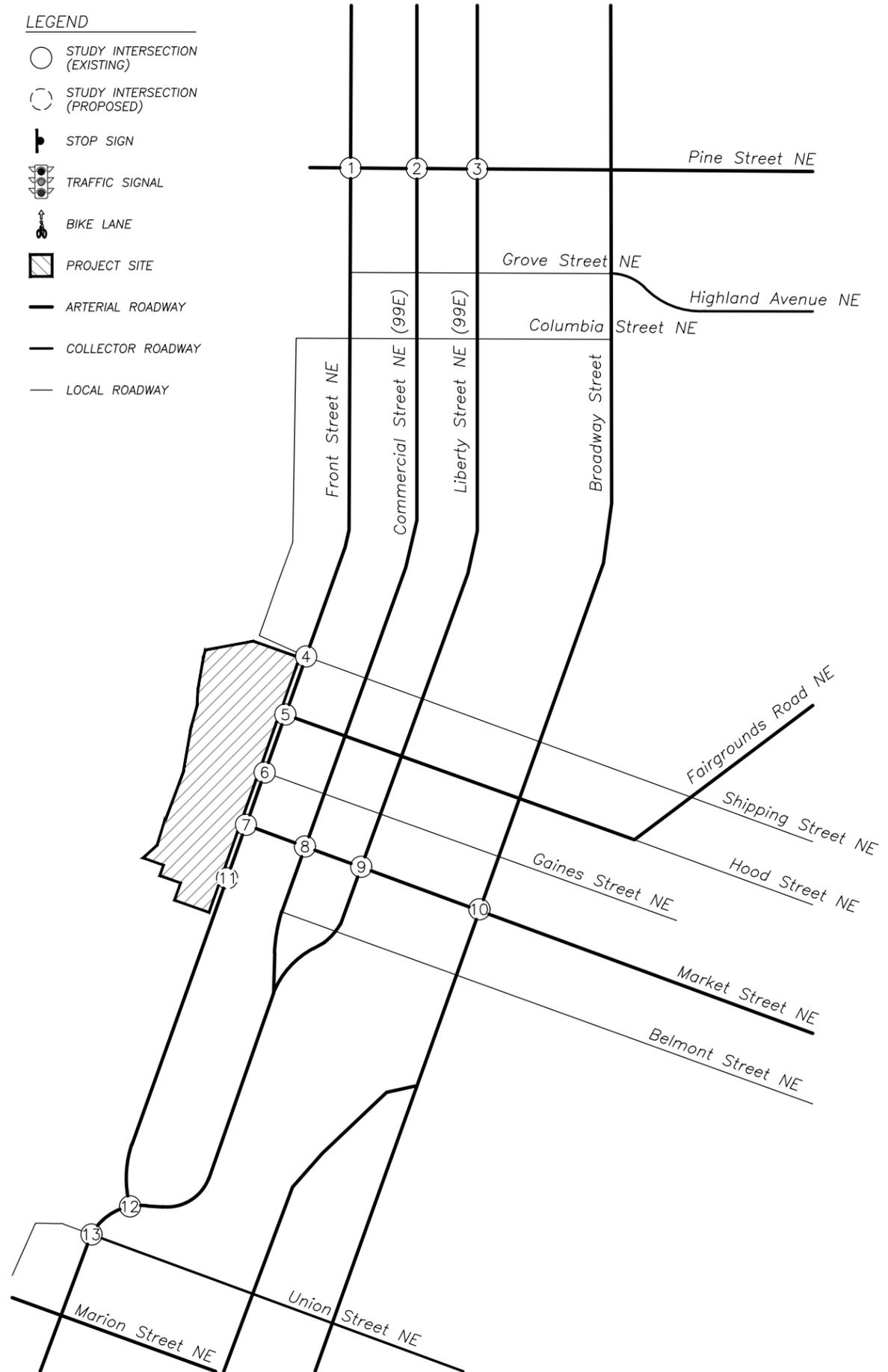
Cherriots is the public transit operator for the Salem Area Mass Transit District. Two local bus lines run north-south along Broadway Street NE through the study area. A summarized description of the transit line is shown in Table 4.

**Table 4: Transit Line Description**

Transit Line (Cherriots)	Service Area	Day of Week	Service Times	Typical Headways (Minutes)	Nearest Stops
Bus Line #9: Cherry / River Road	Between Salem Downtown Transit Center & Keizer Transit Center	Weekday	6:33 AM - 9:03 PM	30	Market Street NE at Broadway Street
		Saturday	7:02 AM - 9:02 PM	60	
		Sunday	8:02 AM - 8:02 PM	60	
Bus Line #19: Broadway / River Road	Between Salem Downtown Transit Center, Keizer Creekside Shopping Center & areas north	Weekday	6:34 AM - 11:03 PM	15 - 60	Market Street NE at Broadway Street
		Saturday	7:04 AM - 9:03 PM	30 - 60	
		Sunday	8:04 AM - 8:03 PM	60	

LEGEND

-  STUDY INTERSECTION (EXISTING)
-  STUDY INTERSECTION (PROPOSED)
-  STOP SIGN
-  TRAFFIC SIGNAL
-  BIKE LANE
-  PROJECT SITE
-  ARTERIAL ROADWAY
-  COLLECTOR ROADWAY
-  LOCAL ROADWAY



No Scale



lancaster  
mobley

VICINITY MAP

# Site Trips

## Trip Generation

To estimate the number of trips that will be generated by the existing and proposed use, trip rates from the *Trip Generation Manual*<sup>1</sup> were used. The following land use codes were applied to estimate trip generation:

- Trip generation for the proposed multifamily housing was estimated using trip generation equations from land use code 221, *Multifamily Housing (Mid-Rise)*, based on the number of dwelling units. The proposal consists of three 6-story mixed-use buildings which have 371 multiple-family residential units.
- Retail space in the new and existing buildings is estimated to total 12,160 SF. Trip generation for the proposed retail space was estimated using rates from land use code 822, *Strip Retail (<40k)*, based on gross floor area.
- Small offices totaling approximately 5,885 SF are included in the new buildings. Trip generation for the proposed office space was estimated using rates from land use code 712, *Small Office Building*, based on gross floor area.
- The floor area for the eating/drinking establishments is estimated at 30,875 SF. Within the broader category four different types of uses are assumed in the trip generation:
  - Approximately 10,715 SF of the food hall will contain 8 cart-style food vendors. Trip generation for the proposed food carts was estimated using rates from land use code 926, *Food Cart Pods*, based on the number of food cart units.
  - For the proposed 2,925-SF winery included in one of the existing buildings, trip generation was estimated using data from land use code 970, *Wine Tasting Room*, based on gross floor area.
  - The remaining types and breakdown of eating/drinking establishments within the site are unknown. For this analysis, approximately 75 percent of the remaining 17,235 SF of eating/drinking establishments was assumed to be dining. Trip generation was estimated using data from land use code 932, *High-Turnover Sit-Down Restaurant*, based on the gross floor area.
  - Approximately 25 percent of the remaining 17,235 SF of eating/drinking establishments was assumed to be drinking. Trip generation was estimated using data from land use code 975, *Drinking Place*, based on the gross floor area.

Given the variety of land uses that could be developed within the project site (including residential, retail, office, and service land uses), some trips generated are likely to be captured internally within the site and won't impact public area intersections or adjoining roadways. Per the *Trip Generation Handbook, 3rd Edition*<sup>2</sup> and referencing the *NCHRP 8-51 Internal Trip Capture Estimation Tool* (NCHRP 684), the internal capture rate for the peak hours was calculated considering the mix of land uses. The daily internal capture rates were estimated as the average of the morning and evening peak hour rates.

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<sup>1</sup> Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

<sup>2</sup> Institute of Transportation Engineers (ITE), *Trip Generation Handbook*, 3rd Edition, 2017.

Additionally, the retail and eating/drinking establishments within the proposed development are expected to attract pass-by trips to the site. Pass-by trips are trips that leave the adjacent roadway to patronize an establishment and then continue in their original direction of travel. They do not add additional vehicles to the surrounding transportation system; however, they do add turning movements at site access intersections.

The ITE Manual estimates pass-by rates at 40 percent for retail and 43 to 55 percent for restaurants. However, considering the internal trip rate reductions and the site location, which is not directly adjacent to the higher-volume corridors, pass-by rates of 10 percent for morning peak hour, 20 percent for the evening peak hour, and 15 percent for the daily volume were applied to the external traffic volumes.

A summary of the trip generation for the proposed development is shown in Table 5.

**Table 5: Trip Generation Summary – Proposed Development**

ITE Code	Intensity		Morning Peak Hour			Evening Peak Hour			Daily Trips
			In	Out	Total	In	Out	Total	
221 - Multifamily Housing (Mid-Rise)	371	DU	32	105	137	88	57	145	1,684
	<i>Internal Trips</i>		-3	-16	-19	-24	-18	-42	-360
712 - Small Office Building	5.885	KSF	8	2	10	4	9	13	84
	<i>Internal Trips</i>		-1	-1	-2	-4	-2	-6	-28
822 - Strip Retail Plaza (<40k)	12.160	KSF	17	12	29	40	40	80	662
	<i>Internal Trips</i>		-2	-3	-5	-26	-23	-49	-260
	<i>Pass-by Trips</i>		-1	-1	-2	-3	-3	-6	-60
926 - Food Cart Pods	8	Carts	5	5	10	25	24	49	492
	<i>Internal Trips</i>		-1	-1	-2	-5	-8	-13	-108
	<i>Pass-by Trips</i>		0	0	0	-4	-4	-8	-76
932 - High-Turnover (Sit-Down) Restaurant	12.926	KSF	68	56	124	71	46	117	1,386
	<i>Internal Trips</i>		-17	-3	-20	-13	-20	-33	-304
	<i>Pass-by Trips</i>		-5	-5	-10	-8	-8	-16	-162
970 - Wine Tasting Room	2.925	KSF	4	2	6	11	10	21	134
	<i>Internal Trips</i>		0	0	0	0	0	0	0
975 - Drinking Place	4.309	KSF	0	0	0	32	17	49	490
	<i>Internal Trips</i>		0	0	0	-6	-7	-13	-108
Total Trips			134	182	316	271	203	474	4,932
<i>Internal Trips</i>			-24	-24	-48	-78	-78	-156	-1,168
Total External Trips			110	158	268	193	125	318	3,764
<i>Pass-by/Diverted Trips</i>			-6	-6	-12	-15	-15	-30	-298
Total Primary Trips			104	152	256	178	110	288	3,466

Notes:

1. *Internal trips calculated following the procedures in NCHRP 684.*
  2. *Pass-by rates of 10% for morning, 20% for evening, and 15% for daily were applied only to external trips*
- DU = dwelling units, KSF = 1,000 square feet of floor area



Total external trip generation was estimated at 268 morning peak hour, 318 evening peak hour, and 3,764 daily trips. After deducting pass-by traffic, the proposed development is anticipated to generate 256 primary trips during the morning peak hour, 288 primary trips during the evening peak hour, and 3,466 primary trips each weekday.

### Comparison to Previous Site Uses

Although the existing buildings on the site are largely unoccupied, for the purpose of examining transportation system development charges, trip generation was also estimated for the existing development. Trip generation for the existing industrial land use was estimated using trip generation rates from land use code 140, *Manufacturing*, based on gross floor area assuming existing buildings total 196,422 SF.

Comparing primary trips from the proposed site with the trips from the existing site yields a net increase of 122 morning peak hour, 143 evening peak hour, and 2,532 weekday trips, as shown in Table 6.

**Table 6: Trip Generation Comparison – Proposed vs. Prior Uses**

General Description	Morning Peak Hour			Evening Peak Hour			Daily Trips
	In	Out	Total	In	Out	Total	
<b>Proposed Development</b>							
6 Mixed-Use Buildings	104	152	256	178	110	288	3,492
<b>Existing Development</b>							
196,422 SF Manufacturing (LUC 140)	102	32	134	45	100	145	934
<b>Net Increase</b>							
Net Increase in Primary Trips	2	120	122	133	10	143	2,532

LUC = Land Use Code

### Trip Distribution

The trip distribution of the proposed development was derived using the Mid-Willamette Valley Council of Governments regional travel demand model known as SKATS. The project site is located in Transportation Analysis Zone (TAZ) 238. A select zone analysis of the SKATS model was run for the morning and evening peak hours for the base year, 2021, and the future year, 2050, to determine the distribution of site trips entering and exiting the zone. The following primary site trip distribution was used for analysis:

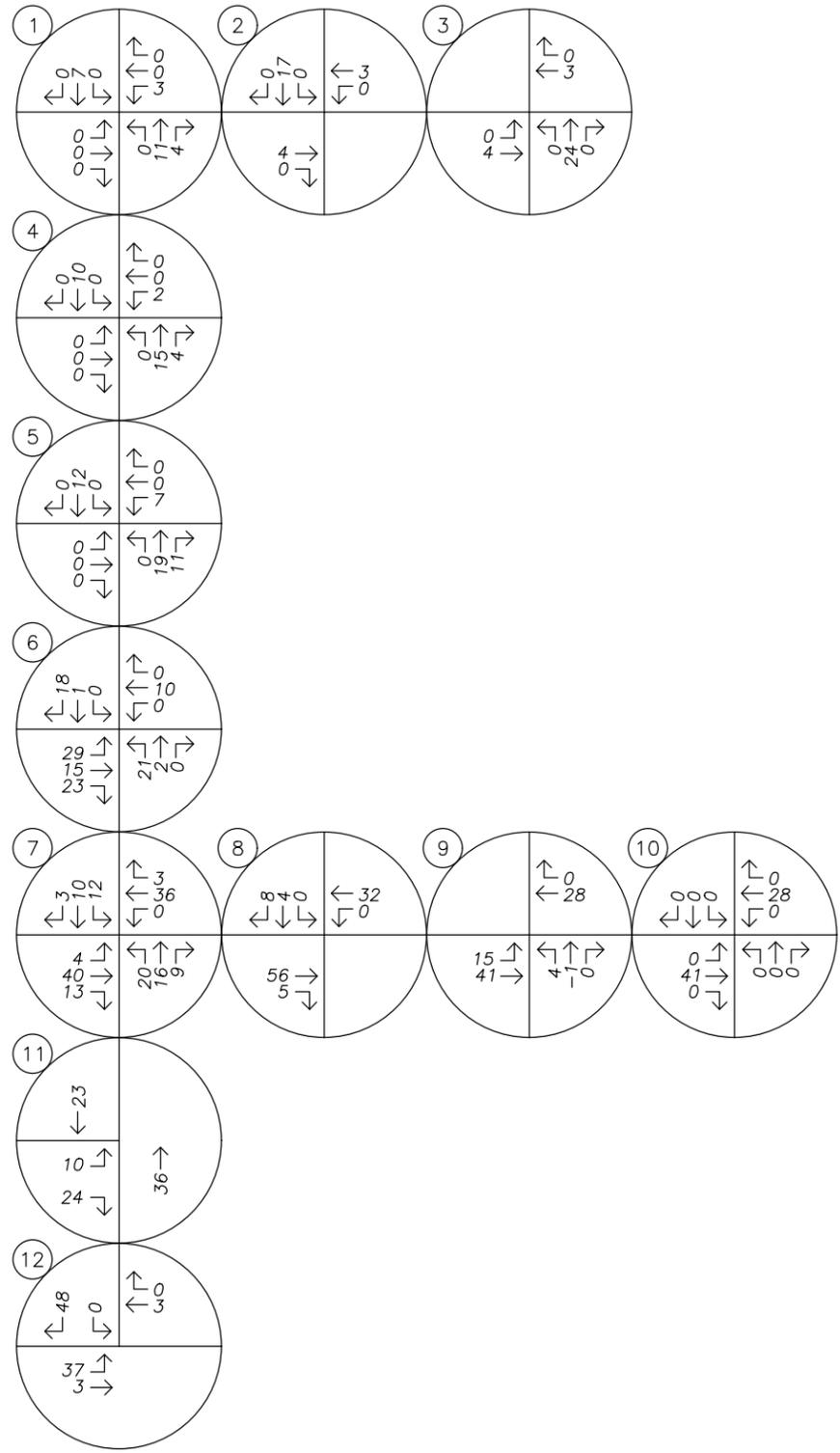
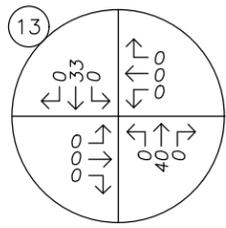
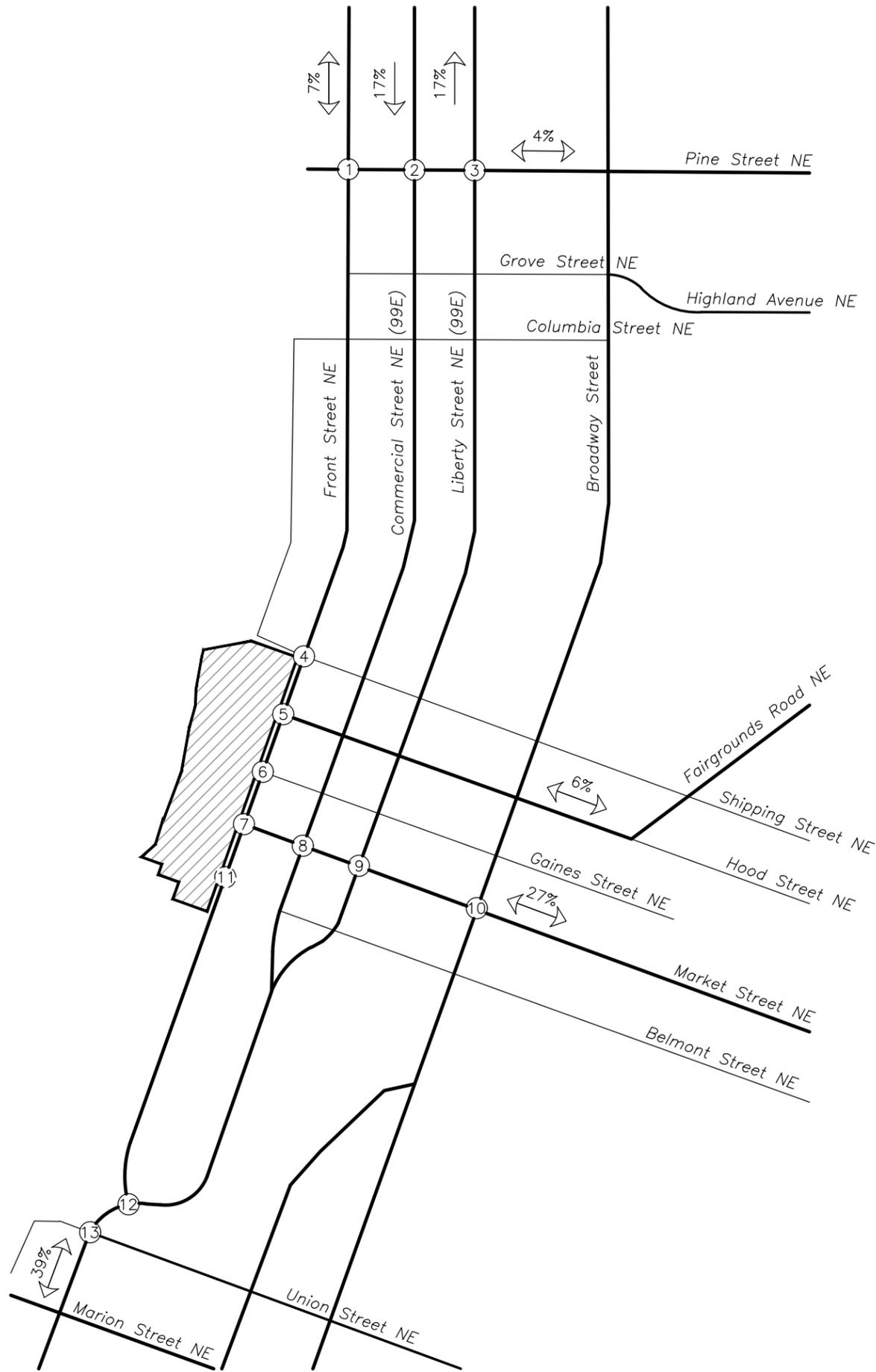
- Approximately 27 percent will travel to/from the east along Market Street NE east of Broadway
- Approximately 22 percent will travel to/from the south along Front Street NE south of Union Street NE
- Approximately 16 percent will travel to/from the west along OR 22
- Approximately 16 percent of site trips will travel to/from the north along OR 99E
- Approximately 10 percent of site trips will travel to/from the north along Front Street NE with 7 percent continuing to/from the on Front Street NE and 3 percent turning to/from Pine Street NE
- Approximately 6 percent of site trips will travel to/from the east along Hood Street NE
- Approximately 3 percent of site trips will disperse into the nearby neighborhoods



For the pass-by traffic, approximately 50 percent of the traffic is assumed to come directly from Front Street NE while 50 percent is assumed to divert from OR 99E (Commercial Street NE or Liberty Street NE).

The trip distribution and assignment for the site trips generated during the morning and evening peak hours is shown in Figure 3 and Figure 4, respectively.





LEGEND

XX% PERCENT OF PROJECT TRIPS

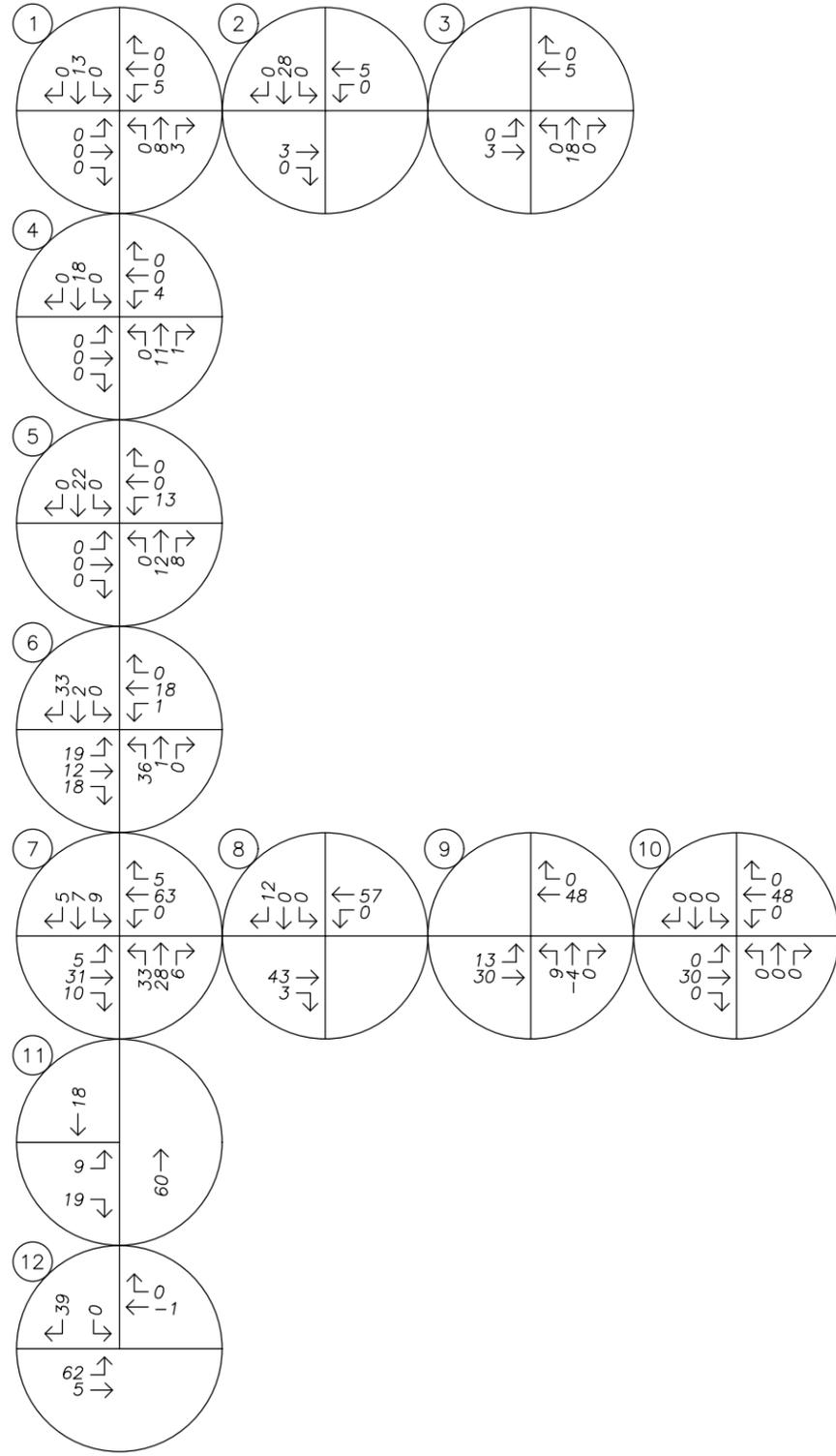
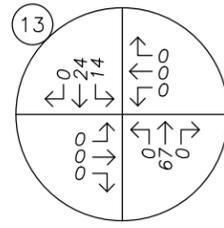
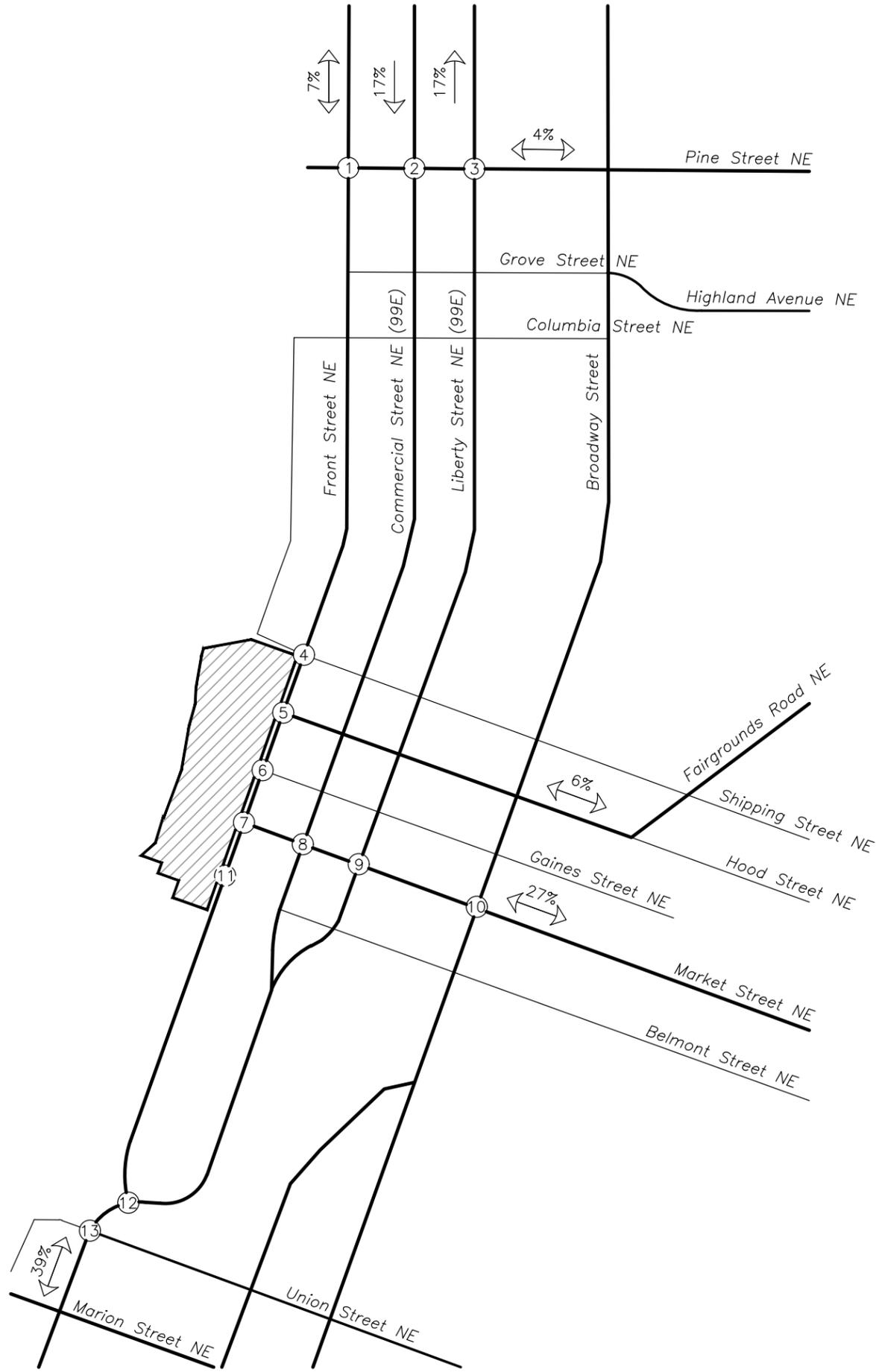
	TRIP GENERATION				TOTAL
	PRIMARY		PASS-BY		
	IN	OUT	IN	OUT	
AM	104	152	6	6	268
PM	178	110	15	15	318



**SITE TRIP DISTRIBUTION & ASSIGNMENT**

Proposed Development Plan - Site Trips

AM Peak Hour



LEGEND

XX% PERCENT OF PROJECT TRIPS

	TRIP GENERATION				TOTAL
	PRIMARY		PASS-BY		
	IN	OUT	IN	OUT	
AM	104	152	6	6	268
PM	178	110	15	15	318



No Scale



**SITE TRIP DISTRIBUTION & ASSIGNMENT**

Proposed Development Plan - Site Trips

PM Peak Hour

## Traffic Volumes

### Existing Conditions

Traffic counts were conducted at each of the study intersections on Tuesday, February 6, 2024, from 7:00 AM to 9:00 AM to capture the morning peak hour and from 4:00 PM to 6:00 PM to capture the evening peak hour.

Traffic volumes along OR 99E were seasonally adjusted to reflect the 30<sup>th</sup> highest hour of traffic, per procedures described in ODOT's *Analysis Procedures Manual*. Using the ODOT's 2022 Seasonal Trend Table, a seasonal adjustment factor of 1.12 was calculated based on the Commuter seasonal trend for the traffic counts.

Figure 5 and Figure 6 show the resulting existing conditions traffic volumes at the study intersections during the morning and evening peak hours, respectively.

### Background Year 2029 Conditions

To provide an analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. The background conditions were developed using a general growth rate. No in-process developments are anticipated to affect the study area.

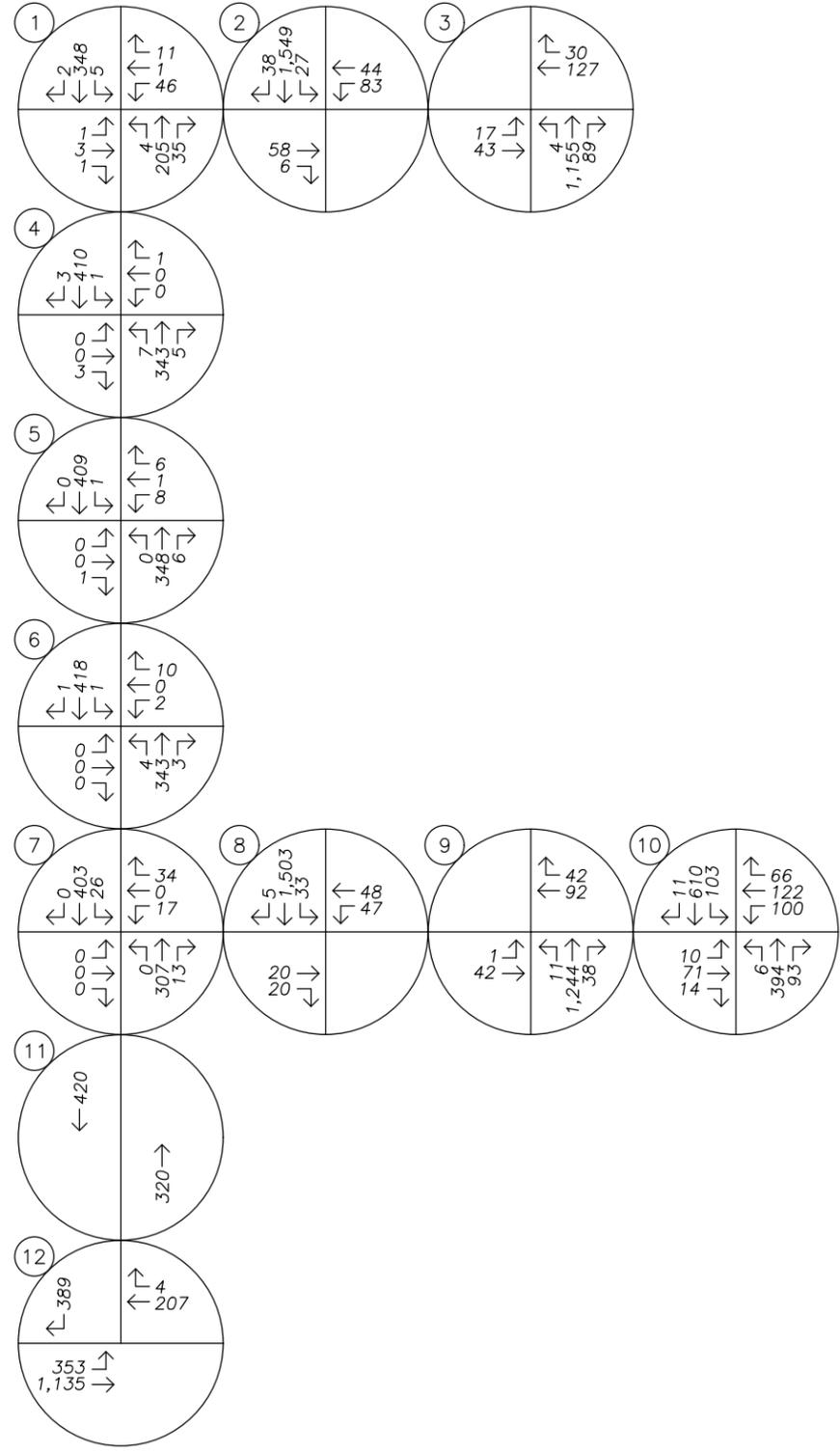
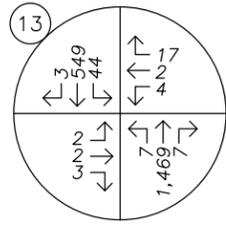
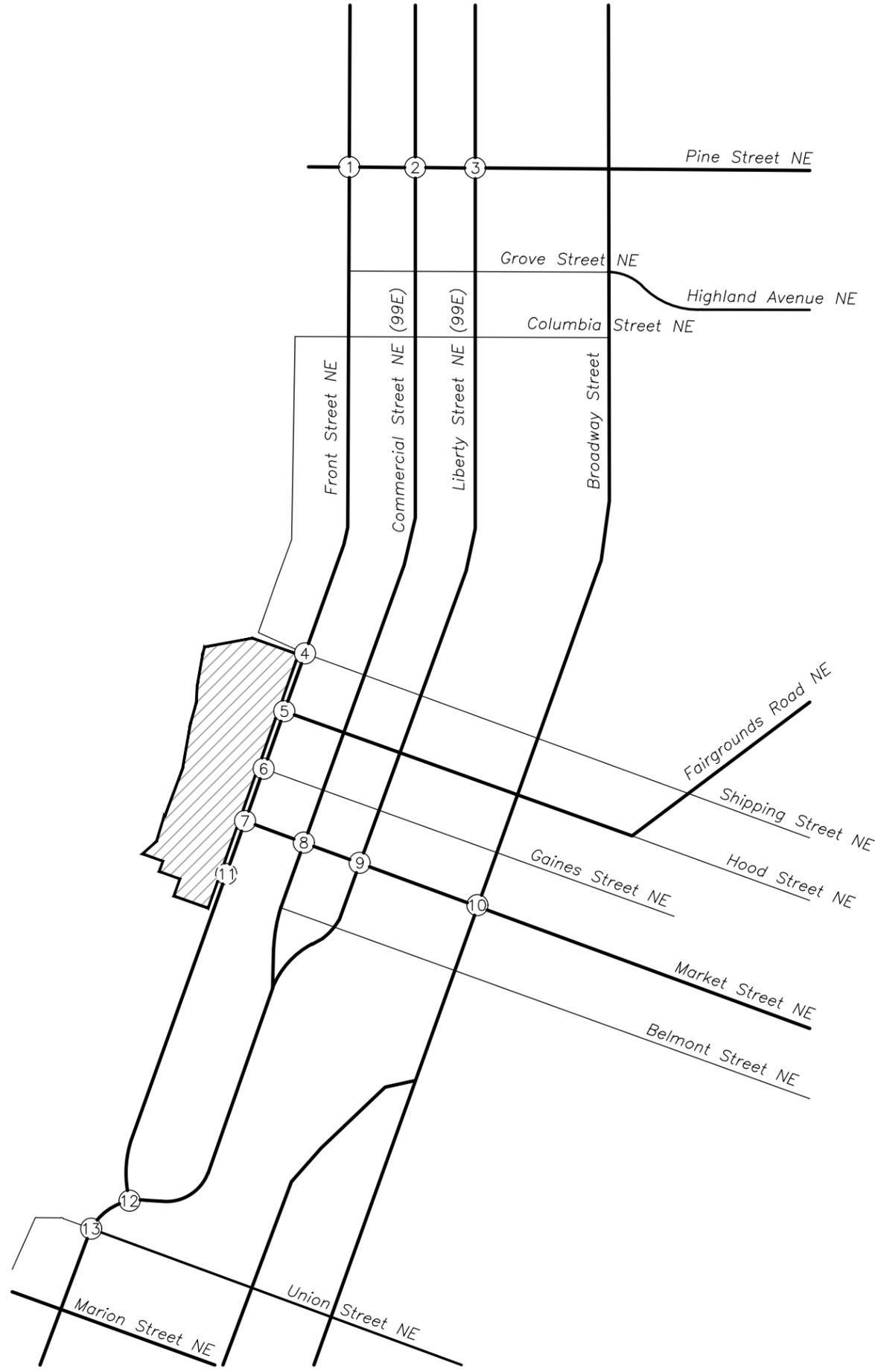
For the general background growth, base year and future year SKATS model forecasts were compared for roadway segments in the study area for the morning peak, evening peak, and daily traffic scenarios. The average growth rates considering all time periods and all roads (highways and local) was 0.6 percent per year (linear). The resulting annual background growth rate was applied to existing traffic count data for a period of 5 years.

Figure 7 and Figure 8 display the year 2029 background volumes during the morning and evening peak hours, respectively.

### Buildout Year 2029 Conditions

To estimate the buildout volumes, the existing traffic measured at the site accesses was subtracted from the 2029 background traffic volumes and the peak hour trips generated by the proposed development, as described in the *Site Trips* section, were then added to obtain the expected year 2029 buildout conditions.

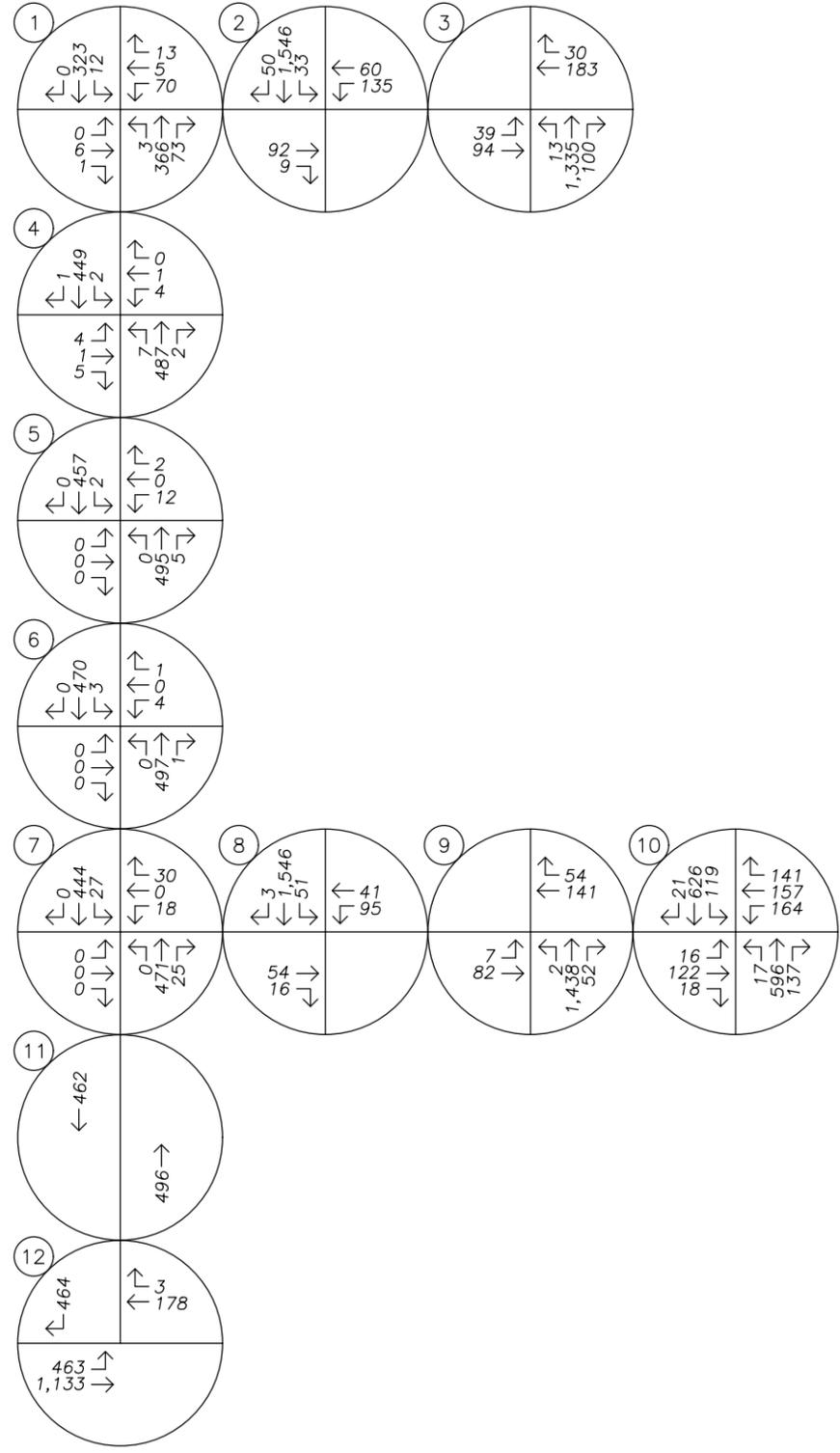
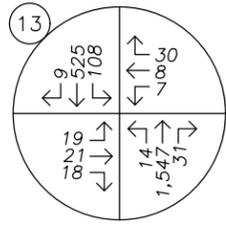
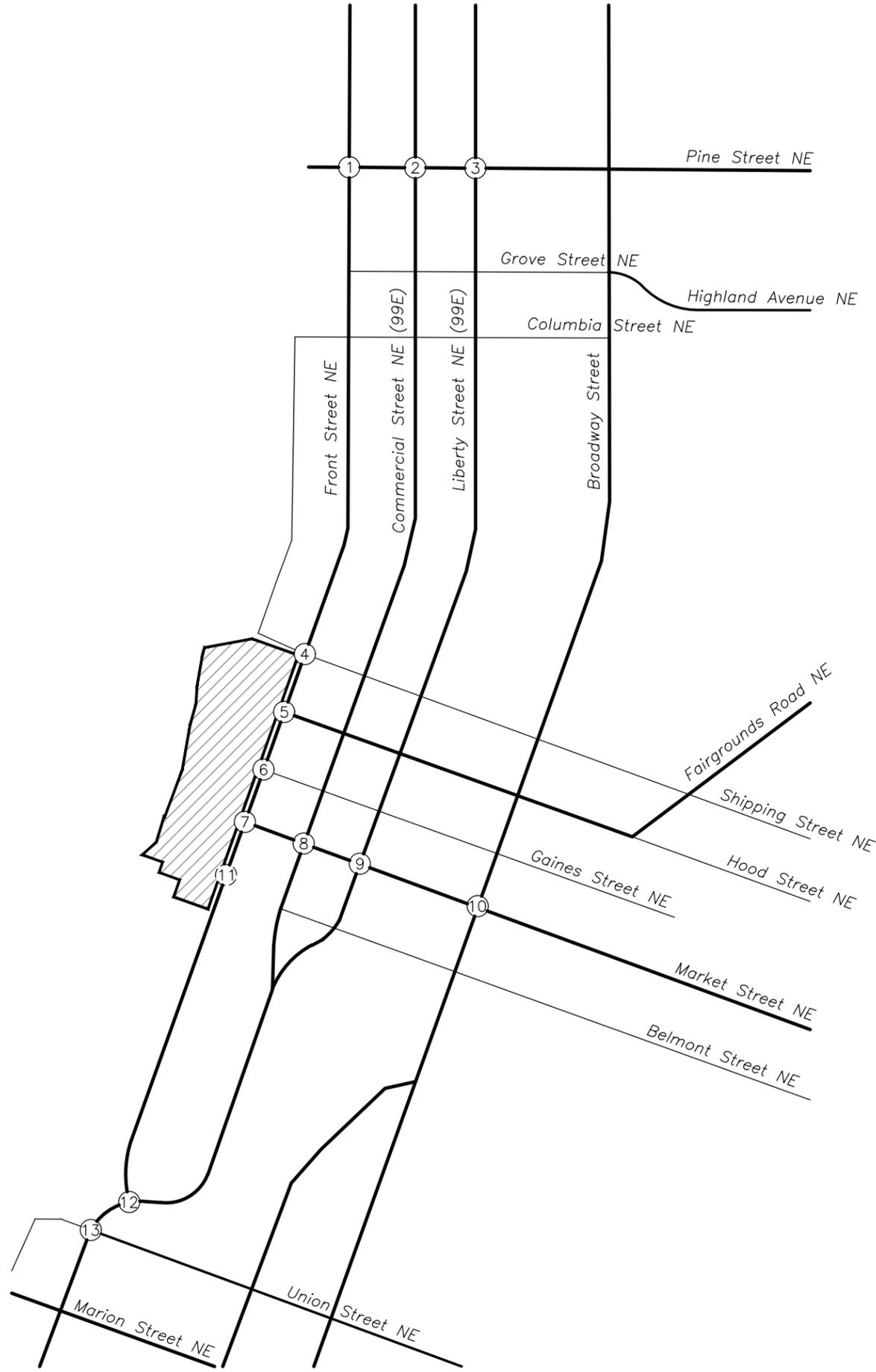
Figure 9 and Figure 10 displays the year 2029 buildout volumes during the morning and evening peak hours, respectively.



No Scale



**TRAFFIC VOLUMES**  
Year 2024 Existing Conditions  
AM Peak Hour

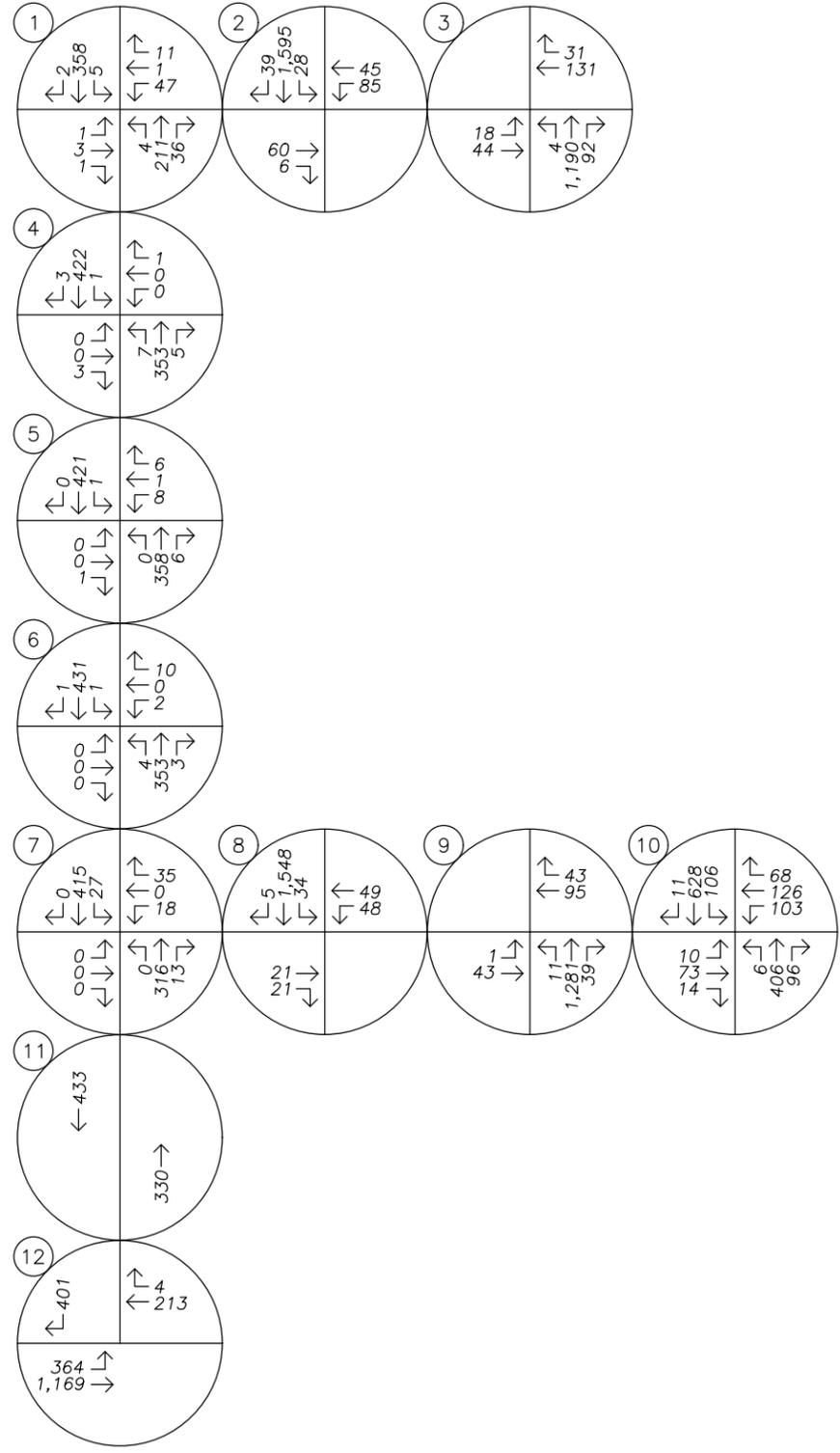
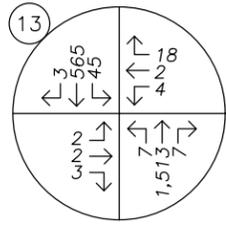
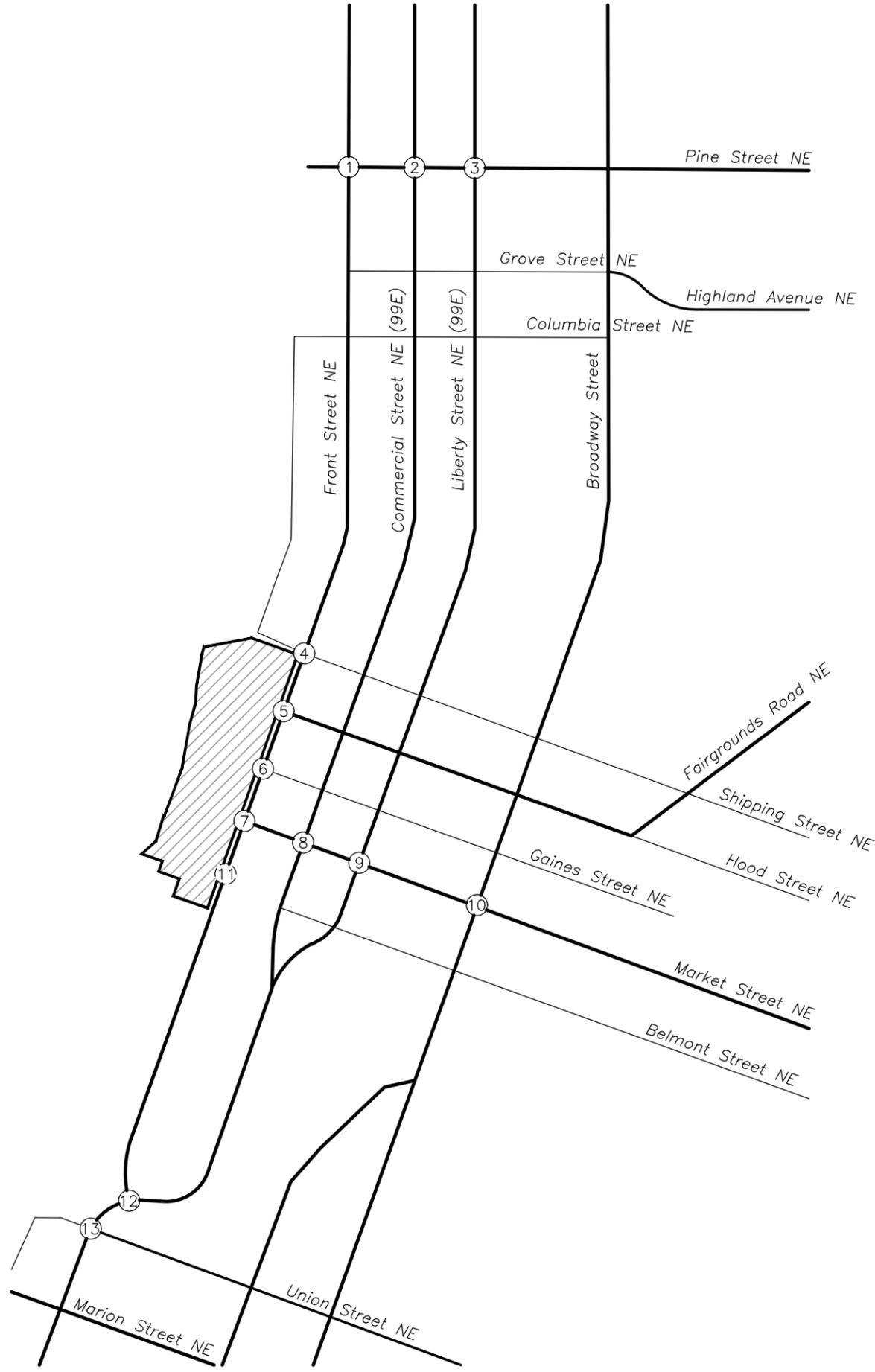


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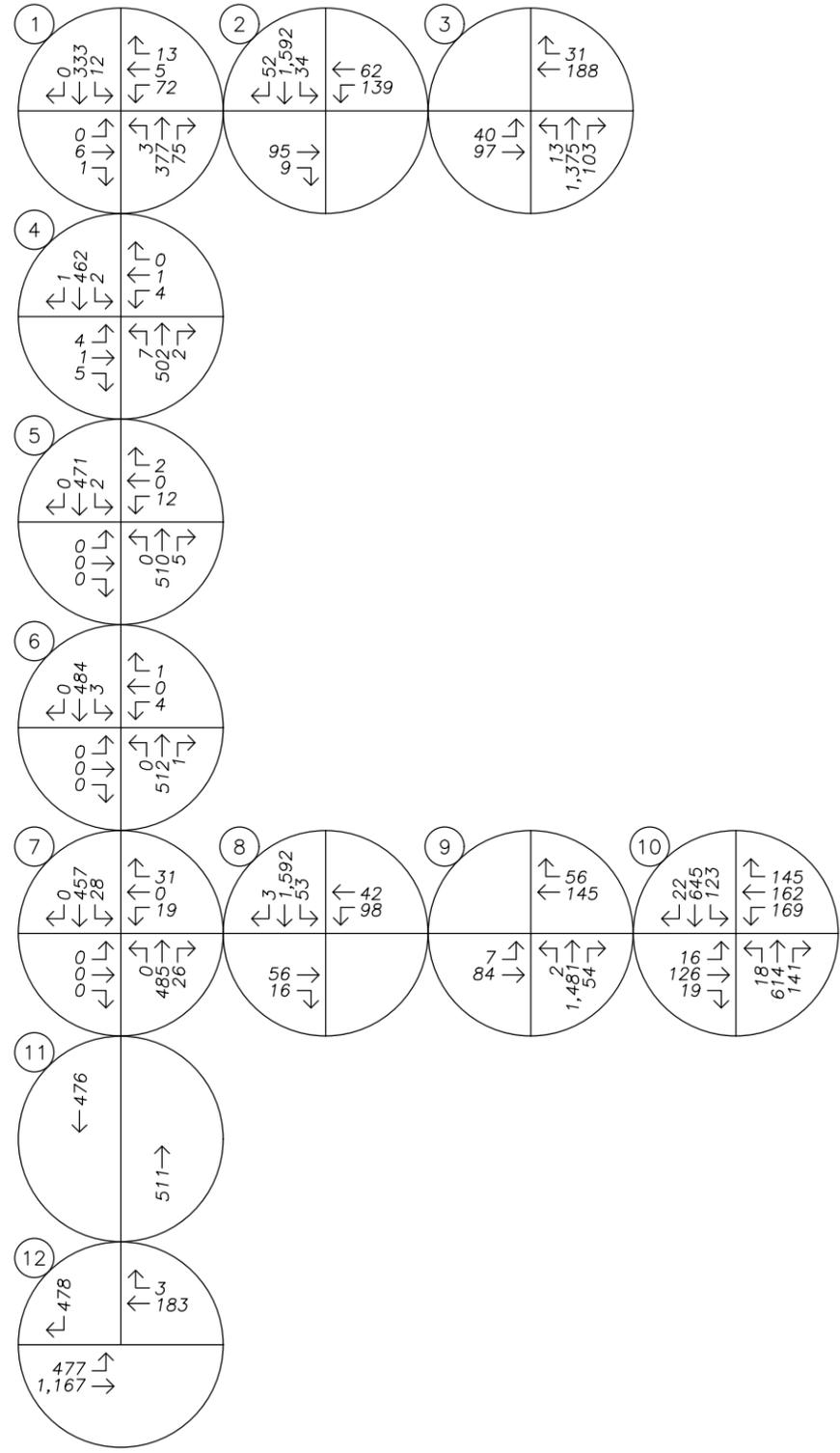
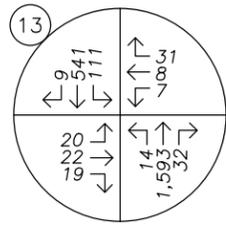
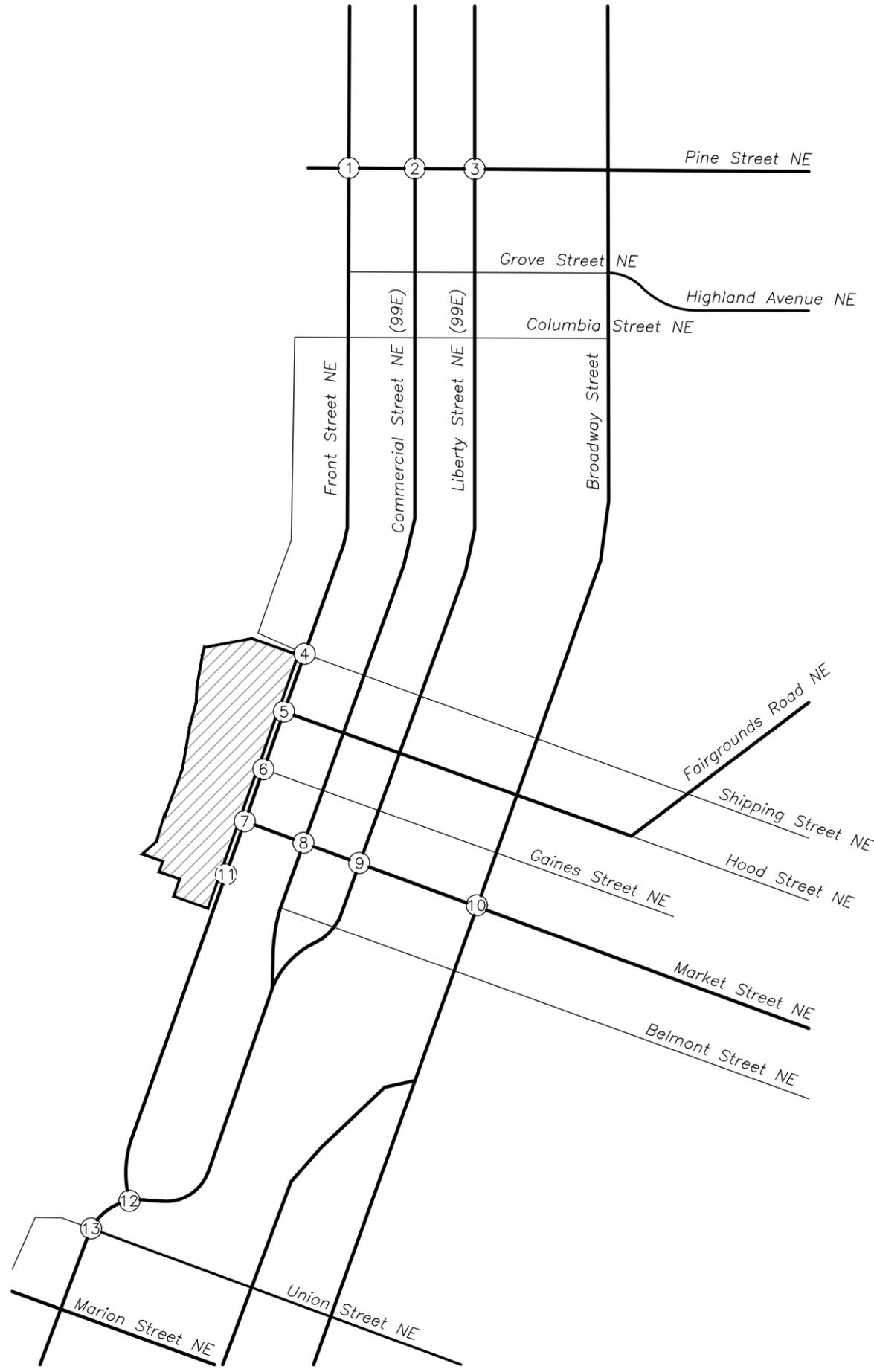
**TRAFFIC VOLUMES**  
 Year 2024 Existing Conditions  
 PM Peak Hour

Figure 6  
 The Cannery  
 5/31/2024



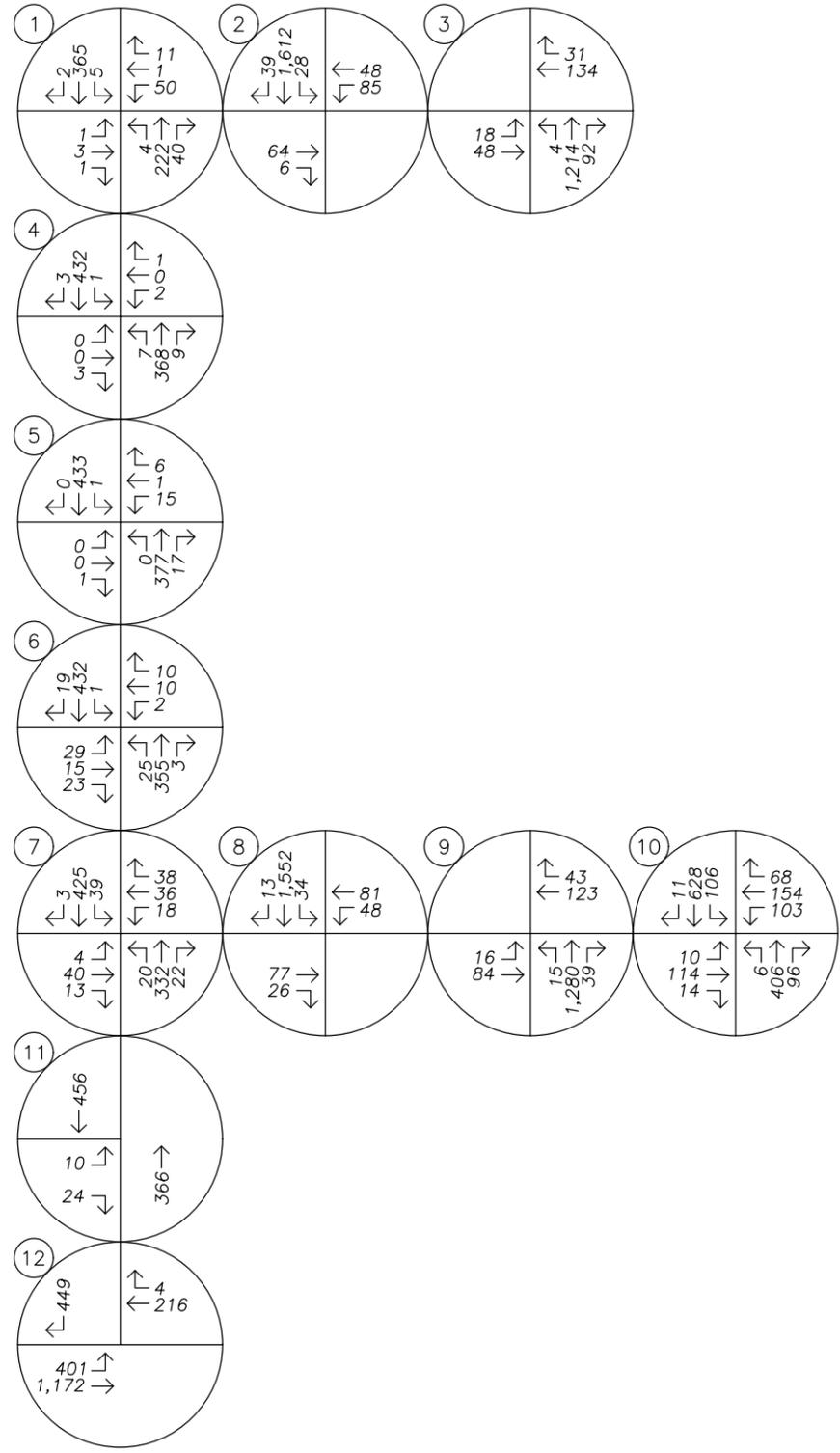
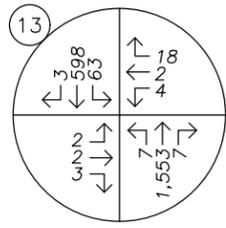
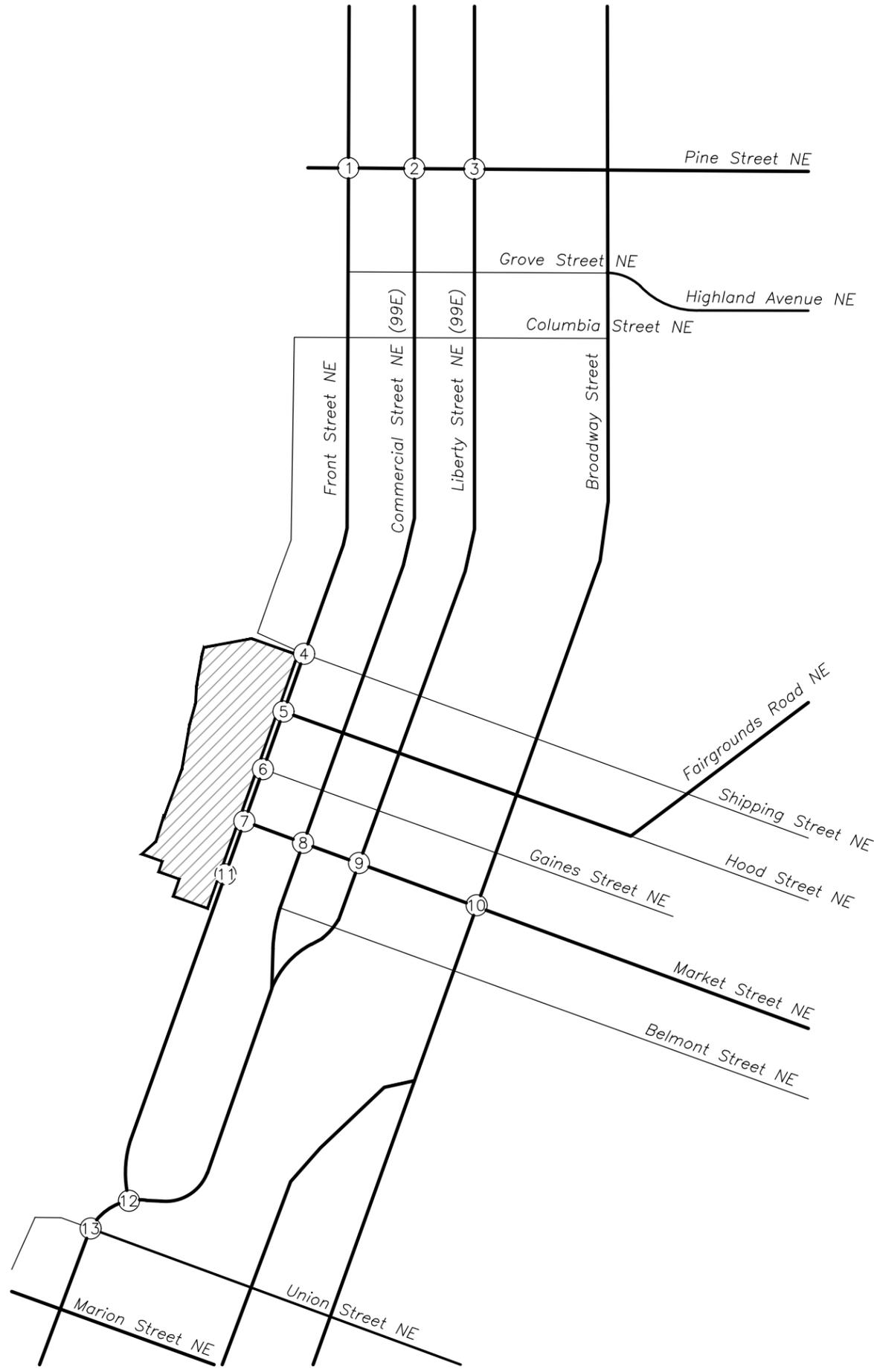
**TRAFFIC VOLUMES**  
Year 2029 Background Conditions  
AM Peak Hour

Figure 7  
The Cannery  
5/31/2024



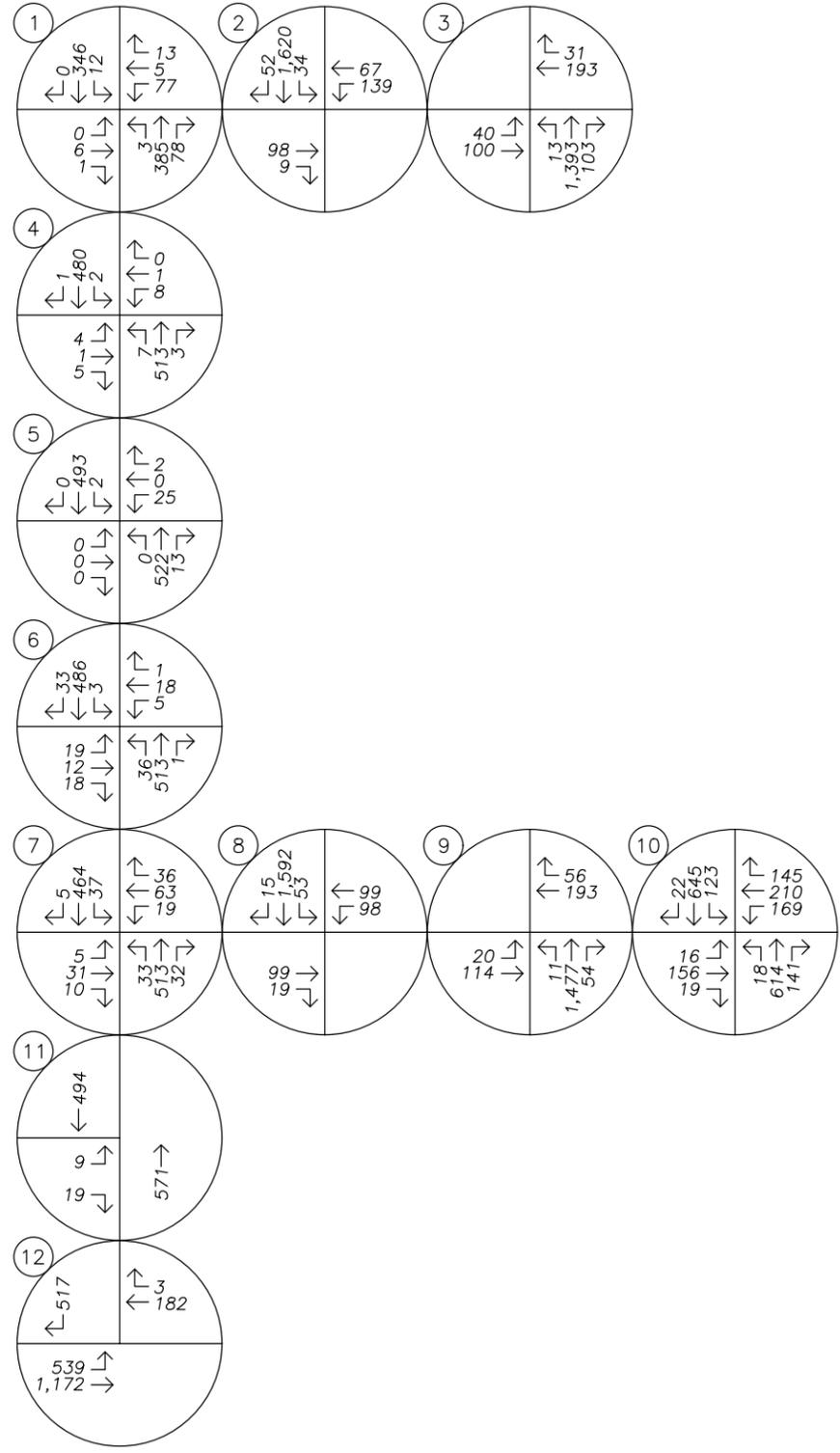
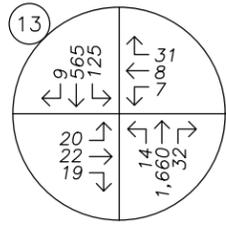
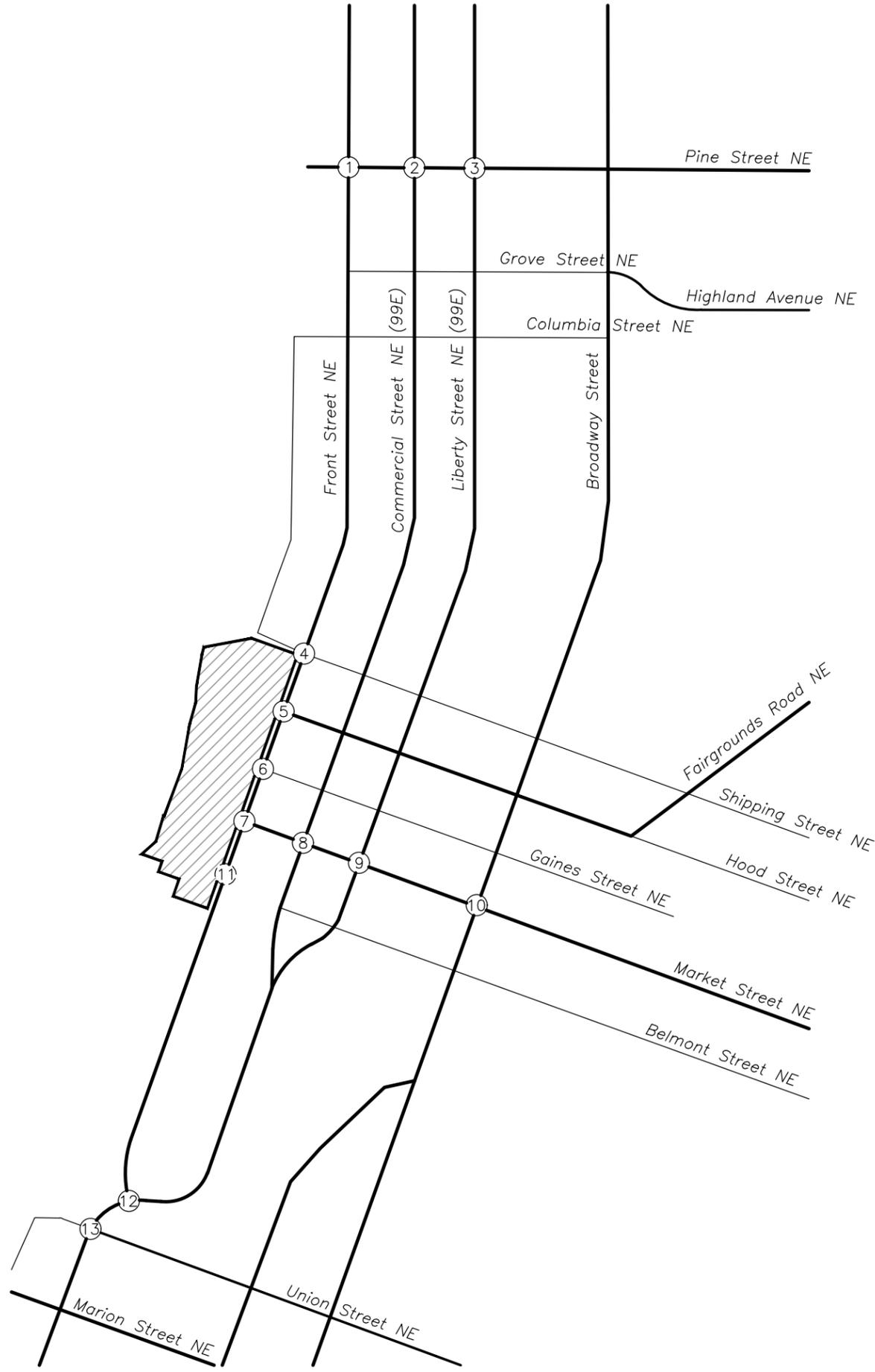
**TRAFFIC VOLUMES**  
Year 2029 Background Conditions  
PM Peak Hour

Figure 8  
The Cannery  
5/31/2024



**TRAFFIC VOLUMES**  
Year 2029 Buildout Conditions  
AM Peak Hour

Figure 9  
The Cannery  
5/31/2024



**TRAFFIC VOLUMES**  
Year 2029 Buildout Conditions  
PM Peak Hour

Figure 10  
The Cannery  
5/31/2024

# Safety Analysis

## Crash History Review

Using data obtained from ODOT’s Crash Data System, a review of approximately five years of the most recent available crash history (January 2018 through December 2022) was performed at the study intersections. The crash data was evaluated based on the number of crashes, the type of collisions, and the severity of the collisions. Crash severity is based on injuries sustained by people involved in the collision, and includes five categories:

- *PDO* – Property Damage Only
- *Injury C* – Possible Injury
- *Injury B* – Suspected Minor Injury
- *Injury A* – Suspected Serious Injury
- *Fatality*

The study intersections adhere to the crash analysis methodologies within ODOT’s Analysis Procedures Manual (APM). According to *Exhibit 4-1: Intersection Crash Rates per MEV by Land Type and Traffic Control* of the APM, intersections which experience crash rates in excess of their respective 90<sup>th</sup> percentile crash rates should be “flagged for further analysis.” Crash rates in excess of 90<sup>th</sup> percentile crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

Table 7 provides a summary of crash types while Table 8 summarizes crash severities and rates for each of the study intersections. Only intersections with reported crashes are included in the summaries. Detailed crash data is provided in Appendix C.

**Table 7: Collision Type Summary**

Intersection		Collision Type							Total Crashes
		Rear-End	Turning	Angle	Side-swipe	Fixed Object	Other	Ped/Bike	
1	Pine St NE & Front St NE	0	2	6	0	0	0	0	8
2	Pine St NE & Commercial St NE	3	5	9	0	0	0	1 (B)	18
3	Pine St NE & Liberty St NE	2	1	13	0	0	0	1 (P)	17
4	Shipping St NE & Front St NE	1	0	1	0	0	0	0	2
7	Market St NE & Front St NE	0	0	0	0	0	1	1 (B)	2
8	Market St NE & Commercial St NE	5	3	1	1	1	0	2 (B&P)	13
9	Market St NE & Liberty St NE	1	1	6	0	0	0	0	8
10	Market St NE & Broadway St	6	5	2	0	0	1	1 (B)	15
12	Front St NE & OR 99E	0	1	0	0	0	1	0	2
13	Union St NE & Front St NE	5	5	4	1	1	0	1 (B)	17



**Table 8: Crash Severity and Rate Summary**

	Intersection	Severity					Total Crashes	Peak Hour Volume	Crash Rate	ODOT 90 <sup>th</sup> % Rate
		PDO	C	B	A	Fatal				
1	Pine St NE & Front St NE	2	4	2	0	0	8	872	0.503	0.408
2	Pine St NE & Commercial St NE	4	9	5	0	0	18	1,925	0.512	0.860
3	Pine St NE & Liberty St NE	3	11	2	1	0	17	1,794	0.519	0.860
4	Shipping St NE & Front St NE	1	0	1	0	0	2	963	0.114	0.408
7	Market St NE & Front St NE	0	2	0	0	0	2	1,015	0.108	0.293
8	Market St NE & Commercial St NE	5	5	3	0	0	13	1,806	0.394	0.860
9	Market St NE & Liberty St NE	3	3	1	1	0	8	1,776	0.247	0.860
10	Market St NE & Broadway St	3	11	1	0	0	15	2,134	0.385	0.860
12	Front St NE & OR 99E	0	1	1	0	0	2	2,241	0.049	0.293
13	Union St NE & Front St NE	5	5	7	0	0	17	2,337	0.399	0.860

Table Notes: Bold indicates intersection exceeds collision rate threshold.

### Crash Severity

None of the crashes reported in the five-year analysis period resulted in a fatality but two of the crashes resulted in a suspected serious injury (Injury A):

- At the intersection of Pine Street NE & Liberty Street NE (OR 99E), a northbound passenger vehicle on Liberty Street NE struck a pedestrian in the crosswalk crossing from east to west on Pine Street NE. The pedestrian sustained injuries classified as Injury A; no injuries were sustained by individuals in the vehicle. The pedestrian was reported as disregarding the signal and illegally in the roadway. The collision occurred under clear, dry, daytime conditions.
- At the intersection of Market Street NE & Liberty Street NE (OR 99E), a westbound passenger vehicles on Market Street NE struck a northbound passenger vehicle on Liberty Street NE. The driver of the struck vehicles sustained injuries classified as Injury A while the driver of the striking vehicle sustained injuries classified as Injury C. Two other vehicles were involved in the crash but no one sustained injuries. The driver of the striking vehicle was reported as disregarding the signal. The collision occurred under rainy, wet, daytime conditions.

### Pedestrian and Bicycle Collisions

Five of the reported crashes involved a bicyclist and two of the reported crashes involved a pedestrian:

- At the intersection of Pine Street NE & Commercial Street NE (OR 99E), an eastbound passenger vehicle turning right struck a bicyclist traveling southbound on Commercial Street NE. The bicyclist sustained injuries classified as Injury C; no injuries were sustained by individuals in the vehicle. The driver was reported as failing to yield the right of way to the bicyclist. The collision occurred under clear, dry, daytime conditions.



- At the intersection of Pine Street NE & Liberty Street NE (OR 99E), a northbound passenger vehicle on Liberty Street NE struck a pedestrian in the crosswalk crossing from east to west on Pine Street NE. The pedestrian, who was crossing against the light, sustained injuries classified as Injury A; no injuries were sustained by individuals in the vehicle.
- At the intersection of Market Street NE & Front Street NE, a southbound passenger vehicle turning left struck a bicyclist traveling northbound on Front Street NE. The bicyclist sustained injuries classified as Injury C; no injuries were sustained by individuals in the vehicle. The driver was reported as failing to yield the right of way to the bicyclist. The collision occurred under clear, dry, daytime conditions.
- At the intersection of Market Street NE & Commercial Street NE (OR 99E), a westbound passenger vehicle turning left struck a bicyclist traveling eastbound on Market Street NE. The bicyclist sustained injuries classified as Injury C; no injuries were sustained by individuals in the vehicle. The driver was reported as failing to yield the right of way to the bicyclist. The collision occurred under clear, dry, daytime conditions.
- At the intersection of Market Street NE & Commercial Street NE (OR 99E), a westbound passenger vehicle turning left struck a pedestrian crossing eastbound on Market Street NE. The pedestrian sustained injuries classified as Injury B; no injuries were sustained by individuals in the vehicle. The driver was reported as failing to yield the right of way to the pedestrian. The collision occurred under clear, dry, daytime conditions.
- At the intersection of Market Street NE & Broadway Street, a northbound passenger vehicle turning right struck a bicyclist also traveling northbound on Broadway Street. The bicyclist sustained injuries classified as Injury C; no injuries were sustained by individuals in the vehicle. The bicyclist was reported as disregarding the traffic signal. The collision occurred under clear, dry, daytime conditions.
- At the intersection of Union Street NE & Front Street NE, a southbound passenger vehicle struck a bicyclist traveling westbound on Union Street NE. The bicyclist sustained injuries classified as Injury C; no injuries were sustained by individuals in the vehicle. The bicyclist was reported as disregarding the signal and illegally in the roadway. The collision occurred under clear, dry, daytime conditions.

### **ODOT 90<sup>th</sup> Percentile Crash Rates**

Intersection crash rates were compared to the published statewide 90<sup>th</sup> percentile crash rates within ODOT's APM. According to Exhibit 4-1: Intersection Crash Rates per MEV by Land Type and Traffic Control in the APM, intersections which experience crash rates in excess of 90<sup>th</sup> percentile crash rates should be "flagged for further analysis".

The intersection of Pine Street NE & Front Street NE was calculated to have a crash rate of 0.503, which exceeds the 90<sup>th</sup> percentile crash rate of 0.408 for similar unsignalized intersections. A review of the crashes shows that angle collisions (6) account for 75 percent of the crashes at this intersection and turning collisions (2) account for the other 25 percent. Three of the angle collisions involved westbound vehicles even though the westbound approach carries a very low traffic volume. Clear sight lines appear to be available from Pine Street; therefore, no reason for the pattern is readily discernable. This is the only notable pattern. Based on the available data, no mitigation is recommended.

## ODOT SPIS Review

The ODOT 2022 Safety Priority Index System (SPIS) list is based on reported crash data for the years 2019 through 2021. Three of the study area intersections were listed in the worst 15 percent<sup>3</sup> of SPIS list:

- Pine Street NE & Liberty Street (OR 99E) – 90<sup>th</sup> percentile
- Market Street NE & Commercial Street (OR 99E) – 85<sup>th</sup> percentile
- Market Street NE & Broadway Street – 85<sup>th</sup> percentile

All of these signalized intersections had at least one reported collision involving a pedestrian or bicycle and the intersection of Pine Street NE & Liberty Street had a crash that resulted in a Type A injury.

The crash patterns are generally consistent with the geometry and traffic control provided at the intersections and no options for mitigation are readily apparent. The proposed development is not expected to change the crash patterns or contribute to a higher rate of crashes; therefore, no mitigation is recommended.

## Conclusion

Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections; therefore, no safety mitigation is recommended per the crash data analysis.

## Sight Distance

The proposed development will have three accesses which intersect with Front Street NE. The project will significantly change the landscape of the street; therefore, a preliminary sight distance assessment was performed using the proposed plans for Front Street NE.

Both intersection sight distance (ISD) and stopping sight distance (SSD) are assessed. The ISD is an operational measure, intended to provide sufficient line of sight along the major street so that a driver could turn from the minor street without impeding traffic flow. The SSD is the minimum requirement to ensure safe operation of the roadway. Stopping sight distance allows an oncoming driver to see a hazard in the roadway, react, and come to a complete stop if necessary to avoid a collision. As long as the available intersection sight distance is at least equal to the minimum required stopping sight distance for the design speed of the roadway, adequate sight distance is available for safe operation of the intersection.

Intersection sight distance was measured in accordance with the current AASHTO manual.<sup>4</sup> According to AASHTO, the driver's eye is assumed to be 14.5 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the minor-street approach pavement. The vehicle driver's eye height along the major-street approach is assumed to be 3.5 feet above the cross-street pavement.

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<sup>3</sup> Oregon Department of Transportation, Safety Priority Index System, 2020 - On-State, Top 15% Groups - By Score

<sup>4</sup> American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, 7th Edition, 2018.

### **South Site Access (Belmont Alley NE) at Front Street NE**

Front Street NE has a posted speed of 35 mph and will have a two-lane cross-section at the south access. Therefore, the required SSD is 250 feet, and the recommended ISD is 390 feet.

- Looking to the north, at least 390 feet of sight distance will be available with no obstruction from the proposed buildings. On-street parking will be present in the sight triangle, even for the 250-foot SSD.
- Looking to the south, at least 390 feet of sight distance will be available with no obstruction from the proposed buildings. On-street parking will be present in the sight triangle, even for the 250-foot SSD.
- Vehicles approaching on Front Street NE can see a vehicle exiting the site from at least 400 feet in either direction with no major obstructions.

### **Center Site Access (Market Street NE) at Front Street NE**

Front Street NE has a posted speed of 35 mph and will have a cross-section equivalent to at least three lanes at the center access. Therefore, the required SSD is 250 feet, and the recommended ISD is 415 feet.

- Looking to the north, at least 415 feet of sight distance will be available with no obstruction from the proposed buildings. On-street parking will be present in the sight triangle, even for the 250-foot SSD.
- Looking to the south, at least 415 feet of sight distance will be available with no obstruction from the proposed buildings. On-street parking will be present in the ISD sight triangle but not the SSD sight triangle.
- Vehicles approaching on Front Street NE can see a vehicle exiting the site from at least 300 feet in either direction with no major obstructions.

### **North Site Access (Gaines Street NE) at Front Street NE**

Front Street NE has a posted speed of 35 mph and will have cross-section equivalent to at least three lanes at the center access. Therefore, the required SSD is 250 feet, and the recommended ISD is 415 feet.

- Looking to the north, at least 415 feet of sight distance will be available with no obstruction from the proposed buildings. On-street parking will be present in the sight triangle, even for the 250-foot SSD.
- Looking to the south, at least 415 feet of sight distance will be available with no obstruction from the proposed buildings. On-street parking will be present in the ISD sight triangle but not the SSD sight triangle.
- Vehicles approaching on Front Street NE can see a vehicle exiting the site from at least 300 feet in either direction with no major obstructions.

### **Conclusions**

Adequate sightlines are available at all three proposed sight accesses without obstruction from the proposed buildings; however, vehicles utilizing the on-street parking may be present in the sight triangles. Parked vehicles are considered an acceptable temporary obstruction under the vision clearance standards. Additionally, vehicles approaching on the major roadway have adequate SSD looking towards all three access intersections.

The posted speed on Front Street NE is currently 35 mph which is typical for a minor arterial roadway; however, the proposed development and reconfiguration of Front Street NE supports consideration of a lower posted

speed more appropriate for the active commercial area. Sight distance requirements with slower speeds would be shorter than with the current posting. Changing a speed zone is a complex process but should be considered as a long-term option for Front Street NE along the sight frontage.

## Vision Clearance Triangles

For controlled intersections like the three proposed site accesses, Section 805.005 of the Salem Revised Code (SRC) requires a vehicle clearance area extending 10 feet along the controlled street and 50 feet along the uncontrolled street as measured along the property line. No obstructions are present at the north access (Gaines Street NE) but the proposed buildings lie within the vision clearance areas at the center (Market Street NE) and south (Belmont Alley NE) accesses.

SRC Section 805.015 allows for alternative vision clearance standards “that are consistent with recognized traffic engineering standards.” Sight distance is an acceptable alternative standard. The prior section of this report indicates that sight distance at the three proposed accesses is acceptable.

## Warrant Analysis

### **Preliminary Traffic Signal Warrants**

Preliminary traffic signal warrants were examined for all unsignalized study intersections. Methodologies were based on the Manual on Uniform Traffic Control Devices (MUTCD), published by the Federal Highway Administration in 2009. Warrant 1, Eight-Hour Vehicular Volumes, was evaluated based on the common assumption that traffic counted during the evening peak hour represents 10 percent of the average daily traffic (ADT) and that the 8<sup>th</sup> highest hour is 5.65 percent of the daily volume. Detailed analysis worksheets can be found in an appendix to this report.

Preliminary traffic signal warrants were evaluated at the three proposed site accesses. The preliminary traffic signal analysis determined that signal warrants are not projected to be met at any of the site access intersections during buildout conditions. Detailed signal warrant analysis worksheets are provided in Appendix C.

### **Turn-Lane Warrants**

No turn lane warrants were evaluated at the proposed site accesses because the configuration of Front Street NE with the rail line does not permit the addition of turn lanes.

# Operational Analysis

## Intersection Capacity Analysis

A capacity and delay analysis were conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual (HCM)*<sup>5</sup>. Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates very little, or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

### Performance Standards

The following agency performance standards are applicable in the study area:

- The **City of Salem** establishes the following operational standards in Section 6.33 of the Department of Public Works Administrative Rules Design Standards:
  - All signalized intersections shall operate at LOS E or better with a control delay of less than 80 seconds and/or a v/c ratio of 0.90 or less.
  - Unsignalized intersections shall operate at LOS E or better with a control delay of less than 50 seconds.
- **ODOT** establishes mobility targets in Policy 1F of the *Oregon Highway Plan*<sup>6</sup> which include:
  - For OR 99E, a regional highway within and MPO, the target v/c ratio is 0.95 or less.

### Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 9 for the morning and evening peak hours.

**Table 9: Capacity Analysis Summary**

Intersection & Condition	Performance Threshold	AM Peak Hour			PM Peak Hour		
		V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
<b>1. Pine Street NE &amp; Front Street NE</b>							
2024 Existing	LOS E <50 s	0.24	C	19	0.32	C	22
2029 Background		0.25	C	20	0.34	C	24
2029 Buildout		0.27	C	21	0.37	D	25

<sup>5</sup> Transportation Research Board, *Highway Capacity Manual 7th Edition*, 2022.

<sup>6</sup> Oregon Department of Transportation, *1999 Oregon Highway Plan*, Including amendments November 1999 through January 2023.



Table 9: Capacity Analysis Summary

Intersection & Condition	Performance Threshold	AM Peak Hour			PM Peak Hour		
		V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
2. Pine Street NE & Commercial Street NE (OR 99E)							
2024 Existing	V/C<0.95	0.57	A	9	0.53	B	10
2029 Background		0.58	A	10	0.54	B	11
2029 Buildout		0.59	B	10	0.55	B	11
3. Pine Street NE & Liberty Street NE (OR 99E)							
2024 Existing	V/C<0.95	0.43	A	9	0.49	B	11
2029 Background		0.45	A	9	0.51	B	11
2029 Buildout		0.46	A	10	0.52	B	11
4. Shipping Street NE & Front Street NE							
2024 Existing	LOS E <50 s	0.01	B	12	0.04	C	24
2029 Background		0.01	B	12	0.03	D	25
2029 Buildout		0.01	C	18	0.55	D	26
5. Hood Street NE & Front Street NE							
2024 Existing	LOS E <50 s	0.06	C	17	0.07	C	22
2029 Background		0.06	C	18	0.07	C	23
2029 Buildout		0.10	C	20	0.16	D	27
6. Gaines Street NE/North Access & Front Street NE							
2024 Existing	LOS E <50 s	0.03	B	13	0.02	C	21
2029 Background		0.06	B	13	0.03	C	22
2029 Buildout		0.36	C	24	0.16	D	31
7. Market Street NE/Center Access & Front Street NE							
2024 Existing	LOS E <50 s	0.14	B	15	0.18	C	20
2029 Background		0.15	C	16	0.19	C	21
2029 Buildout		0.43	D	29	0.76	F	72
8. Market Street NE & Commercial Street NE (OR 99E)							
2024 Existing	V/C<0.95	0.69	A	9	0.70	B	11
2029 Background		0.71	A	9	0.72	B	12
2029 Buildout		0.75	B	12	0.79	B	12



**Table 9: Capacity Analysis Summary**

Intersection & Condition	Performance Threshold	AM Peak Hour			PM Peak Hour		
		V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
<b>9. Market Street NE &amp; Liberty Street NE (OR 99E)</b>							
2024 Existing	V/C < 0.95	0.57	A	9	0.67	B	12
2029 Background		0.59	A	9	0.69	B	12
2029 Buildout		0.61	B	11	0.73	B	15
<b>10. Market Street NE &amp; Broadway Street</b>							
2024 Existing	V/C < 0.90 LOS E < 80 s	0.66	C	22	0.73	C	31
2029 Background		0.68	C	23	0.75	C	31
2029 Buildout		0.70	C	25	0.79	C	35
<b>11. Belmont Alley NE/South Access &amp; Front Street NE</b>							
2029 Buildout	LOS E < 50 s	0.09	B	11	0.09	C	16
<b>12. Front Street NE &amp; OR 99E</b>							
2024 Existing	V/C < 0.95	0.55	B	15	0.52	B	13
2029 Background		0.57	C	16	0.59	C	15
2029 Buildout		0.64	C	18	0.64	C	17
<b>13. Union Street NE &amp; Front Street NE (OR 99E)</b>							
2024 Existing	V/C < 0.95	0.63	A	6	0.68	A	9
2029 Background		0.65	A	6	0.70	A	10
2029 Buildout		0.67	A	5	0.73	B	10

Table Notes: **BOLDED** text indicates that the intersection exceeds the performance standards.

As shown in Table 9, all study intersections are projected to operate within standards under all analysis scenarios, except for Market Street NE/Center Access & Front Street NE. Operations on the westbound approach of Market Street NE are anticipated to exceed LOS E during the evening peak hour under 2029 buildout conditions although the approach is not expected to be over capacity.

## Queuing Analysis

To determine the expected queuing which may form at critical study area movements, a queuing analysis was conducted based on the average results from five Synchro/SimTraffic simulation runs, with the reported values representing 95<sup>th</sup> percentile queue lengths. The 95<sup>th</sup> percentile queue is a statistical measurement that indicates there is a 5 percent chance that the queue may exceed this length during the analysis period; however, given this is a probability, the 95<sup>th</sup> percentile queue length may theoretically never be met or observed in the field.



Reported queue lengths were rounded to a multiple of 25 feet or the approximate length of one vehicle. All queues more than 5 feet longer than a multiple of 25 were rounded up. Those that were 5 feet or less were rounded down since 5 feet is equivalent to the space between queued vehicles.

A comparison of the queues under background year 2029, and buildout year 2029 conditions is presented in Table 10.

**Table 10: Queuing Analysis Summary**

Intersection & Movement	Available Storage (ft)	95 <sup>th</sup> Percentile Queue Estimate (ft)			
		2029 Background Condition		2029 Buildout Condition	
		Morning	Evening	Morning	Evening
<b>1. Pine Street NE &amp; Front Street NE</b>					
Eastbound	135	25	25	25	25
Westbound	280	75	100	75	100
Northbound	550	25	25	25	25
Southbound	325	25	25	25	25
<b>2. Pine Street NE &amp; Commercial Street NE (OR 99E)</b>					
Eastbound	280	125	125	125	125
Westbound Left	90	150	175	150	175
Westbound Through	280	125	150	125	175
Southbound	310	275	275	275	275
<b>3. Pine Street NE &amp; Liberty Street NE (OR 99E)</b>					
Eastbound Left	90	50	75	50	75
Eastbound Through	280	75	125	100	125
Westbound	280	200	200	200	225
Northbound	540	200	250	225	250
<b>4. Shipping Street NE &amp; Front Street NE</b>					
Eastbound	210	25	50	25	25
Westbound	290	25	25	25	25
Northbound	200	25	25	25	25
Southbound	280	25	25	-	-
<b>5. Hood Street NE &amp; Front Street NE</b>					
Eastbound	40	25	-	25	-
Westbound	285	50	50	75	50
Northbound	270	-	-	-	-
Southbound	170	-	25	-	25



Table 10: Queuing Analysis Summary

Intersection & Movement	Available Storage (ft)	95 <sup>th</sup> Percentile Queue Estimate (ft)			
		2029 Background Condition		2029 Buildout Condition	
		Morning	Evening	Morning	Evening
<b>6. Gaines Street NE/North Access &amp; Front Street NE</b>					
Eastbound	150	-	-	75	50
Westbound	290	50	25	50	50
Northbound	260	25	-	50	75
Southbound	225	-	25	-	25
<b>7. Market Street NE/Center Access &amp; Front Street NE</b>					
Eastbound	150	-	-	50	50
Westbound	260	100	100	125	150
Northbound	220	25	25	75	75
Southbound	270	50	75	75	75
<b>8. Market Street NE &amp; Commercial Street NE (OR 99E)</b>					
Eastbound	260	75	100	150	125
Westbound	260	150	225	200	275
Southbound	275	275	325	300	350
<b>9. Market Street NE &amp; Liberty Street NE (OR 99E)</b>					
Eastbound	250	75	125	150	150
Westbound	280	175	225	225	300
Northbound	280	225	300	250	350
<b>10. Market Street NE &amp; Broadway Street</b>					
Eastbound Left	150	50	50	25	50
Eastbound Through-Right	280	150	200	200	200
Westbound Left	175	150	225	125	250
Westbound Through-Right	270	225	300	225	375
Northbound Left	110	25	75	50	100
Northbound Through	250	300	525	300	575
Northbound Right	85	125	225	125	250
Southbound Left	120	150	225	150	250
Southbound Through-Right	270	400	475	400	525
<b>11. Belmont Alley NE/South Access &amp; Front Street NE</b>					
Eastbound	150	-	-	50	50



Table 10: Queuing Analysis Summary

Intersection & Movement	Available Storage (ft)	95 <sup>th</sup> Percentile Queue Estimate (ft)			
		2029 Background Condition		2029 Buildout Condition	
		Morning	Evening	Morning	Evening
<b>12. Front Street NE &amp; OR 99E</b>					
Eastbound Left	90	100	150	125	175
Westbound Through	310	25	25	25	25
Westbound Right	130	-	-	25	25
Southbound	100	150	150	200	175
<b>13. Union Street NE &amp; Front Street NE (OR 99E)</b>					
Eastbound	250	25	75	50	75
Westbound	340	50	75	50	75
Northbound Left	170	25	175	25	150
Northbound Through-Right	350	375	650	450	750
Southbound Left	100	75	125	100	175
Southbound Through	185	225	225	225	275
Southbound Right	210	25	25	25	50

Notes:

*BOLDED text indicates queue length exceeding storage capacity by more than 10 feet.*

***BOLDED** text indicates queue length exceeding storage capacity by more than 10 feet that poses a safety concern.*

In general, changes in 95<sup>th</sup> percentile queuing between the year 2029 background and 2029 buildout conditions are anticipated to be small, one vehicle or two vehicles.

Only one intersection, Front Street NE & OR 99E, is expected to have queues which pose a safety concern. The southbound approach of Front Street NE to OR 99E is estimated to have queues that will extend across the PWRR railroad tracks under both morning and evening peak hours for both background and buildout conditions. Queuing across the tracks has also been observed under existing conditions.



## Potential Mitigation

Potential mitigation is considered at two intersections where operational or safety concerns have been identified.

### Operational Mitigation

At the intersection of Market Street NE/Center Access & Front Street NE, operations on the westbound approach (Market Street NE) are anticipated to exceed LOS E during the evening peak hour under 2029 buildout conditions; however, the approach is not expected to be over capacity and all other movements will operate acceptably. The 95<sup>th</sup> percentile queue is estimated to grow by one or two vehicles with the proposed development but will not extend close to the next upstream intersection.

Two potential mitigation scenarios are evaluated to determine if changes in traffic control would benefit the system. The first option is all-way stop control. The second option is a traffic signal; however, the preliminary signal warrant evaluation showed traffic volumes are not high enough to warrant a signal. A roundabout was not considered as a third option because of the PWRR line that runs through the intersection. The analysis of these potential options is presented in Table 11.

**Table 11: Potential Mitigation Options - Market Street NE/Center Access & Front Street NE**

Intersection Approach	Two-Way Stop Control			All-Way Stop Control			Traffic Signal		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
<b>AM Peak Hour</b>									
Eastbound	0.29	D	27	0.13	B	11	0.21	B	13
Westbound	0.43	D	29	0.20	B	11	0.30	B	14
Northbound	-	-	-	0.65	C	17	0.42	A	4
Southbound	-	-	-	0.84	D	31	0.54	A	4
Overall	-	A	5	-	C	23	0.49	A	6
<b>PM Peak Hour</b>									
Eastbound	0.33	E	40	0.10	B	11	0.13	B	11
Westbound	0.76	F	72	0.26	B	13	0.34	B	12
Northbound	-	-	-	0.94	E	45	0.65	A	6
Southbound	-	-	-	0.85	E	31	0.56	A	5
Overall	-	A	9	-	E	35	0.58	A	7

### All-Way Stop Control

As shown in Table 11, with a change to all-way stop control, the intersection would meet the City's performance thresholds but it would significantly increase the overall delay at the intersection. Therefore, all-way stop control is not recommended as mitigation.



## Traffic Signal

With a traffic signal, the intersection could meet the City’s performance thresholds with comparable overall average delays. The analysis assumed a two-phase signal operations with a short cycle length of around 60 seconds. The 95<sup>th</sup> percentile queues will be longer on Front Street NE due to delays from the traffic signal but they may be shorter on Market Street NE. A signal could also benefit the pedestrian crossing by stopping traffic on Front Street NE.

Negatives of a traffic signal include more delay for through traffic and a potential increase in the number of crashes occurring at the intersection. Additionally, signal installation at this location would also require coordination for with the rail safety system to be installed at the PWRR line.

Despite the effectiveness of the traffic signal, preliminary traffic signal warrants at this location are not met. The intersection is not even forecast to meet peak hour warrants. Furthermore, much of the commercial development is speculative and the types of tenants may result in lower trip generation than what was assumed for the development.

For these reasons, a signal is not recommended.

## Alternative Performance Measures

The potential traffic control options that could mitigate operational performance are not recommended, as discussed above. Therefore, we recommend alternative performance measure be considered at this location.

The analysis presented in Table 9 is based on the peak hours with an adjustment known as the peak hour factor (PHF) which modifies results to reflect the worst 15 minutes of the busiest hour. For the existing volumes at the Market Street NE/Center Access & Front Street NE intersection, the PHF is 0.85 in the morning and 0.91 in the evening.

One alternative performance measure would be using the average condition for the peak hour (i.e., peak hour factor = 1.0), rather than the peak 15-minute analysis. Table 12 compares the average conditions for the peak hours with the 15-minute results.

**Table 12: Alternative Performance Measures at Market Street NE/Center Access & Front Street NE**

Intersection Approach	Peak 15-Minute Analysis			Average Hour Analysis		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
AM Peak Hour						
Eastbound	0.29	D	27	0.19	C	20
Westbound	0.43	D	29	0.28	C	20
PM Peak Hour						
Eastbound	0.33	E	40	0.24	D	24
Westbound	0.76	F	72	0.57	E	43



When the average hourly conditions are considered, the intersection would operate with LOS C conditions during the morning peak hour and LOS D/E conditions during the evening peak hour. Average delays would be below 50 seconds on all approaches.

Another alternative performance measure is the traffic simulations of delay. The HCM methodologies for evaluating intersection operations rely on theoretical estimates of capacity to estimate the v/c ratio and delay. While they are an excellent tool for operations evaluation, the HCM does not reflect systemic conditions and the influence of activity upstream or downstream from each intersection. Traffic simulation, which is also used for estimating queuing captures the effects of network interactions on traffic flow.

Five network simulation runs were conducted using the Synchro/SimTraffic software and the average delays were calculated. The results are summarized Table 13 for the intersection of Market Street NE/Center Access & Front Street NE. Detailed delay reports are included in Appendix D.

**Table 13: Simulated Delays at Market Street NE/Center Access & Front Street NE**

Approach/Movement	2029 Buildout Delays	
	Morning	Evening
Westbound	10 s	14 s
Eastbound	14 s	18 s
Northbound	1 s	2 s
Southbound	1 s	2 s

*Note: Simulation are based on random arrival patterns; thus, calculated delays may fluctuate each scenario.*

As shown in Table 13, the delays from the traffic simulations demonstrate that the intersection may not have the long delays on the side streets estimated using the theoretical capacity calculations from the HCM. The average hourly delays for the stopped eastbound and westbound approaches are estimated at under 20 seconds during both time analysis periods. These findings also support consideration of other operational measures, such as the average hourly performance, before potentially costly mitigation that could add time and delay to other traffic is recommended.

**Recommendation**

Although the intersection of Market Street NE/Center Access & Front Street NE would not meet City of Salem performance thresholds for the 2029 building conditions during the evening peak hour, changes in traffic control are not recommended. All-way stop control would meet the City’s performance thresholds but would significantly increase the overall delay at the intersection. A traffic signal would also meet performance thresholds but preliminary traffic signal warrants are not satisfied with the forecast traffic volumes. Therefore, we recommend the City consider alternative performance measures, such as the average hourly operations, which meet the LOS standard and/or traffic simulations of delay, which meet the delay standard.



## Safety Mitigation

Only one intersection, Front Street NE & OR 99E, is expected to have queues which pose a safety concern. The queue on the southbound approach of Front Street NE to OR 99E is estimated to have the queues that will extend across the PWRR railroad tracks under both morning and evening peak hours for both background and buildout conditions.

The skewed configuration of the PWRR rail line at this location makes traditional signage, such as “DO NOT STOP ON TRACKS” (Sign R8-8), more difficult to install. However, signage at this location is recommended per MUTCD guidance. This recommendation is independent of the proposed project as the 95<sup>th</sup> percentile queues under 2029 background conditions and observations under existing conditions show queues sometimes extend across the tracks as well.



## Conclusions

Key findings from this analysis include:

- Total external trip generation was estimated at 268 morning peak hour, 318 evening peak hour, and 3,764 daily trips. After deducting pass-by traffic, the proposed development is anticipated to generate 256 primary trips during the morning peak hour, 288 primary trips during the evening peak hour, and 3,466 primary trips each weekday.
- Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections; therefore, no safety mitigation is recommended per the crash data analysis.
- Adequate sightlines are available at all three proposed sight accesses without obstruction from the proposed buildings; however, vehicles utilizing the on-street parking may be present in the sight triangles. Parked vehicles are considered an acceptable temporary obstruction under the vision clearance standards. Additionally, vehicles approaching on the major roadway have adequate SSD looking towards all three access intersections.
- The proposed buildings lie within the vision clearance areas at the center (Market Street NE) and south (Belmont Alley NE) accesses. Sight distance is an acceptable alternative standard. The prior section of this report indicates that sight distance at the three proposed accesses is acceptable.
- The preliminary traffic signal analysis determined that signal warrants are not projected to be met at any of the site access intersections under 2029 buildout conditions.
- All study intersections are projected to operate within standards under all analysis scenarios, except for Market Street NE/Center Access & Front Street NE. Operations on the westbound approach of Market Street NE are anticipated to exceed LOS E during the evening peak hour under 2029 buildout conditions although the approach is not expected to be over capacity.
- In general, changes in 95<sup>th</sup> percentile queuing between the year 2029 background and buildout conditions are anticipated to be small, one vehicle or two vehicles.
- Only one intersection, Front Street NE & OR 99E, is expected to have queues which pose a safety concern. The queue on the southbound approach of Front Street NE to OR 99E is estimated to have the queues that will extend across the PWRR railroad tracks under both morning and evening peak hours for both background and buildout conditions.
- The following mitigation is recommended based on the operations and safety analysis:
  - Alternative performance measures, such as using average hourly operations, which meet the LOS standard and/or traffic simulations of delay, which meet the delay standard are recommended for the Market Street NE/Center Access & Front Street NE intersection. Although traffic control changes were considered, all-way stop control would significantly increase overall intersection delay, traffic signal warrants are not satisfied with the forecast traffic volumes, and a roundabout is not considered feasible because of the PWRR line that runs through the intersection.

- To address existing and future queuing across the PWRR rail line on Front Street NE as it approaches OR 99E, signage, such as “DO NOT STOP ON TRACKS” (Sign R8-8) is recommended per MUTCD guidance. This recommendation is independent of the proposed project.
- The posted speed on Front Street NE is currently 35 mph which is typical for a minor arterial roadway; however, the proposed development and reconfiguration of Front Street NE supports consideration of a lower posted speed more appropriate for the active commercial area. Changing a speed zone is a complex process but should be considered as a long-term option for Front Street NE along the sight frontage.

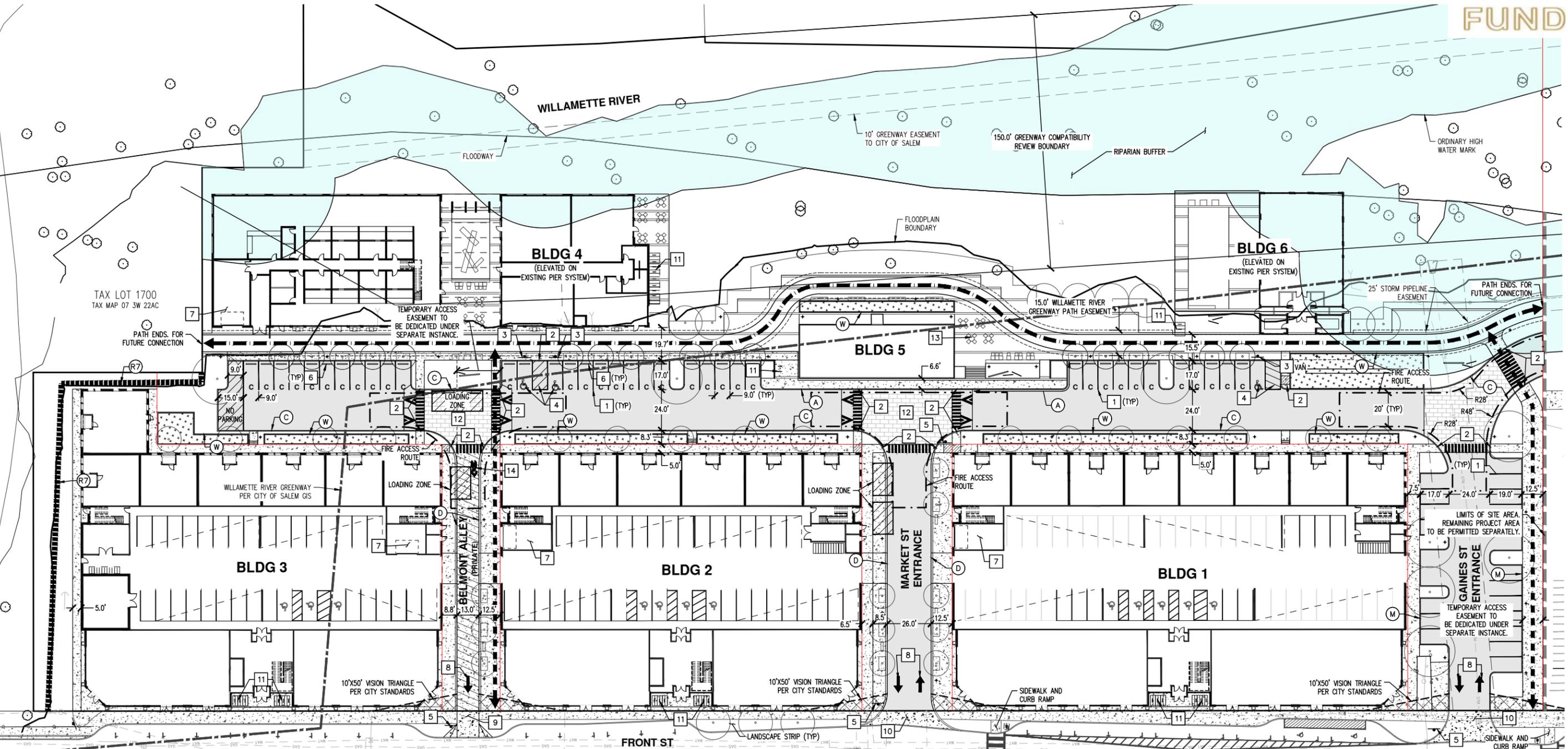


## Appendix A – Site Information

Site Plan

Trip Generation Calculations





**CURB KEYED NOTES:** [TR]

- (A) TYPE 'A' CURB AND GUTTER
- (C) TYPE 'C' CURB
- (D) TYPE 'D' MOUNTABLE CURB
- (M) MONOLITHIC CURB AND SIDEWALK
- (W) PLANTER WALL
- (R7) EXISTING RETAINING WALL. STRUCTURAL IMPROVEMENTS REQUIRED TO BE DETERMINED AT TIME OF BUILDING PERMIT

**SITE KEYED NOTES:** [#]

1. PAINT 4-INCH WIDE WHITE STRIPE PER CITY STANDARDS.
2. ACCESSIBLE CURB RAMP AND DETECTABLE WARNING SURFACE.
3. ACCESSIBLE PARKING SIGN. "VAN" INDICATES VAN ACCESSIBLE SIGN.
4. ACCESSIBLE PARKING STALLS AND AISLE STRIPING.
5. INSTALL 30"x30" STOP SIGN AND STOP BAR. (36"x36" WHEN ENTERING PUBLIC ROW)
6. CONCRETE WHEEL STOP.
7. TRASH ENCLOSURE, SEE ARCHITECTURAL PLANS FOR DETAILS.
8. DIRECTIONAL ARROW STRIPE.
9. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.302.
10. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.315.
11. BIKE RACK, SEE ARCHITECTURAL PLANS FOR DETAILS.
12. RAISED SPEED TABLE PEDESTRIAN CROSSING.
13. OUTDOOR SEATING. SEE LANDSCAPE PLANS FOR DETAILS.
14. SHARED BIKE LANE TO PROVIDE ACCESS FROM WILLAMETTE GREENWAY PATH TO FRONT STREET. EASEMENT TO BE QUILCLAIMED UPON CONSTRUCTION OF PATH TO THE SOUTH.

**SITE PLAN DATA:**

ZONING =	MU-R
SUBJECT PROPERTY AREA =	±593,899 SF (±13.6 ACRES)
SITE AREA =	±333,110 SF (±7.6 ACRES)
DENSITY:	
MULTI-FAMILY =	371 UNITS
*RETAIL =	12,149 SF
*OFFICE =	5,880 SF
*EATING/DRINKING ESTABLISHMENT =	30,859 SF
*DISTRIBUTION OF RETAIL, OFFICE, AND EATING/DRINKING ESTABLISHMENTS SQUARE FOOTAGE ARE SUBJECT TO CHANGE.	
<b>PARKING SUMMARY:</b>	
<b>MAXIMUM VEHICLE PARKING:</b>	
MULTI-FAMILY =	649 SPACES (1.75/UNIT)
RETAIL =	61 SPACES (1/200 SF)
OFFICE =	24 SPACES (1/250 SF)
EATING/DRINKING ESTABLISHMENT =	176 SPACES (1/175 SF)
<b>VEHICLE PARKING PROVIDED:</b>	
GARAGE PARKING	
• AUTOMATED =	276 SPACES
• SURFACE =	10 SPACES
• ACCESSIBLE =	12 SPACES
OFF-STREET PARKING	
• STANDARD =	20 SPACES
• COMPACT =	35 SPACES
• ACCESSIBLE =	3 SPACES
<b>TOTAL PARKING =</b>	<b>356 SPACES</b>

<b>BICYCLE PARKING REQUIRED:</b>	
MULTI-FAMILY =	371 SPACES (1/UNIT)
RETAIL =	4 SPACES (GREATER OF 4 OR 1/10,000 SF)
OFFICE =	4 SPACES (GREATER OF 4 OR 1/3,500 SF)
EATING/DRINKING ESTABLISHMENT =	31 SPACES (GREATER OF 4 OR 1/1,000 SF)
<b>TOTAL REQUIRED =</b>	<b>410 SPACES</b>
<b>BICYCLE PARKING PROVIDED:</b>	
SHORT-TERM =	59 SPACES
LONG-TERM =	423 SPACES
<b>TOTAL =</b>	<b>482 SPACES</b>
<b>LOADING ZONE REQUIRED/PROVIDED:</b>	
MULTI-FAMILY REQUIRED =	3 SPACES (12'WX19'L)
RETAIL SALES AND SERVICES REQUIRED =	1 SPACE (12'WX30'L)
OFFICE REQUIRED =	1 SPACE (OFF-STREET PARKING AREA USED FOR LOADING PER SRC 806.075(a))
<b>TOTAL REQUIRED =</b>	<b>4 SPACES</b>
<b>TOTAL PROVIDED =</b>	<b>3 SPACES (12'WX19'L)</b> 1 SPACE (12'WX30'L)

NOTE: SPACES TO BE SCHEDULED AND CONED OFF WITH SITE OPERATOR FOR LOADING AND UNLOADING.

**SETBACKS:**

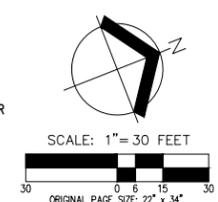
<b>ALONG FRONT ST</b>	
BUILDINGS =	0 FT OR MAX 10 FT (IF SETBACK AREA IS USED FOR PEDESTRIAN AMENITIES)
VEHICLE USE AREA =	10 FT
<b>SIDE/REAR YARD</b>	
BUILDINGS =	NONE
VEHICLE USE AREA =	5 FT (NOT REQUIRED ABUTTING AN ALLEY)

**GENERAL NOTES:**

1. BUILDINGS 1, 2, AND 3 ARE ON SEPARATE PROPERTIES REFER TO SHEET P4 FOR THE PROPOSED PROPERTY LINES.
2. THE FRONT STREET NE IMPROVEMENTS SHOWN ARE PRELIMINARY AND BASED ON CONCEPTUAL DESIGN WORK PROVIDED BY THE CITY'S RETAINED RAIL ENGINEER. REFINED FRONT STREET NE IMPROVEMENTS ARE ANTICIPATED AND WILL BE CONSTRUCTED IN ACCORDANCE WITH FEEDBACK RECEIVED FROM THE FINAL RAIL DIAGNOSTIC AND COORDINATION WITH THE CITY.

**EV READY NOTE:**

40% OF PARKING STALLS ARE REQUIRED TO BE EV READY PER STATE REQUIREMENTS. FINAL EV READY STALL LOCATION AND CONDUIT PLACEMENT WILL BE COORDINATED WITH PROJECT ELECTRICIAN AT THE TIME OF BUILDING PERMIT SUBMITTAL.



**LEGEND**

10' WILLAMETTE GREENWAY CONCRETE PATH (WITHIN 15' EASEMENT TO CITY OF SALEM)

TEMPORARY GREENWAY ACCESS TO FRONT STREET UNTIL MILL CREEK CONNECTION IS CONSTRUCTED, OR THE PARK TO THE NW IS IMPROVED.

ASPHALT PAVEMENT SECTION

CONCRETE SIDEWALK (4" MIN THICKNESS)

CONCRETE PAVEMENT SECTION (8" MIN THICKNESS)

CONCRETE PAVERS (REFER TO PLANS BY OTHERS)

STORMWATER FACILITY

PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)

**PRELIMINARY SITE PLAN  
 THE CANNERY  
 FUND  
 SALEM, OREGON**

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

REGISTERED PROFESSIONAL ENGINEER  
 D. ROTH  
 EXPIRES: DECEMBER 31, 2024

JOB NUMBER: 5968-01  
 DATE: 05/17/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

AKS DRAWING FILE: 5968-01 PRELIM SITE PLANNING LAYOUT: LAYOUT 1



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

*Land Use:* Multifamily Housing (Mid-Rise)  
*Land Use Code:* 221  
*Land Use Subcategory:* Not Close to Rail Transit  
*Setting/Location:* General Urban/Suburban  
*Variable:* Dwelling Units  
*Trip Type:* Vehicle  
*Formula Type:* Rate  
*Variable Quantity:* **371**

AM PEAK HOUR

*Trip Rate:* 0.37

	Enter	Exit	Total
Directional Split	23%	77%	
Trip Ends	32	105	137

PM PEAK HOUR

*Trip Rate:* 0.39

	Enter	Exit	Total
Directional Split	61%	39%	
Trip Ends	88	57	145

WEEKDAY

*Trip Rate:* 4.54

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	842	842	1,684

SATURDAY

*Trip Rate:* 4.57

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	848	848	1,696

Source: Trip Generation Manual, 11th Edition



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

*Land Use:* Small Office Building  
*Land Use Code:* 712  
*Land Use Subcategory:* All Sites  
*Setting/Location:* General Urban/Suburban  
*Variable:* 1000 SF GFA  
*Trip Type:* Vehicle  
*Formula Type:* Rate  
*Variable Quantity:* 5.885

AM PEAK HOUR

*Trip Rate:* 1.67

	Enter	Exit	Total
Directional Split	82%	18%	
Trip Ends	8	2	10

PM PEAK HOUR

*Trip Rate:* 2.16

	Enter	Exit	Total
Directional Split	34%	66%	
Trip Ends	4	9	13

WEEKDAY

*Trip Rate:* 14.39

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	42	42	84

SATURDAY

*Trip Rate:* 0

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	NA	NA	NA



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

*Land Use:* Strip Retail Plaza (<40k)  
*Land Use Code:* 822  
*Land Use Subcategory:* All Sites  
*Setting/Location:* General Urban/Suburban  
*Variable:* 1000 SF GFA  
*Trip Type:* Vehicle  
*Formula Type:* Rate  
*Variable Quantity:* **12.160**

AM PEAK HOUR

*Trip Rate:* 2.36

	Enter	Exit	Total
Directional Split	60%	40%	
Trip Ends	17	12	29

PM PEAK HOUR

*Trip Rate:* 6.59

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	40	40	80

WEEKDAY

*Trip Rate:* 54.45

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	331	331	662

SATURDAY

*Trip Rate:* 0

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	NA	NA	NA



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

Land Use: Food Cart Pods  
Land Use Code: 926  
Land Use Subcategory: All Sites  
Setting/Location: General Urban/Suburban  
Variable: Food Carts  
Trip Type: Vehicle  
Formula Type: Rate  
Variable Quantity: 8

AM PEAK HOUR

Trip Rate: 1.232

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	5	5	10

\* Assumes AM is 20% of PM.

PM PEAK HOUR

Trip Rate: 6.16

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	25	24	49

WEEKDAY

Trip Rate: 61.6

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	246	246	492

\* Assumes Daily is 10 x PM.

SATURDAY

Trip Rate: 0

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	NA	NA	NA



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

*Land Use:* High-Turnover (Sit-Down) Restaurant  
*Land Use Code:* 932  
*Land Use Subcategory:* All Sites  
*Setting/Location:* General Urban/Suburban  
*Variable:* 1000 SF GFA  
*Trip Type:* Vehicle  
*Formula Type:* Rate  
*Variable Quantity:* **12.926**

AM PEAK HOUR

*Trip Rate:* 9.57

	Enter	Exit	Total
Directional Split	55%	45%	
Trip Ends	<b>68</b>	<b>56</b>	<b>124</b>

PM PEAK HOUR

*Trip Rate:* 9.05

	Enter	Exit	Total
Directional Split	61%	39%	
Trip Ends	<b>71</b>	<b>46</b>	<b>117</b>

WEEKDAY

*Trip Rate:* 107.2

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	<b>693</b>	<b>693</b>	<b>1,386</b>

SATURDAY

*Trip Rate:* 122.4

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	<b>791</b>	<b>791</b>	<b>1,582</b>



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

*Land Use:* Wine Tasting Room  
*Land Use Code:* 970  
*Land Use Subcategory:* All Sites  
*Setting/Location:* General Urban/Suburban  
*Variable:* 1000 SF GFA  
*Trip Type:* Vehicle  
*Formula Type:* Rate  
*Variable Quantity:* 2.925

AM PEAK HOUR

*Trip Rate:* 2.07

	Enter	Exit	Total
Directional Split	70%	30%	
Trip Ends	4	2	6

PM PEAK HOUR

*Trip Rate:* 7.31

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	11	10	21

WEEKDAY

*Trip Rate:* 45.96

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	67	67	134

SATURDAY

*Trip Rate:* 203.48

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	298	298	596



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

*Land Use:* Drinking Place  
*Land Use Code:* 975  
*Land Use Subcategory:* All Sites  
*Setting/Location:* General Urban/Suburban  
*Variable:* 1000 SF GFA  
*Trip Type:* Vehicle  
*Formula Type:* Rate  
*Variable Quantity:* **4.309**

AM PEAK HOUR

*Trip Rate:* 0

	Enter	Exit	Total
Directional Split	0%	0%	
Trip Ends	0	0	0

PM PEAK HOUR

*Trip Rate:* 11.36

	Enter	Exit	Total
Directional Split	66%	34%	
Trip Ends	32	17	49

WEEKDAY

*Trip Rate:* 113.6

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	245	245	490

SATURDAY

*Trip Rate:* 0

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	NA	NA	NA

\* Assumes Daily is 10 x PM.



TRIP GENERATION CALCULATIONS  
Source: Trip Generation Manual, 11th Edition

*Land Use:* Manufacturing  
*Land Use Code:* 140  
*Land Use Subcategory:* All Sites  
*Setting/Location:* General Urban/Suburban  
*Variable:* 1000 SF GFA  
*Trip Type:* Vehicle  
*Formula Type:* Rate  
*Variable Quantity:* **196.422**

AM PEAK HOUR

*Trip Rate:* 0.68

	Enter	Exit	Total
Directional Split	76%	24%	
Trip Ends	102	32	134

PM PEAK HOUR

*Trip Rate:* 0.74

	Enter	Exit	Total
Directional Split	31%	69%	
Trip Ends	45	100	145

WEEKDAY

*Trip Rate:* 4.75

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	467	467	934

SATURDAY

*Trip Rate:* 1.49

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	146	146	292

NCHRP 8-51 Internal Trip Capture Estimation Tool			
<b>Project Name:</b>	The Cannery	<b>Organization:</b>	Lancaster Mobley
<b>Project Location:</b>	Salem, OR	<b>Performed By:</b>	JED
<b>Scenario Description:</b>		<b>Date:</b>	
<b>Analysis Year:</b>		<b>Checked By:</b>	
<b>Analysis Period:</b>	AM Street Peak Hour	<b>Date:</b>	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office				10	8	2
Retail				29	17	12
Restaurant				134	73	61
Cinema/Entertainment				0		
Residential				137	32	105
Hotel				0		
All Other Land Uses <sup>2</sup>				0		
<b>Total</b>				<b>310</b>	<b>130</b>	<b>180</b>

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses <sup>2</sup>						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	1	0	0	0
Retail	0		2	0	1	0
Restaurant	1	1		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	15	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	310	130	180
Internal Capture Percentage	15%	18%	13%
External Vehicle-Trips <sup>3</sup>	262	106	156
External Transit-Trips <sup>4</sup>	0	0	0
External Non-Motorized Trips <sup>4</sup>	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	13%	50%
Retail	12%	25%
Restaurant	25%	7%
Cinema/Entertainment	N/A	N/A
Residential	9%	15%
Hotel	N/A	N/A

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

<sup>3</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

<sup>4</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

<b>Project Name:</b>	The Cannery
<b>Analysis Period:</b>	AM Street Peak Hour

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	8	8	1.00	2	2
Retail	1.00	17	17	1.00	12	12
Restaurant	1.00	73	73	1.00	61	61
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	32	32	1.00	105	105
Hotel	1.00	0	0	1.00	0	0

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	1	0	0	0
Retail	3		2	0	2	0
Restaurant	19	9		0	2	2
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	21	0		0
Hotel	0	0	0	0	0	

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	17	0	0	0
Retail	0		37	0	1	0
Restaurant	1	1		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	15	0		0
Hotel	0	1	4	0	0	

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	1	7	8	7	0	0
Retail	2	15	17	15	0	0
Restaurant	18	55	73	55	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	29	32	29	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	1	1	2	1	0	0
Retail	3	9	12	9	0	0
Restaurant	4	57	61	57	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	16	89	105	89	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	The Cannery	Organization:	Lancaster Mobley
Project Location:	Salem, OR	Performed By:	JED
Scenario Description:		Date:	
Analysis Year:		Checked By:	
Analysis Period:	PM Street Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office				13	4	9
Retail				80	40	40
Restaurant				215	128	87
Cinema/Entertainment				0	0	0
Residential				145	88	57
Hotel				0	0	0
All Other Land Uses <sup>2</sup>				0	0	0
<b>Total</b>				<b>453</b>	<b>260</b>	<b>193</b>

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses <sup>2</sup>						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	1		12	0	10	0
Restaurant	1	20		0	14	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	4	12	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	453	260	193
Internal Capture Percentage	34%	30%	40%
External Vehicle-Trips <sup>3</sup>	297	182	115
External Transit-Trips <sup>4</sup>	0	0	0
External Non-Motorized Trips <sup>4</sup>	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	100%	22%
Retail	65%	58%
Restaurant	19%	40%
Cinema/Entertainment	N/A	N/A
Residential	27%	32%
Hotel	N/A	N/A

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

<sup>3</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>4</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

<b>Project Name:</b>	The Cannery
<b>Analysis Period:</b>	PM Street Peak Hour

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	4	4	1.00	9	9
Retail	1.00	40	40	1.00	40	40
Restaurant	1.00	128	128	1.00	87	87
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	88	88	1.00	57	57
Hotel	1.00	0	0	1.00	0	0

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	1		12	2	10	2
Restaurant	3	36		7	16	6
Cinema/Entertainment	0	0	0		0	0
Residential	2	24	12	0		2
Hotel	0	0	0	0	0	

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	3	0	4	0
Retail	1		37	0	40	0
Restaurant	1	20		0	14	0
Cinema/Entertainment	0	2	4		4	0
Residential	2	4	18	0		0
Hotel	0	1	6	0	0	

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	4	0	4	0	0	0
Retail	26	14	40	14	0	0
Restaurant	24	104	128	104	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	24	64	88	64	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	2	7	9	7	0	0
Retail	23	17	40	17	0	0
Restaurant	35	52	87	52	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	18	39	57	39	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.

## Appendix B – Volumes

Traffic Counts

Seasonal Adjustment Factor

Growth Rates

Model Plots





### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	1	5	7	7:00 AM	0	0	0	0	0
7:05 AM	1	0	1	8	10	7:05 AM	0	0	0	0	0
7:10 AM	0	0	1	8	9	7:10 AM	0	0	0	0	0
7:15 AM	0	0	5	8	13	7:15 AM	0	0	0	0	0
7:20 AM	0	0	5	8	13	7:20 AM	1	0	0	0	1
7:25 AM	0	0	3	5	8	7:25 AM	0	0	0	0	0
7:30 AM	0	0	1	10	11	7:30 AM	0	0	0	0	0
7:35 AM	0	0	5	7	12	7:35 AM	0	0	0	0	0
7:40 AM	0	0	4	11	15	7:40 AM	0	0	0	1	1
7:45 AM	0	0	1	7	8	7:45 AM	0	0	0	0	0
7:50 AM	1	0	1	13	15	7:50 AM	0	0	0	1	1
7:55 AM	4	0	1	13	18	7:55 AM	0	1	1	0	2
8:00 AM	0	0	1	8	9	8:00 AM	0	0	0	0	0
8:05 AM	1	0	1	10	12	8:05 AM	1	0	0	0	1
8:10 AM	0	0	1	9	10	8:10 AM	0	0	0	0	0
8:15 AM	4	0	0	8	12	8:15 AM	0	0	0	0	0
8:20 AM	2	0	0	6	8	8:20 AM	0	0	2	0	2
8:25 AM	1	0	2	5	8	8:25 AM	0	0	1	0	1
8:30 AM	5	0	0	11	16	8:30 AM	0	0	0	0	0
8:35 AM	3	0	2	7	12	8:35 AM	0	0	0	0	0
8:40 AM	1	0	2	1	4	8:40 AM	0	0	0	0	0
8:45 AM	2	0	3	7	12	8:45 AM	3	0	1	3	7
8:50 AM	0	0	0	6	6	8:50 AM	3	0	0	3	6
8:55 AM	1	0	3	6	10	8:55 AM	0	0	0	0	0
Count Total	27	0	44	187	258	Count Total	8	1	5	8	22
Peak Hour	18	0	17	108	143	Peak Hour	1	1	4	2	8



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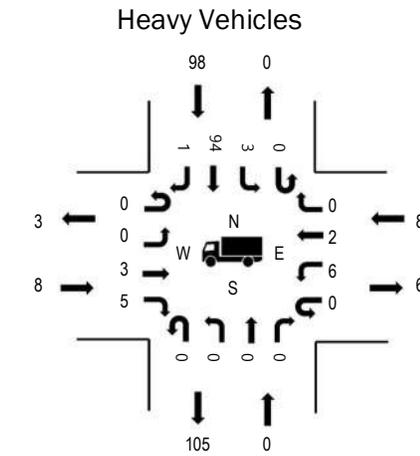
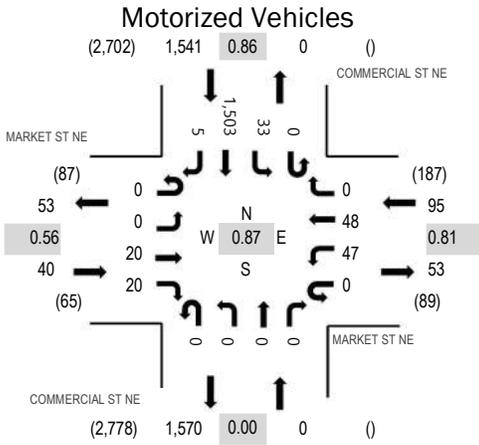
Location: 2 COMMERCIAL ST NE & MARKET ST NE AM

Date: Tuesday, February 6, 2024

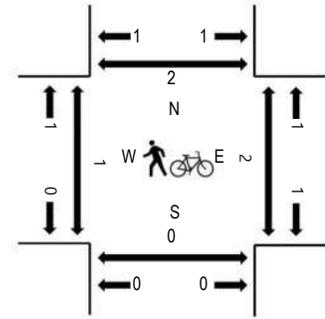
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour



Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	20.0%	0.56
WB	8.4%	0.81
NB	0.0%	0.00
SB	6.4%	0.86
All	6.8%	0.87

Traffic Counts - Motorized Vehicles

Interval Start Time	MARKET ST NE Eastbound				MARKET ST NE Westbound				COMMERCIAL ST NE Northbound				COMMERCIAL ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
	7:00 AM	0	0	1	0	0	8	3	0	0	0	0	0	0	1	85		
7:05 AM	0	0	0	1	0	5	2	0	0	0	0	0	0	1	68	2	79	1,574
7:10 AM	0	0	0	1	0	2	2	0	0	0	0	0	0	1	83	0	89	1,621
7:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	110	0	113	1,655
7:20 AM	0	0	1	1	0	6	2	0	0	0	0	0	0	1	106	0	117	1,664
7:25 AM	0	0	0	1	0	5	7	0	0	0	0	0	0	1	101	0	115	1,663
7:30 AM	0	0	1	1	0	6	3	0	0	0	0	0	0	1	129	0	141	1,676
7:35 AM	0	0	5	1	0	5	5	0	0	0	0	0	0	2	118	1	137	1,658
7:40 AM	0	0	0	4	0	1	7	0	0	0	0	0	0	4	140	0	156	1,635
7:45 AM	0	0	3	5	0	4	2	0	0	0	0	0	0	2	136	0	152	1,590
7:50 AM	0	0	0	2	0	4	5	0	0	0	0	0	0	7	138	0	156	1,550
7:55 AM	0	0	2	3	0	5	3	0	0	0	0	0	0	3	158	2	176	1,502
8:00 AM	0	0	1	0	0	5	6	0	0	0	0	0	0	3	127	1	143	1,425
8:05 AM	0	0	2	1	0	6	4	0	0	0	0	0	0	3	109	1	126	
8:10 AM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	119	0	123	
8:15 AM	0	0	4	1	0	2	4	0	0	0	0	0	0	2	109	0	122	
8:20 AM	0	0	0	0	0	4	2	0	0	0	0	0	0	2	108	0	116	
8:25 AM	0	0	2	2	0	3	5	0	0	0	0	0	0	4	112	0	128	
8:30 AM	0	0	0	2	0	5	6	0	0	0	0	0	0	4	106	0	123	
8:35 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	4	102	0	114	
8:40 AM	0	0	0	2	0	6	2	0	0	0	0	0	0	2	99	0	111	
8:45 AM	0	0	2	2	0	8	2	0	0	0	0	0	0	5	93	0	112	
8:50 AM	0	0	2	1	0	6	2	0	0	0	0	0	0	1	95	1	108	
8:55 AM	0	0	3	1	0	5	2	0	0	0	0	0	0	1	87	0	99	
Count Total	0	0	33	32	0	108	79	0	0	0	0	0	0	56	2,638	8	2,954	
Peak Hour	0	0	20	20	0	47	48	0	0	0	0	0	0	33	1,503	5	1,676	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	8	8	7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	4	4	7:05 AM	0	0	1	0	1
7:10 AM	0	0	0	7	7	7:10 AM	0	0	1	0	1
7:15 AM	0	0	0	7	7	7:15 AM	1	0	0	0	1
7:20 AM	0	0	0	8	8	7:20 AM	1	0	0	0	1
7:25 AM	0	0	2	8	10	7:25 AM	0	0	0	0	0
7:30 AM	0	0	2	9	11	7:30 AM	0	0	0	0	0
7:35 AM	1	0	2	10	13	7:35 AM	0	0	0	0	0
7:40 AM	0	0	1	13	14	7:40 AM	1	0	0	1	2
7:45 AM	3	0	0	8	11	7:45 AM	0	0	0	0	0
7:50 AM	0	0	1	10	11	7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	11	11	7:55 AM	0	0	0	0	0
8:00 AM	0	0	0	7	7	8:00 AM	0	0	1	1	2
8:05 AM	0	0	0	7	7	8:05 AM	0	0	0	0	0
8:10 AM	0	0	1	5	6	8:10 AM	0	0	0	0	0
8:15 AM	2	0	1	7	10	8:15 AM	0	0	1	0	1
8:20 AM	0	0	0	4	4	8:20 AM	0	0	0	0	0
8:25 AM	2	0	0	7	9	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	14	14	8:30 AM	0	0	0	0	0
8:35 AM	0	0	1	6	7	8:35 AM	1	0	0	0	1
8:40 AM	0	0	1	6	7	8:40 AM	0	0	1	1	2
8:45 AM	1	0	0	4	5	8:45 AM	2	0	0	1	3
8:50 AM	0	0	0	9	9	8:50 AM	0	0	0	0	0
8:55 AM	1	0	0	8	9	8:55 AM	0	0	0	0	0
Count Total	10	0	12	187	209	Count Total	6	0	5	4	15
Peak Hour	8	0	8	98	114	Peak Hour	1	0	2	2	5



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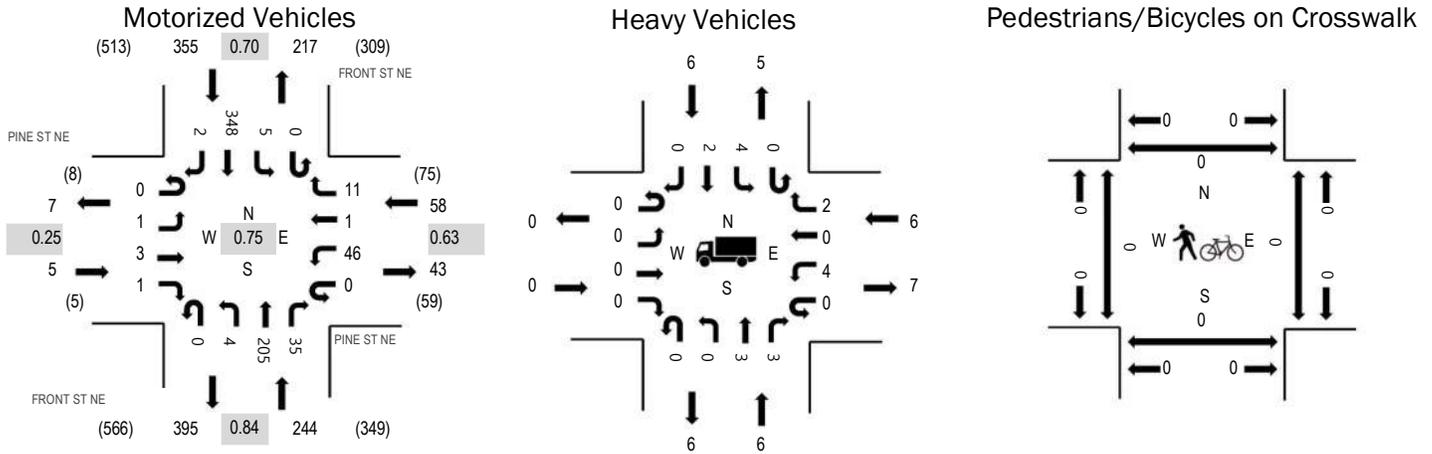
Location: 3 FRONT ST NE & PINE ST NE AM

Date: Tuesday, February 6, 2024

Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:40 AM - 08:55 AM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.25
WB	10.3%	0.63
NB	2.5%	0.84
SB	1.7%	0.70
All	2.7%	0.75

**Traffic Counts - Motorized Vehicles**

Interval Start Time	PINE ST NE Eastbound				PINE ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	280
7:05 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	0	5	315
7:10 AM	0	0	0	0	0	0	0	1	0	0	3	2	0	0	6	0	12	336
7:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	10	0	14	365
7:20 AM	0	0	0	0	0	2	0	0	0	0	9	1	0	0	12	0	24	405
7:25 AM	0	0	0	0	0	2	0	0	0	0	9	3	0	0	14	0	28	435
7:30 AM	0	0	0	0	0	2	0	0	0	0	6	1	0	1	14	0	24	453
7:35 AM	0	0	0	0	0	1	0	0	0	0	10	1	0	0	14	0	26	494
7:40 AM	0	0	0	0	0	1	0	0	0	0	15	0	0	0	22	0	38	517
7:45 AM	0	0	0	0	0	4	0	1	0	0	13	1	0	0	20	0	39	553
7:50 AM	0	0	0	0	0	0	0	0	0	0	6	3	0	0	18	0	27	590
7:55 AM	0	0	0	0	0	2	0	0	0	1	14	3	0	0	20	0	40	634
8:00 AM	0	0	0	0	0	5	0	0	0	0	11	6	0	1	15	0	38	662
8:05 AM	0	0	0	0	0	0	0	0	0	0	14	1	0	0	11	0	26	
8:10 AM	0	0	0	0	0	3	0	0	0	0	12	2	0	1	22	1	41	
8:15 AM	0	0	0	0	0	3	0	1	0	0	14	4	0	0	32	0	54	
8:20 AM	0	0	0	0	0	2	0	0	0	0	21	1	0	0	30	0	54	
8:25 AM	0	0	0	0	0	3	1	1	0	1	19	1	0	0	20	0	46	
8:30 AM	0	0	0	0	0	5	0	2	0	2	27	1	0	0	27	1	65	
8:35 AM	0	0	1	1	0	2	0	2	0	0	12	2	0	0	29	0	49	
8:40 AM	0	1	2	0	0	5	0	0	0	0	22	5	0	1	38	0	74	
8:45 AM	0	0	0	0	0	6	0	2	0	1	20	3	0	0	44	0	76	
8:50 AM	0	0	0	0	0	6	0	2	0	0	18	4	0	1	40	0	71	
8:55 AM	0	0	0	0	0	6	0	1	0	0	15	5	0	1	40	0	68	
Count Total	0	1	3	1	0	60	1	14	0	5	294	50	0	6	505	2	942	
Peak Hour	0	1	3	1	0	46	1	11	0	4	205	35	0	5	348	2	662	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	1	0	0	1	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	2	0	0	2	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	0	0	0	2	2	8:00 AM	0	0	0	0	0
8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	1	1	1	3	8:10 AM	0	0	0	0	0
8:15 AM	0	0	2	0	2	8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	2	0	2	8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	1	0	1	2	8:40 AM	0	0	0	0	0
8:45 AM	0	0	1	0	1	8:45 AM	0	0	0	0	0
8:50 AM	0	1	0	1	2	8:50 AM	0	0	0	0	0
8:55 AM	0	3	0	1	4	8:55 AM	0	0	0	0	0
Count Total	0	9	6	7	22	Count Total	0	0	1	0	1
Peak Hour	0	6	6	6	18	Peak Hour	0	0	0	0	0



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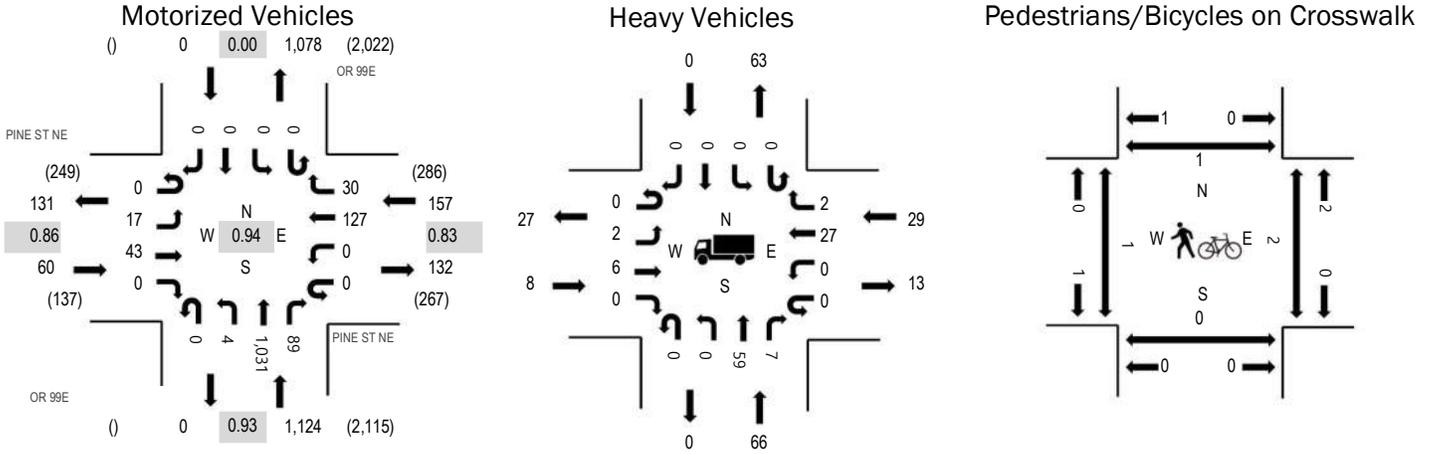
Location: 4 OR 99E & PINE ST NE AM

Date: Tuesday, February 6, 2024

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

Peak 15-Minutes: 07:55 AM - 08:10 AM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	13.3%	0.86
WB	18.5%	0.83
NB	5.9%	0.93
SB	0.0%	0.00
All	7.7%	0.94

**Traffic Counts - Motorized Vehicles**

Interval Start Time	PINE ST NE Eastbound				PINE ST NE Westbound				OR 99E Northbound				OR 99E Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	3	0	0	0	9	2	0	2	75	5	0	0	0	0	97	1,291
7:05 AM	0	2	4	0	0	0	3	1	0	0	86	5	0	0	0	0	101	1,296
7:10 AM	0	1	2	0	0	0	10	2	0	0	69	3	0	0	0	0	87	1,324
7:15 AM	0	1	3	0	0	0	9	1	0	0	92	11	0	0	0	0	117	1,341
7:20 AM	0	0	1	0	0	0	13	2	0	0	92	2	0	0	0	0	110	1,323
7:25 AM	0	0	2	0	0	0	6	2	0	0	85	5	0	0	0	0	100	1,314
7:30 AM	0	2	0	0	0	0	15	4	0	0	86	9	0	0	0	0	116	1,318
7:35 AM	0	0	3	0	0	0	14	3	0	2	74	5	0	0	0	0	101	1,307
7:40 AM	0	2	6	0	0	0	14	0	0	0	95	9	0	0	0	0	126	1,301
7:45 AM	0	1	6	0	0	0	11	3	0	0	78	6	0	0	0	0	105	1,283
7:50 AM	0	0	5	0	0	0	9	4	0	1	75	10	0	0	0	0	104	1,287
7:55 AM	0	3	7	0	0	0	9	4	0	0	97	7	0	0	0	0	127	1,270
8:00 AM	0	3	3	0	0	0	7	3	0	1	78	7	0	0	0	0	102	1,247
8:05 AM	0	2	5	0	0	0	6	3	0	0	103	10	0	0	0	0	129	
8:10 AM	0	3	2	0	0	0	14	1	0	0	76	8	0	0	0	0	104	
8:15 AM	0	4	5	0	0	0	9	2	0	1	66	12	0	0	0	0	99	
8:20 AM	0	3	3	0	0	0	10	4	0	0	74	7	0	0	0	0	101	
8:25 AM	0	3	8	0	0	0	13	3	0	2	68	7	0	0	0	0	104	
8:30 AM	0	3	6	0	0	0	3	1	0	1	86	5	0	0	0	0	105	
8:35 AM	0	2	4	0	0	0	12	1	0	1	70	5	0	0	0	0	95	
8:40 AM	0	5	3	0	0	0	16	3	0	1	72	8	0	0	0	0	108	
8:45 AM	0	3	4	0	0	0	4	0	0	1	89	8	0	0	0	0	109	
8:50 AM	0	0	5	0	0	0	4	1	0	0	71	6	0	0	0	0	87	
8:55 AM	0	0	3	0	0	0	15	1	0	1	70	14	0	0	0	0	104	
Count Total	0	44	93	0	0	0	235	51	0	14	1,927	174	0	0	0	0	2,538	
Peak Hour	0	17	43	0	0	0	127	30	0	4	1,031	89	0	0	0	0	1,341	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	6	1	0	8	7:00 AM	0	0	0	0	0
7:05 AM	1	5	2	0	8	7:05 AM	0	0	0	0	0
7:10 AM	1	9	3	0	13	7:10 AM	0	0	0	0	0
7:15 AM	0	9	5	0	14	7:15 AM	1	0	0	0	1
7:20 AM	0	5	4	0	9	7:20 AM	0	0	0	0	0
7:25 AM	0	7	2	0	9	7:25 AM	0	0	0	0	0
7:30 AM	0	6	2	0	8	7:30 AM	0	0	0	0	0
7:35 AM	0	3	4	0	7	7:35 AM	0	0	0	0	0
7:40 AM	0	5	4	0	9	7:40 AM	0	0	1	0	1
7:45 AM	0	3	1	0	4	7:45 AM	0	0	1	1	2
7:50 AM	1	3	2	0	6	7:50 AM	0	0	0	0	0
7:55 AM	4	4	2	0	10	7:55 AM	0	0	0	0	0
8:00 AM	2	6	1	0	9	8:00 AM	0	0	0	0	0
8:05 AM	1	8	1	0	10	8:05 AM	0	0	0	0	0
8:10 AM	0	7	1	0	8	8:10 AM	0	0	0	0	0
8:15 AM	4	5	1	0	10	8:15 AM	0	0	0	0	0
8:20 AM	2	10	0	0	12	8:20 AM	0	0	0	0	0
8:25 AM	1	2	3	0	6	8:25 AM	0	0	0	0	0
8:30 AM	4	10	0	0	14	8:30 AM	0	0	0	0	0
8:35 AM	1	1	3	0	5	8:35 AM	0	0	0	0	0
8:40 AM	1	5	2	0	8	8:40 AM	0	0	0	0	0
8:45 AM	1	10	2	0	13	8:45 AM	0	0	0	0	0
8:50 AM	0	9	0	0	9	8:50 AM	1	0	0	0	1
8:55 AM	1	10	4	0	15	8:55 AM	2	0	0	0	2
Count Total	26	148	50	0	224	Count Total	4	0	2	1	7
Peak Hour	8	66	29	0	103	Peak Hour	1	0	2	1	4



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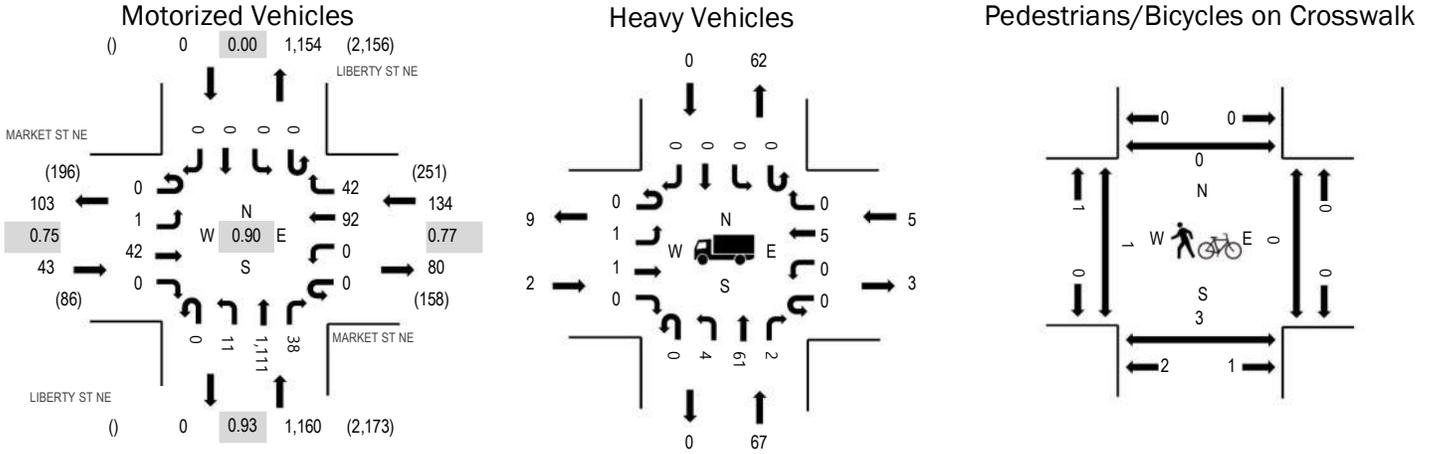
Location: 5 LIBERTY ST NE & MARKET ST NE AM

Date: Tuesday, February 6, 2024

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

Peak 15-Minutes: 07:50 AM - 08:05 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.7%	0.75
WB	3.7%	0.77
NB	5.8%	0.93
SB	0.0%	0.00
All	5.5%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	MARKET ST NE Eastbound				MARKET ST NE Westbound				LIBERTY ST NE Northbound				LIBERTY ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	1	0	0	0	12	2	0	0	75	1	0	0	0	0	92	1,271
7:05 AM	0	0	1	0	0	0	6	2	0	0	98	3	0	0	0	0	110	1,305
7:10 AM	0	0	1	0	0	0	4	1	0	0	77	2	0	0	0	0	85	1,313
7:15 AM	0	0	1	0	0	0	3	5	0	0	95	2	0	0	0	0	106	1,337
7:20 AM	0	0	1	0	0	0	6	4	0	1	85	5	0	0	0	0	102	1,312
7:25 AM	0	0	3	0	0	0	10	1	0	2	84	2	0	0	0	0	102	1,294
7:30 AM	0	0	2	0	0	0	7	2	0	2	98	3	0	0	0	0	114	1,306
7:35 AM	0	1	4	0	0	0	11	4	0	0	89	0	0	0	0	0	109	1,297
7:40 AM	0	0	4	0	0	0	7	5	0	1	91	6	0	0	0	0	114	1,279
7:45 AM	0	0	4	0	0	0	5	4	0	0	74	3	0	0	0	0	90	1,269
7:50 AM	0	0	7	0	0	0	9	3	0	0	101	4	0	0	0	0	124	1,292
7:55 AM	0	0	7	0	0	0	11	5	0	2	93	5	0	0	0	0	123	1,270
8:00 AM	0	0	4	0	0	0	12	4	0	0	104	2	0	0	0	0	126	1,239
8:05 AM	0	0	4	0	0	0	8	3	0	2	98	3	0	0	0	0	118	
8:10 AM	0	0	1	0	0	0	3	2	0	1	99	3	0	0	0	0	109	
8:15 AM	0	0	4	0	0	0	6	4	0	0	67	0	0	0	0	0	81	
8:20 AM	0	0	3	0	0	0	7	2	0	1	68	3	0	0	0	0	84	
8:25 AM	0	0	5	0	0	0	5	0	0	2	99	3	0	0	0	0	114	
8:30 AM	0	1	4	0	0	0	9	5	0	2	78	6	0	0	0	0	105	
8:35 AM	0	1	3	0	0	0	4	1	0	0	76	6	0	0	0	0	91	
8:40 AM	0	0	3	0	0	0	7	4	0	4	83	3	0	0	0	0	104	
8:45 AM	0	1	6	0	0	0	9	6	0	2	87	2	0	0	0	0	113	
8:50 AM	0	0	3	0	0	0	6	1	0	0	84	8	0	0	0	0	102	
8:55 AM	0	0	5	0	0	0	7	7	0	0	71	2	0	0	0	0	92	
Count Total	0	5	81	0	0	0	174	77	0	22	2,074	77	0	0	0	0	2,510	
Peak Hour	0	1	42	0	0	0	92	42	0	11	1,111	38	0	0	0	0	1,337	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	6	1	0	7	7:00 AM	0	0	0	0	0
7:05 AM	0	6	1	0	7	7:05 AM	0	0	0	0	0
7:10 AM	0	9	0	0	9	7:10 AM	0	0	0	0	0
7:15 AM	0	8	0	0	8	7:15 AM	0	0	0	0	0
7:20 AM	0	6	0	0	6	7:20 AM	0	0	0	0	0
7:25 AM	0	10	1	0	11	7:25 AM	0	0	0	0	0
7:30 AM	0	4	1	0	5	7:30 AM	0	0	0	0	0
7:35 AM	1	2	2	0	5	7:35 AM	0	0	0	0	0
7:40 AM	0	6	0	0	6	7:40 AM	0	0	0	0	0
7:45 AM	0	2	0	0	2	7:45 AM	0	1	0	0	1
7:50 AM	0	3	1	0	4	7:50 AM	0	0	0	0	0
7:55 AM	0	6	0	0	6	7:55 AM	0	0	0	0	0
8:00 AM	1	6	0	0	7	8:00 AM	1	2	0	0	3
8:05 AM	0	6	0	0	6	8:05 AM	0	0	0	0	0
8:10 AM	0	8	0	0	8	8:10 AM	0	0	0	0	0
8:15 AM	2	5	1	0	8	8:15 AM	0	1	0	0	1
8:20 AM	1	8	0	0	9	8:20 AM	0	0	1	0	1
8:25 AM	1	6	0	0	7	8:25 AM	0	0	0	0	0
8:30 AM	1	5	0	0	6	8:30 AM	0	0	0	0	0
8:35 AM	0	2	1	0	3	8:35 AM	0	0	0	0	0
8:40 AM	0	9	1	0	10	8:40 AM	0	0	0	1	1
8:45 AM	1	7	0	0	8	8:45 AM	0	1	0	1	2
8:50 AM	0	9	0	0	9	8:50 AM	0	0	0	0	0
8:55 AM	0	10	0	0	10	8:55 AM	0	0	0	0	0
Count Total	8	149	10	0	167	Count Total	1	5	1	2	9
Peak Hour	2	67	5	0	74	Peak Hour	1	3	0	0	4



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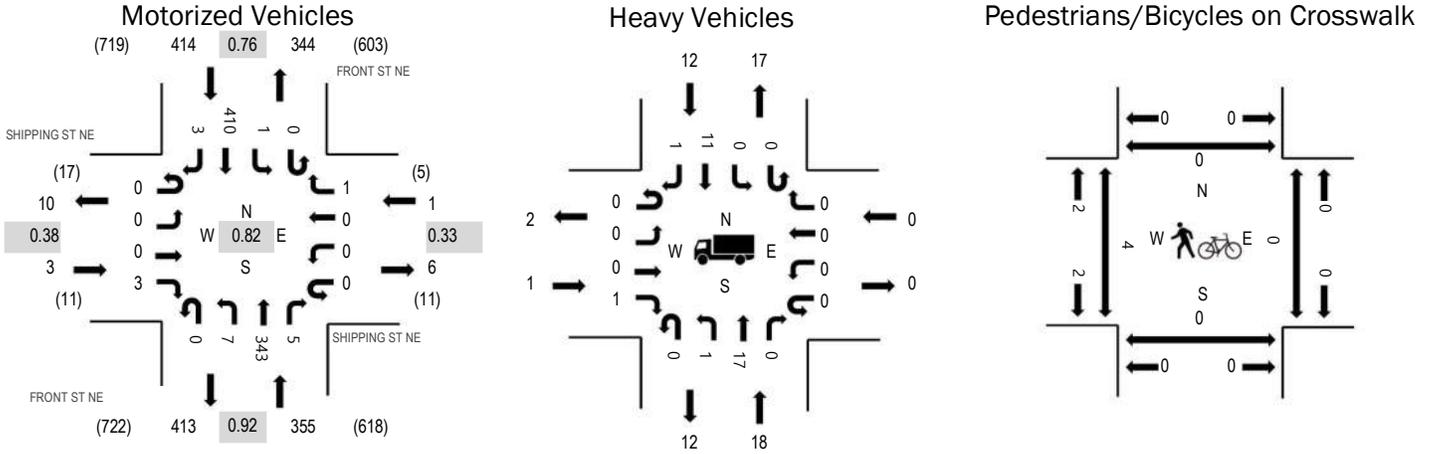
Location: 6 FRONT ST NE & SHIPPING ST NE AM

Date: Tuesday, February 6, 2024

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

Peak 15-Minutes: 07:40 AM - 07:55 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	33.3%	0.38
WB	0.0%	0.33
NB	5.1%	0.92
SB	2.9%	0.76
All	4.0%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	SHIPPING ST NE Eastbound				SHIPPING ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	0	0	0	0	2	19	0	0	0	18	0	39	697
7:05 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	14	0	28	717
7:10 AM	0	0	0	0	0	0	0	0	0	1	20	0	0	0	25	0	46	758
7:15 AM	0	0	0	0	0	1	0	0	0	1	23	0	0	0	27	0	52	758
7:20 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	37	0	56	767
7:25 AM	0	0	1	0	0	0	0	0	0	0	26	0	0	1	24	2	54	768
7:30 AM	0	0	0	1	0	0	0	0	0	0	26	0	0	0	27	0	54	773
7:35 AM	0	0	0	0	0	0	0	0	0	1	20	2	0	1	35	1	60	770
7:40 AM	0	0	0	0	0	0	0	0	0	1	38	0	0	0	39	0	78	750
7:45 AM	0	0	0	0	0	0	0	0	0	1	23	0	0	0	51	0	75	732
7:50 AM	0	0	0	0	0	0	0	0	0	1	30	2	0	0	49	0	82	702
7:55 AM	0	0	0	2	0	0	0	0	0	0	35	0	0	0	36	0	73	677
8:00 AM	0	0	0	0	0	0	0	0	0	0	27	0	0	0	32	0	59	656
8:05 AM	0	0	0	0	0	0	0	0	0	1	32	0	0	0	35	1	69	
8:10 AM	0	0	0	0	0	0	0	0	0	0	28	0	0	0	17	1	46	
8:15 AM	0	0	0	0	0	0	0	1	0	0	30	0	0	0	30	0	61	
8:20 AM	0	0	0	0	0	0	0	0	0	1	26	0	0	0	30	0	57	
8:25 AM	0	0	0	0	0	0	0	0	0	1	28	1	0	0	29	0	59	
8:30 AM	0	0	0	1	0	1	1	1	0	0	21	0	0	0	26	0	51	
8:35 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	19	0	40	
8:40 AM	0	0	0	0	0	0	0	0	0	0	24	1	0	0	35	0	60	
8:45 AM	0	0	0	1	0	0	0	0	0	0	20	0	0	0	24	0	45	
8:50 AM	0	1	1	3	0	0	0	0	0	0	22	0	0	0	30	0	57	
8:55 AM	0	0	0	0	0	0	0	0	0	0	28	1	0	0	23	0	52	
Count Total	0	1	2	8	0	2	1	2	0	11	600	7	0	2	712	5	1,353	
Peak Hour	0	0	0	3	0	0	0	1	0	7	343	5	0	1	410	3	773	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	1	1	7:00 AM	0	0	0	0	0
7:05 AM	0	1	0	0	1	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	1	0	2	3	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1	7:30 AM	1	0	0	0	1
7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	2	2	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1	7:45 AM	0	0	0	0	0
7:50 AM	0	3	0	0	3	7:50 AM	0	0	0	0	0
7:55 AM	1	4	0	0	5	7:55 AM	1	0	0	0	1
8:00 AM	0	1	0	0	1	8:00 AM	0	0	0	0	0
8:05 AM	0	3	0	1	4	8:05 AM	0	0	0	0	0
8:10 AM	0	1	0	0	1	8:10 AM	2	0	0	0	2
8:15 AM	0	3	0	3	6	8:15 AM	0	0	0	0	0
8:20 AM	0	2	0	0	2	8:20 AM	0	0	0	0	0
8:25 AM	0	1	0	4	5	8:25 AM	0	0	0	0	0
8:30 AM	0	4	0	1	5	8:30 AM	1	1	0	0	2
8:35 AM	0	1	0	1	2	8:35 AM	0	0	0	0	0
8:40 AM	0	1	0	0	1	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	3	3	8:45 AM	0	0	0	0	0
8:50 AM	2	2	0	1	5	8:50 AM	0	0	0	0	0
8:55 AM	0	2	0	2	4	8:55 AM	0	0	0	0	0
Count Total	3	31	0	23	57	Count Total	5	1	0	0	6
Peak Hour	1	18	0	12	31	Peak Hour	4	0	0	0	4



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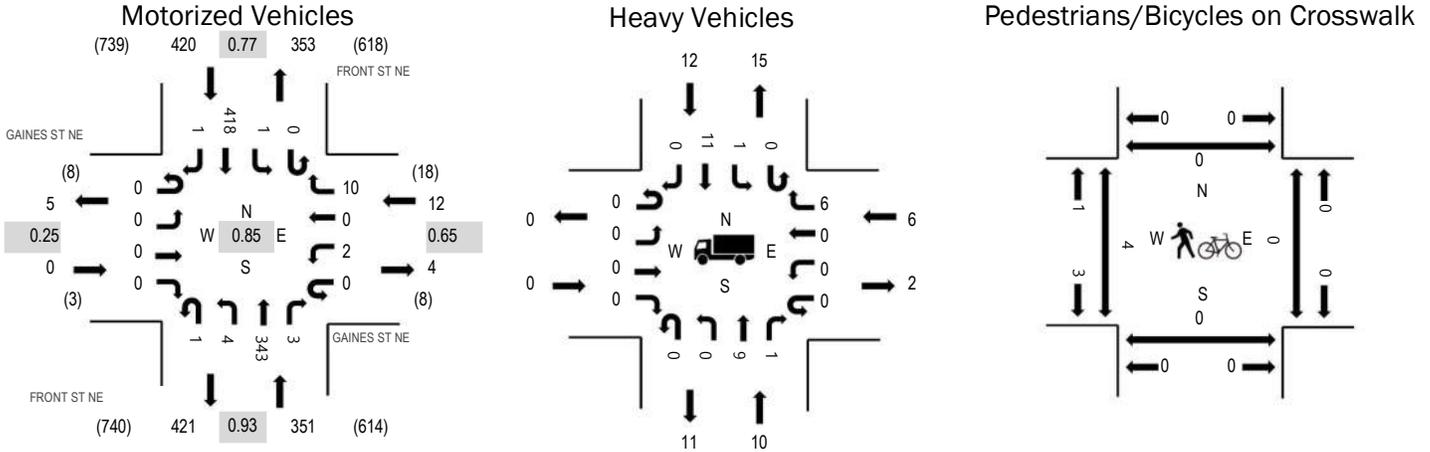
Location: 8 FRONT ST NE & GAINES ST NE AM

Date: Tuesday, February 6, 2024

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

Peak 15-Minutes: 07:40 AM - 07:55 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.25
WB	50.0%	0.65
NB	2.8%	0.93
SB	2.9%	0.77
All	3.6%	0.85

Traffic Counts - Motorized Vehicles

Interval Start Time	GAINES ST NE Eastbound				GAINES ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right														
	7:00 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	20		
7:05 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	14	0	28	723
7:10 AM	0	0	1	0	0	0	0	0	0	0	21	0	0	0	23	0	45	766
7:15 AM	0	0	0	0	0	0	0	0	0	0	25	0	0	0	29	0	54	766
7:20 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	39	0	58	774
7:25 AM	0	0	0	0	0	0	0	0	0	0	27	0	0	0	22	0	49	775
7:30 AM	0	0	0	0	0	0	0	0	0	0	27	0	0	1	29	0	57	783
7:35 AM	0	0	0	0	0	0	0	1	1	0	24	0	0	0	35	1	62	779
7:40 AM	0	0	0	0	0	0	0	0	0	0	37	0	0	0	42	0	79	762
7:45 AM	0	0	0	0	0	0	0	0	0	0	22	0	0	0	50	0	72	739
7:50 AM	0	0	0	0	0	0	0	2	0	0	33	1	0	0	44	0	80	716
7:55 AM	0	0	0	0	0	0	0	2	0	0	32	0	0	0	44	0	78	696
8:00 AM	0	0	0	0	0	0	0	1	0	0	26	1	0	0	33	0	61	671
8:05 AM	0	0	0	0	0	1	0	1	0	1	34	0	0	0	34	0	71	
8:10 AM	0	0	0	0	0	0	0	0	0	0	25	1	0	0	19	0	45	
8:15 AM	0	0	0	0	0	1	0	2	0	1	26	0	0	0	32	0	62	
8:20 AM	0	0	0	0	0	0	0	0	0	1	27	0	0	0	31	0	59	
8:25 AM	0	0	0	0	0	0	0	1	0	1	30	0	0	0	25	0	57	
8:30 AM	0	0	0	0	0	0	0	1	0	1	19	0	0	0	31	1	53	
8:35 AM	0	0	0	1	0	0	0	0	0	0	25	0	0	0	19	0	45	
8:40 AM	0	0	0	0	0	0	0	0	0	0	22	0	0	0	34	0	56	
8:45 AM	0	0	1	0	0	0	0	1	0	1	18	1	0	1	26	0	49	
8:50 AM	0	0	0	0	0	1	0	1	0	0	24	0	0	0	34	0	60	
8:55 AM	0	0	0	0	0	0	0	2	0	0	25	0	0	0	26	0	53	
Count Total	0	0	2	1	0	3	0	15	1	6	603	4	0	2	735	2	1,374	
Peak Hour	0	0	0	0	0	2	0	10	1	4	343	3	0	1	418	1	783	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	1	1	7:00 AM	0	0	0	0	0
7:05 AM	0	1	0	0	1	7:05 AM	0	0	0	0	0
7:10 AM	1	0	0	0	1	7:10 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	1	0	1	2	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1	7:30 AM	1	0	0	0	1
7:35 AM	0	0	0	1	1	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	2	2	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1	7:45 AM	1	0	0	0	1
7:50 AM	0	3	2	0	5	7:50 AM	0	0	0	0	0
7:55 AM	0	3	0	1	4	7:55 AM	1	0	0	0	1
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	2	1	1	4	8:05 AM	0	0	0	0	0
8:10 AM	0	1	0	0	1	8:10 AM	1	0	0	0	1
8:15 AM	0	0	2	3	5	8:15 AM	0	0	0	0	0
8:20 AM	0	1	0	0	1	8:20 AM	0	0	0	0	0
8:25 AM	0	0	1	2	3	8:25 AM	0	0	0	0	0
8:30 AM	0	2	1	3	6	8:30 AM	0	0	0	0	0
8:35 AM	0	1	0	0	1	8:35 AM	0	0	2	0	2
8:40 AM	0	1	0	2	3	8:40 AM	1	0	0	1	2
8:45 AM	0	0	0	3	3	8:45 AM	0	0	0	0	0
8:50 AM	0	3	0	2	5	8:50 AM	0	0	0	0	0
8:55 AM	0	1	0	2	3	8:55 AM	0	0	0	0	0
Count Total	1	21	7	26	55	Count Total	5	0	2	1	8
Peak Hour	0	10	6	12	28	Peak Hour	4	0	0	0	4



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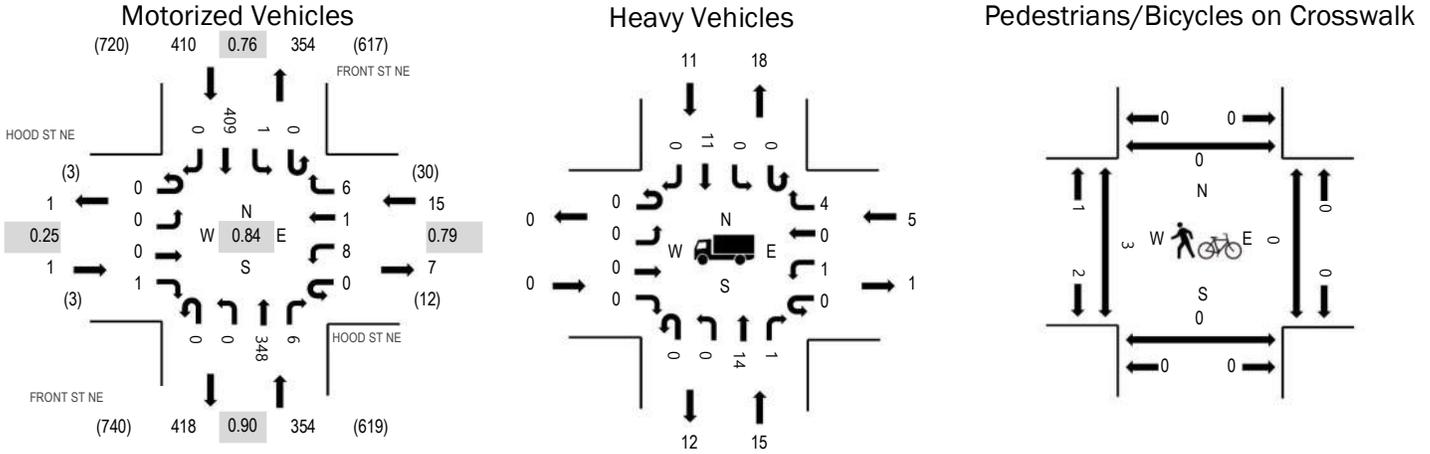
Location: 9 FRONT ST NE & HOOD ST NE AM

Date: Tuesday, February 6, 2024

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

Peak 15-Minutes: 07:40 AM - 07:55 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.25
WB	33.3%	0.79
NB	4.2%	0.90
SB	2.7%	0.76
All	4.0%	0.84

Traffic Counts - Motorized Vehicles

Interval Start Time	HOOD ST NE Eastbound				HOOD ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	1	0	0	0	0	21	0	0	0	19	0	41	704
7:05 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	14	0	28	724
7:10 AM	0	0	0	0	0	1	0	0	0	0	21	0	0	0	24	0	46	765
7:15 AM	0	0	0	0	0	2	0	0	0	0	24	1	0	1	28	0	56	763
7:20 AM	0	0	0	0	0	1	0	0	0	0	19	0	0	0	36	0	56	769
7:25 AM	0	0	0	0	0	0	0	0	0	0	26	0	0	0	23	0	49	772
7:30 AM	0	0	0	0	0	1	1	0	0	0	27	0	0	1	27	0	57	780
7:35 AM	0	0	0	1	0	1	0	0	0	0	24	0	0	0	34	0	60	777
7:40 AM	0	0	0	0	0	0	0	0	0	0	37	1	0	0	41	0	79	759
7:45 AM	0	0	0	0	0	1	0	0	0	0	23	0	0	0	49	0	73	743
7:50 AM	0	0	0	0	0	0	0	1	0	0	32	1	0	0	46	0	80	716
7:55 AM	0	0	0	0	0	1	0	0	0	0	35	1	0	0	42	0	79	694
8:00 AM	0	0	0	0	0	1	0	1	0	0	26	1	0	0	32	0	61	668
8:05 AM	0	0	0	0	0	1	0	0	0	0	35	0	0	0	33	0	69	
8:10 AM	0	0	0	0	0	1	0	1	0	0	25	0	0	0	17	0	44	
8:15 AM	0	0	0	0	0	1	0	2	0	0	28	0	0	0	31	0	62	
8:20 AM	0	0	0	0	0	0	0	1	0	0	26	1	0	0	31	0	59	
8:25 AM	0	0	0	0	0	0	0	0	0	0	30	1	0	0	26	0	57	
8:30 AM	0	0	0	1	0	1	1	1	0	0	20	0	0	0	30	0	54	
8:35 AM	0	0	0	0	0	1	0	0	0	0	21	1	0	0	19	0	42	
8:40 AM	0	1	0	0	0	2	0	0	0	0	24	1	0	0	34	1	63	
8:45 AM	0	0	0	0	0	1	0	0	0	0	20	0	0	0	25	0	46	
8:50 AM	0	0	0	0	0	2	0	0	0	0	24	1	0	0	31	0	58	
8:55 AM	0	0	0	0	0	1	0	0	0	0	27	0	0	0	25	0	53	
Count Total	0	1	0	2	0	21	2	7	0	0	609	10	0	2	717	1	1,372	
Peak Hour	0	0	0	1	0	8	1	6	0	0	348	6	0	1	409	0	780	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	1	1	7:00 AM	0	0	0	0	0
7:05 AM	0	1	0	0	1	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	1	0	1	2	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1	7:30 AM	1	0	0	0	1
7:35 AM	0	0	0	1	1	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	2	2	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1	7:45 AM	0	0	0	0	0
7:50 AM	0	4	0	0	4	7:50 AM	0	0	0	0	0
7:55 AM	0	4	0	1	5	7:55 AM	1	0	0	0	1
8:00 AM	0	0	1	0	1	8:00 AM	0	0	0	0	0
8:05 AM	0	3	1	0	4	8:05 AM	0	0	0	0	0
8:10 AM	0	0	1	0	1	8:10 AM	1	0	0	0	1
8:15 AM	0	2	1	3	6	8:15 AM	0	0	0	0	0
8:20 AM	0	1	1	0	2	8:20 AM	0	0	0	0	0
8:25 AM	0	1	0	2	3	8:25 AM	0	0	0	0	0
8:30 AM	0	3	1	3	7	8:30 AM	0	0	0	0	0
8:35 AM	0	1	0	1	2	8:35 AM	0	0	0	0	0
8:40 AM	0	1	1	0	2	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	3	3	8:45 AM	0	0	0	0	0
8:50 AM	0	3	0	2	5	8:50 AM	0	0	0	0	0
8:55 AM	0	1	0	2	3	8:55 AM	0	0	0	0	0
Count Total	0	27	7	24	58	Count Total	3	0	0	0	3
Peak Hour	0	15	5	11	31	Peak Hour	3	0	0	0	3



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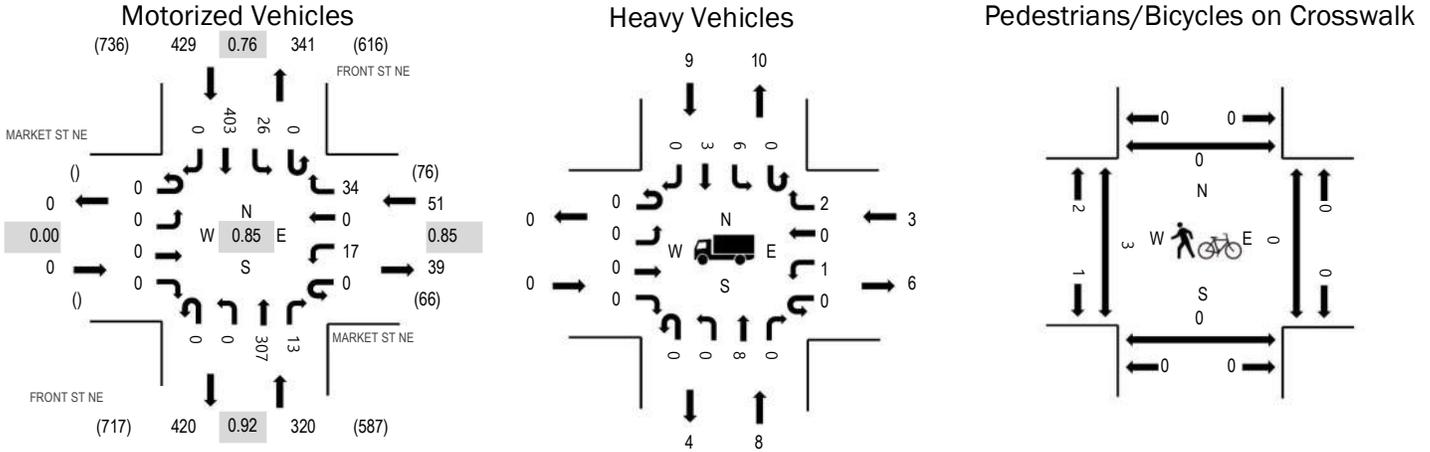
Location: 10 FRONT ST NE & MARKET ST NE AM

Date: Tuesday, February 6, 2024

Peak Hour: 07:20 AM - 08:20 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	5.9%	0.85
NB	2.5%	0.92
SB	2.1%	0.76
All	2.5%	0.85

**Traffic Counts - Motorized Vehicles**

Interval Start Time	MARKET ST NE				MARKET ST NE				FRONT ST NE				FRONT ST NE				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	0	0	1	0	0	19	0	0	0	20	0	40	725
7:05 AM	0	0	0	0	0	2	0	0	0	0	15	0	0	1	11	0	29	752
7:10 AM	0	0	0	0	0	0	0	1	0	0	20	1	0	1	24	0	47	791
7:15 AM	0	0	0	0	0	0	0	0	0	0	25	0	0	0	29	0	54	789
7:20 AM	0	0	0	0	0	2	0	0	0	0	21	1	0	1	38	0	63	800
7:25 AM	0	0	0	0	0	6	0	1	0	0	27	1	0	1	24	0	60	795
7:30 AM	0	0	0	0	0	0	0	2	0	0	24	1	0	1	28	0	56	792
7:35 AM	0	0	0	0	0	1	0	3	0	0	22	3	0	2	31	0	62	791
7:40 AM	0	0	0	0	0	1	0	8	0	0	28	0	0	4	37	0	78	779
7:45 AM	0	0	0	0	0	2	0	0	0	0	23	0	0	7	43	0	75	757
7:50 AM	0	0	0	0	0	0	0	4	0	0	29	0	0	2	45	0	80	727
7:55 AM	0	0	0	0	0	1	0	3	0	0	29	4	0	3	41	0	81	703
8:00 AM	0	0	0	0	0	3	0	3	0	0	26	0	0	1	34	0	67	674
8:05 AM	0	0	0	0	0	0	0	5	0	0	29	0	0	1	33	0	68	
8:10 AM	0	0	0	0	0	0	0	2	0	0	24	0	0	0	19	0	45	
8:15 AM	0	0	0	0	0	1	0	3	0	0	25	3	0	3	30	0	65	
8:20 AM	0	0	0	0	0	0	0	2	0	0	25	1	0	0	30	0	58	
8:25 AM	0	0	0	0	0	1	0	4	0	0	27	0	0	3	22	0	57	
8:30 AM	0	0	0	0	0	3	0	1	0	0	19	1	0	1	30	0	55	
8:35 AM	0	0	0	0	0	1	0	1	0	0	25	2	0	3	18	0	50	
8:40 AM	0	0	0	0	0	0	0	3	0	0	20	0	0	1	32	0	56	
8:45 AM	0	0	0	0	0	0	0	1	0	0	18	1	0	3	22	0	45	
8:50 AM	0	0	0	0	0	1	0	2	0	0	21	2	0	3	27	0	56	
8:55 AM	0	0	0	0	0	0	0	1	0	0	24	1	0	2	24	0	52	
Count Total	0	0	0	0	0	25	0	51	0	0	565	22	0	44	692	0	1,399	
Peak Hour	0	0	0	0	0	17	0	34	0	0	307	13	0	26	403	0	800	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	1	1	7:00 AM	0	0	0	0	0
7:05 AM	0	1	0	0	1	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	1	0	1	2	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	1	1	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	3	3	7:45 AM	0	0	0	0	0
7:50 AM	0	2	1	0	3	7:50 AM	0	0	0	0	0
7:55 AM	0	3	0	1	4	7:55 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM	1	0	0	0	1
8:05 AM	0	1	1	0	2	8:05 AM	2	0	0	0	2
8:10 AM	0	1	0	1	2	8:10 AM	0	0	0	0	0
8:15 AM	0	0	1	2	3	8:15 AM	0	0	0	0	0
8:20 AM	0	1	0	1	2	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	2	2	8:25 AM	0	0	0	0	0
8:30 AM	0	2	0	2	4	8:30 AM	0	0	0	0	0
8:35 AM	0	1	0	0	1	8:35 AM	1	1	1	0	3
8:40 AM	0	1	0	2	3	8:40 AM	1	0	0	0	1
8:45 AM	0	1	0	2	3	8:45 AM	0	0	0	0	0
8:50 AM	0	2	1	2	5	8:50 AM	0	0	0	0	0
8:55 AM	0	1	0	2	3	8:55 AM	0	0	0	0	0
Count Total	0	19	4	23	46	Count Total	5	1	1	0	7
Peak Hour	0	8	3	9	20	Peak Hour	3	0	0	0	3



### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	8	0	0	1	9	7:00 AM	0	0	1	0	1
7:05 AM	6	0	0	0	6	7:05 AM	0	0	0	0	0
7:10 AM	7	0	0	0	7	7:10 AM	0	0	0	0	0
7:15 AM	9	0	1	0	10	7:15 AM	0	0	0	1	1
7:20 AM	6	0	0	0	6	7:20 AM	0	0	0	1	1
7:25 AM	8	0	0	2	10	7:25 AM	0	0	0	0	0
7:30 AM	2	0	0	0	2	7:30 AM	0	0	0	1	1
7:35 AM	3	0	2	1	6	7:35 AM	0	0	0	0	0
7:40 AM	2	0	0	0	2	7:40 AM	0	0	0	1	1
7:45 AM	4	0	1	0	5	7:45 AM	0	0	0	1	1
7:50 AM	6	0	1	0	7	7:50 AM	2	0	0	3	5
7:55 AM	4	0	1	0	5	7:55 AM	0	0	0	0	0
8:00 AM	9	0	2	0	11	8:00 AM	0	0	0	0	0
8:05 AM	7	0	1	2	10	8:05 AM	0	0	0	1	1
8:10 AM	5	0	1	0	6	8:10 AM	0	0	0	0	0
8:15 AM	6	0	0	2	8	8:15 AM	0	0	0	1	1
8:20 AM	7	0	0	1	8	8:20 AM	0	1	0	1	2
8:25 AM	7	0	0	0	7	8:25 AM	0	0	0	1	1
8:30 AM	5	0	2	4	11	8:30 AM	0	0	0	1	1
8:35 AM	5	0	0	1	6	8:35 AM	0	0	0	0	0
8:40 AM	8	0	1	1	10	8:40 AM	0	0	0	0	0
8:45 AM	9	0	0	0	9	8:45 AM	0	1	0	0	1
8:50 AM	8	0	0	0	8	8:50 AM	0	0	0	2	2
8:55 AM	7	0	0	1	8	8:55 AM	0	1	0	2	3
Count Total	148	0	13	16	177	Count Total	2	3	1	17	23
Peak Hour	67	0	9	5	81	Peak Hour	2	0	0	9	11



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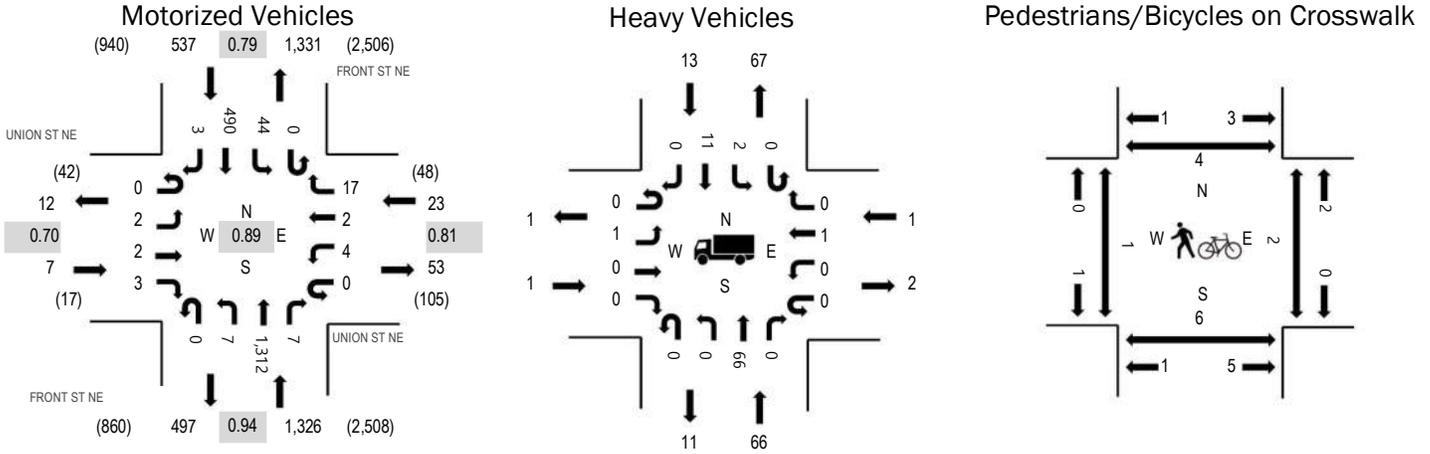
Location: 12 FRONT ST NE & UNION ST NE AM

Date: Tuesday, February 6, 2024

Peak Hour: 07:10 AM - 08:10 AM

Peak 15-Minutes: 07:50 AM - 08:05 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	14.3%	0.70
WB	4.3%	0.81
NB	5.0%	0.94
SB	2.4%	0.79
All	4.3%	0.89

Traffic Counts - Motorized Vehicles

Interval Start Time	UNION ST NE Eastbound				UNION ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
	7:00 AM	0	0	0	0	0	0	0	0	0	0	99	1	0	3	21		
7:05 AM	0	0	0	0	0	0	0	0	0	0	95	1	0	2	12	1	111	1,843
7:10 AM	0	0	0	0	0	1	0	0	0	0	114	2	0	2	30	0	149	1,893
7:15 AM	0	0	0	0	0	0	0	1	0	1	108	0	0	1	37	0	148	1,882
7:20 AM	0	0	0	0	0	0	0	2	0	1	98	0	0	5	36	0	142	1,890
7:25 AM	0	0	0	0	0	1	0	1	0	0	115	0	0	3	27	1	148	1,887
7:30 AM	0	0	0	0	0	0	0	0	0	0	101	1	0	4	33	0	139	1,863
7:35 AM	0	0	0	2	0	0	0	5	0	0	110	2	0	1	40	0	160	1,882
7:40 AM	0	0	0	0	0	0	0	2	0	0	103	0	0	6	40	0	151	1,846
7:45 AM	0	0	0	1	0	1	0	0	0	0	110	0	0	3	51	0	166	1,831
7:50 AM	0	0	0	0	0	0	0	2	0	2	104	1	0	6	46	1	162	1,810
7:55 AM	0	0	0	0	0	1	2	2	0	1	113	0	0	4	63	0	186	1,785
8:00 AM	0	1	1	0	0	0	0	1	0	1	129	1	0	3	43	1	181	1,727
8:05 AM	0	1	1	0	0	0	0	1	0	1	107	0	0	6	44	0	161	
8:10 AM	0	0	0	0	0	1	1	0	0	2	92	1	0	4	36	1	138	
8:15 AM	0	0	0	0	0	0	0	2	0	0	108	1	0	3	42	0	156	
8:20 AM	0	0	0	0	0	0	0	0	0	4	97	0	0	5	33	0	139	
8:25 AM	0	0	0	0	0	0	1	2	0	4	94	0	0	3	20	0	124	
8:30 AM	0	0	1	1	0	0	2	3	0	1	109	0	0	2	39	0	158	
8:35 AM	0	1	2	0	0	0	0	1	0	0	90	2	0	1	26	1	124	
8:40 AM	0	0	0	0	0	0	0	2	0	4	89	0	0	3	38	0	136	
8:45 AM	0	0	1	0	0	0	0	3	0	0	105	1	1	4	30	0	145	
8:50 AM	0	0	1	0	0	0	2	2	0	2	88	2	0	4	36	0	137	
8:55 AM	0	1	2	0	0	0	0	3	0	2	88	0	0	2	28	2	128	
Count Total	0	4	9	4	0	5	8	35	0	26	2,466	16	1	80	851	8	3,513	
Peak Hour	0	2	2	3	0	4	2	17	0	7	1,312	7	0	44	490	3	1,893	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	9	0	1	10	7:00 AM	0	0	0	0	0
7:05 AM	0	6	0	0	6	7:05 AM	1	1	0	3	5
7:10 AM	0	7	0	0	7	7:10 AM	0	0	0	0	0
7:15 AM	0	9	0	0	9	7:15 AM	0	0	0	0	0
7:20 AM	0	6	0	1	7	7:20 AM	0	0	0	0	0
7:25 AM	0	8	0	2	10	7:25 AM	0	0	0	2	2
7:30 AM	0	4	0	0	4	7:30 AM	0	0	0	0	0
7:35 AM	0	1	0	3	4	7:35 AM	0	2	0	0	2
7:40 AM	0	2	0	0	2	7:40 AM	1	1	1	0	3
7:45 AM	0	4	0	1	5	7:45 AM	0	0	0	0	0
7:50 AM	0	6	0	1	7	7:50 AM	0	0	0	1	1
7:55 AM	0	4	1	1	6	7:55 AM	0	0	0	0	0
8:00 AM	1	8	0	2	11	8:00 AM	0	1	1	0	2
8:05 AM	0	7	0	2	9	8:05 AM	0	2	0	1	3
8:10 AM	0	6	0	2	8	8:10 AM	1	2	0	2	5
8:15 AM	0	6	0	2	8	8:15 AM	0	0	0	0	0
8:20 AM	0	8	0	1	9	8:20 AM	0	2	1	0	3
8:25 AM	0	6	1	0	7	8:25 AM	0	2	0	2	4
8:30 AM	0	5	0	6	11	8:30 AM	0	0	0	0	0
8:35 AM	0	5	0	1	6	8:35 AM	0	0	0	2	2
8:40 AM	0	8	0	2	10	8:40 AM	0	0	0	0	0
8:45 AM	0	10	0	0	10	8:45 AM	0	0	0	1	1
8:50 AM	0	8	0	0	8	8:50 AM	0	0	0	0	0
8:55 AM	0	7	0	1	8	8:55 AM	0	1	0	3	4
Count Total	1	150	2	29	182	Count Total	3	14	3	17	37
Peak Hour	1	66	1	13	81	Peak Hour	1	6	2	4	13



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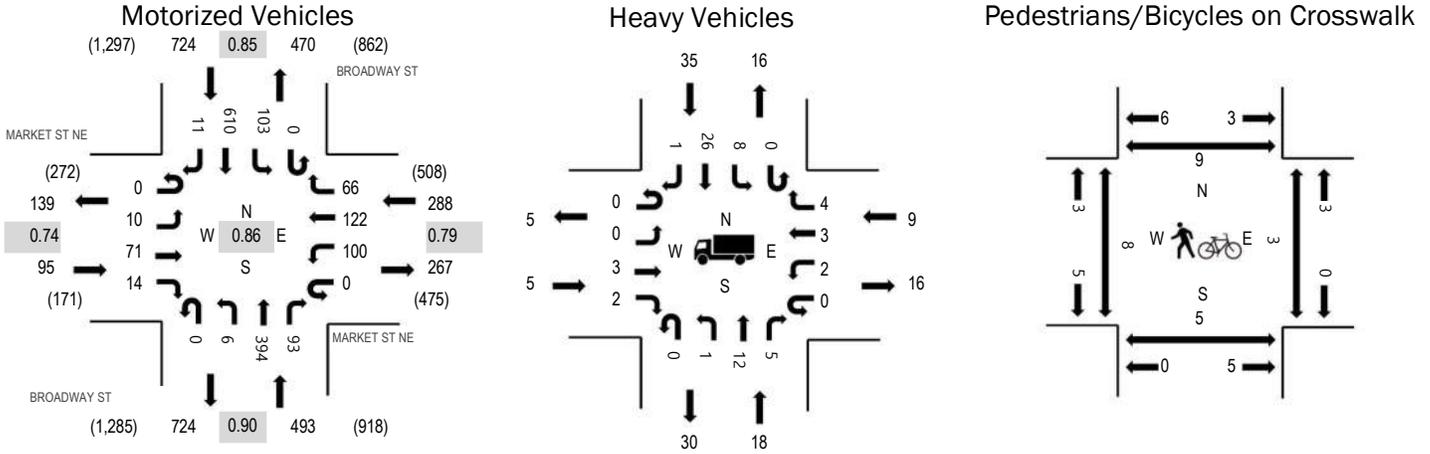
Location: 13 BROADWAY ST & MARKET ST NE AM

Date: Tuesday, February 6, 2024

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

Peak 15-Minutes: 07:50 AM - 08:05 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.3%	0.74
WB	3.1%	0.79
NB	3.7%	0.90
SB	4.8%	0.85
All	4.2%	0.86

Traffic Counts - Motorized Vehicles

Interval Start Time	MARKET ST NE Eastbound				MARKET ST NE Westbound				BROADWAY ST Northbound				BROADWAY ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	4	1	0	2	15	4	0	0	28	7	0	1	29	1	92	1,450
7:05 AM	0	1	1	0	0	4	8	7	0	0	30	5	0	4	48	2	110	1,510
7:10 AM	0	1	2	1	0	2	0	0	0	1	19	6	0	7	39	0	78	1,536
7:15 AM	0	0	7	0	0	7	12	0	0	1	22	5	0	3	32	0	89	1,566
7:20 AM	0	0	2	0	0	7	9	3	0	2	37	4	0	5	44	1	114	1,589
7:25 AM	0	0	7	1	0	6	6	6	0	0	27	9	0	7	48	2	119	1,589
7:30 AM	0	3	2	0	0	10	14	8	0	0	28	10	0	13	41	1	130	1,600
7:35 AM	0	0	5	0	0	5	9	8	0	0	35	5	0	4	58	1	130	1,595
7:40 AM	0	1	6	0	0	5	10	7	0	2	29	9	0	7	53	1	130	1,575
7:45 AM	0	0	7	3	0	12	14	10	0	1	28	5	0	9	54	1	144	1,543
7:50 AM	0	2	8	3	0	11	10	8	0	0	40	9	0	11	47	0	149	1,519
7:55 AM	0	0	10	2	0	5	18	3	0	0	37	12	0	9	67	2	165	1,483
8:00 AM	0	1	8	0	0	10	12	7	0	0	30	7	0	11	65	1	152	1,444
8:05 AM	0	1	6	1	0	11	9	3	0	1	44	7	0	10	41	2	136	
8:10 AM	0	0	4	0	0	3	9	1	0	0	30	10	0	8	43	0	108	
8:15 AM	0	2	2	2	0	9	6	1	0	1	32	5	0	7	44	1	112	
8:20 AM	0	0	5	2	0	11	5	7	0	1	27	7	0	5	44	0	114	
8:25 AM	0	0	8	1	0	8	6	3	0	0	34	7	0	9	53	1	130	
8:30 AM	0	0	6	1	0	5	12	4	0	0	36	5	1	9	46	0	125	
8:35 AM	0	0	12	0	0	5	6	4	0	3	23	6	0	6	44	1	110	
8:40 AM	0	0	4	1	0	4	7	7	0	1	22	3	0	7	41	1	98	
8:45 AM	0	0	7	1	0	5	10	7	0	1	29	10	0	3	47	0	120	
8:50 AM	0	0	9	0	0	5	12	4	0	1	31	5	0	7	38	1	113	
8:55 AM	0	1	6	0	0	6	14	5	0	2	33	11	0	6	41	1	126	
Count Total	0	13	138	20	0	158	233	117	0	18	731	169	1	168	1,107	21	2,894	
Peak Hour	0	10	71	14	0	100	122	66	0	6	394	93	0	103	610	11	1,600	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	2	2	2	6	7:00 AM	0	0	0	0	0
7:05 AM	0	2	1	0	3	7:05 AM	0	0	0	0	0
7:10 AM	1	0	0	3	4	7:10 AM	0	0	0	0	0
7:15 AM	1	2	0	2	5	7:15 AM	0	0	0	0	0
7:20 AM	0	5	0	3	8	7:20 AM	0	0	1	0	1
7:25 AM	1	0	1	5	7	7:25 AM	0	0	0	0	0
7:30 AM	0	2	3	3	8	7:30 AM	0	0	0	0	0
7:35 AM	0	1	1	2	4	7:35 AM	0	0	0	2	2
7:40 AM	0	1	0	4	5	7:40 AM	1	0	0	3	4
7:45 AM	0	1	1	1	3	7:45 AM	0	0	0	0	0
7:50 AM	0	0	1	4	5	7:50 AM	1	0	0	1	2
7:55 AM	0	1	0	4	5	7:55 AM	2	0	0	0	2
8:00 AM	1	2	2	3	8	8:00 AM	0	2	0	1	3
8:05 AM	0	1	1	3	5	8:05 AM	0	0	3	1	4
8:10 AM	0	1	0	1	2	8:10 AM	2	1	0	0	3
8:15 AM	2	3	0	3	8	8:15 AM	0	2	0	0	2
8:20 AM	1	2	0	3	6	8:20 AM	2	0	0	1	3
8:25 AM	1	3	0	4	8	8:25 AM	0	0	0	0	0
8:30 AM	1	3	1	3	8	8:30 AM	2	0	0	0	2
8:35 AM	0	1	1	2	4	8:35 AM	0	0	1	0	1
8:40 AM	0	1	0	5	6	8:40 AM	0	0	1	1	2
8:45 AM	1	3	0	5	9	8:45 AM	1	0	0	1	2
8:50 AM	0	1	0	1	2	8:50 AM	1	0	0	2	3
8:55 AM	0	1	0	1	2	8:55 AM	0	0	0	0	0
Count Total	10	39	15	67	131	Count Total	12	5	6	13	36
Peak Hour	5	18	9	35	67	Peak Hour	8	5	3	9	25



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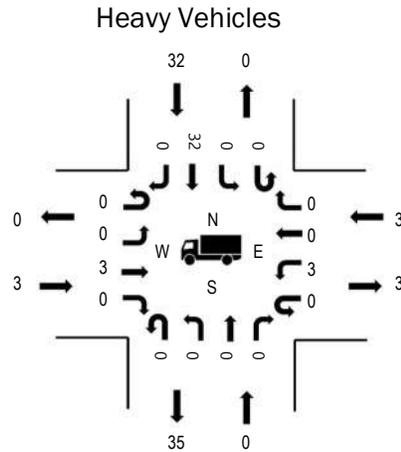
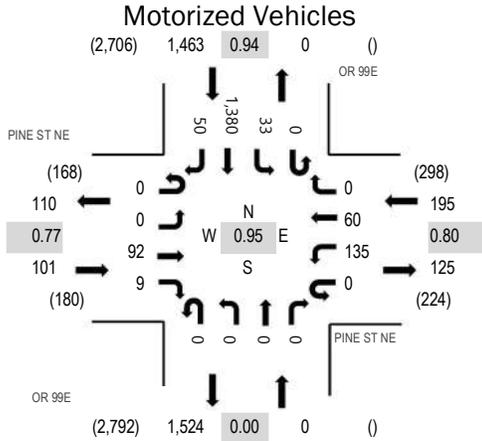
Location: 1 OR 99E & PINE ST NE PM

Date: Tuesday, February 6, 2024

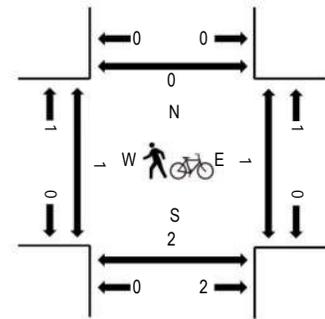
Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:35 PM - 04:50 PM

**Peak Hour**



**Pedestrians/Bicycles on Crosswalk**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.0%	0.77
WB	1.5%	0.80
NB	0.0%	0.00
SB	2.2%	0.94
All	2.2%	0.95

**Traffic Counts - Motorized Vehicles**

Interval Start Time	PINE ST NE Eastbound				PINE ST NE Westbound				OR 99E Northbound				OR 99E Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	8	0	0	10	6	0	0	0	0	0	0	5	120	5	154	1,759
4:05 PM	0	0	17	1	0	12	3	0	0	0	0	0	0	5	116	2	156	1,738
4:10 PM	0	0	4	2	0	13	1	0	0	0	0	0	0	7	118	5	150	1,739
4:15 PM	0	0	6	3	0	15	5	0	0	0	0	0	0	2	104	3	138	1,701
4:20 PM	0	0	8	1	0	4	3	0	0	0	0	0	0	3	142	6	167	1,688
4:25 PM	0	0	5	0	0	16	6	0	0	0	0	0	0	2	89	3	121	1,646
4:30 PM	0	0	8	0	0	8	3	0	0	0	0	0	0	1	106	2	128	1,635
4:35 PM	0	0	6	0	0	6	6	0	0	0	0	0	0	1	141	6	166	1,607
4:40 PM	0	0	5	0	0	25	9	0	0	0	0	0	0	3	117	8	167	1,534
4:45 PM	0	0	6	1	0	10	5	0	0	0	0	0	0	2	104	4	132	1,504
4:50 PM	0	0	3	0	0	7	4	0	0	0	0	0	0	1	133	3	151	1,474
4:55 PM	0	0	16	1	0	9	9	0	0	0	0	0	0	1	90	3	129	1,452
5:00 PM	0	0	7	1	0	4	4	0	0	0	0	0	0	4	110	3	133	1,425
5:05 PM	0	0	9	1	0	9	3	0	0	0	0	0	0	3	126	6	157	
5:10 PM	0	0	7	2	0	4	3	0	0	0	0	0	0	2	91	3	112	
5:15 PM	0	0	6	2	0	15	2	0	0	0	0	0	0	5	94	1	125	
5:20 PM	0	0	6	0	0	8	2	0	0	0	0	0	0	2	102	5	125	
5:25 PM	0	0	5	0	0	6	2	0	0	0	0	0	0	3	91	3	110	
5:30 PM	0	0	6	0	0	7	2	0	0	0	0	0	0	0	84	1	100	
5:35 PM	0	0	5	3	0	2	2	0	0	0	0	0	0	3	77	1	93	
5:40 PM	0	0	4	0	0	8	2	0	0	0	0	0	0	2	119	2	137	
5:45 PM	0	0	4	0	0	5	1	0	0	0	0	0	0	2	89	1	102	
5:50 PM	0	0	9	0	0	5	2	0	0	0	0	0	0	3	106	4	129	
5:55 PM	0	0	2	0	0	4	1	0	0	0	0	0	0	0	93	2	102	
Count Total	0	0	162	18	0	212	86	0	0	0	0	0	0	62	2,562	82	3,184	
Peak Hour	0	0	92	9	0	135	60	0	0	0	0	0	0	33	1,380	50	1,759	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	1	1	4:00 PM	0	0	1	0	1
4:05 PM	0	0	1	3	4	4:05 PM	0	1	0	0	1
4:10 PM	0	0	1	3	4	4:10 PM	0	0	0	0	0
4:15 PM	1	0	0	3	4	4:15 PM	0	0	0	0	0
4:20 PM	1	0	0	3	4	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	3	3	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	4	4	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	2	2	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	3	3	4:45 PM	1	0	0	0	1
4:50 PM	1	0	0	5	6	4:50 PM	0	0	0	0	0
4:55 PM	0	0	1	2	3	4:55 PM	0	1	0	0	1
5:00 PM	0	0	0	9	9	5:00 PM	0	0	1	0	1
5:05 PM	1	0	0	1	2	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	1	2	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0
5:20 PM	1	0	0	2	3	5:20 PM	0	0	0	0	0
5:25 PM	0	0	1	3	4	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	3	3	5:30 PM	0	0	0	0	0
5:35 PM	0	0	1	2	3	5:35 PM	1	0	0	0	1
5:40 PM	0	0	0	1	1	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	2	0	0	0	2
5:50 PM	0	0	0	2	2	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	1	1	5:55 PM	1	0	0	0	1
Count Total	6	0	5	58	69	Count Total	5	2	2	0	9
Peak Hour	3	0	3	32	38	Peak Hour	1	2	1	0	4



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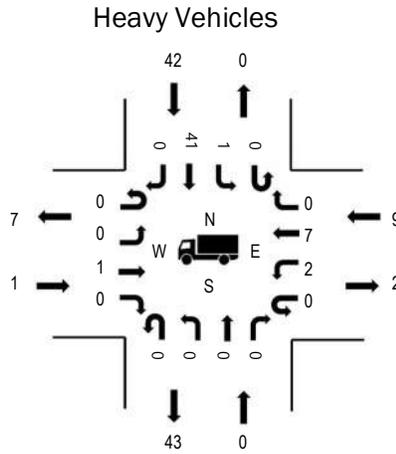
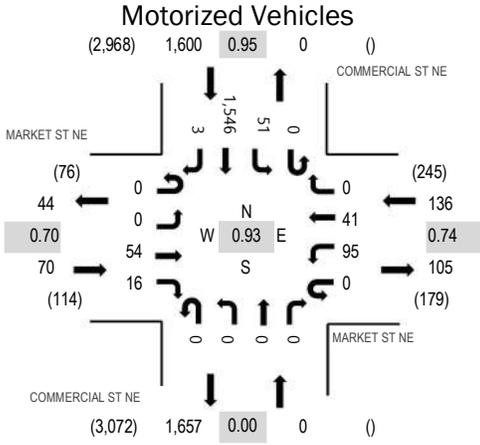
Location: 2 COMMERCIAL ST NE & MARKET ST NE PM

Date: Tuesday, February 6, 2024

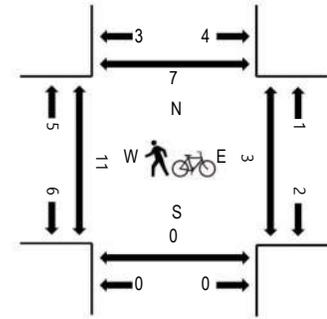
Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:35 PM - 04:50 PM

Peak Hour



Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.4%	0.70
WB	6.6%	0.74
NB	0.0%	0.00
SB	2.6%	0.95
All	2.9%	0.93

Traffic Counts - Motorized Vehicles

Interval Start Time	MARKET ST NE				MARKET ST NE				COMMERCIAL ST NE				COMMERCIAL ST NE				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	9	2	0	9	2	0	0	0	0	0	0	9	123	0	154	1,806
4:05 PM	0	0	5	2	0	5	3	0	0	0	0	0	0	5	129	1	150	1,803
4:10 PM	0	0	7	0	0	4	2	0	0	0	0	0	0	5	119	0	137	1,792
4:15 PM	0	0	4	1	0	5	3	0	0	0	0	0	0	7	137	0	157	1,789
4:20 PM	0	0	4	2	0	11	0	0	0	0	0	0	0	2	141	0	160	1,774
4:25 PM	0	0	4	2	0	5	3	0	0	0	0	0	0	0	120	1	135	1,746
4:30 PM	0	0	1	2	0	8	5	0	0	0	0	0	0	10	129	0	155	1,724
4:35 PM	0	0	6	2	0	8	6	0	0	0	0	0	0	3	128	0	153	1,674
4:40 PM	0	0	5	1	0	17	6	0	0	0	0	0	0	3	126	0	158	1,631
4:45 PM	0	0	2	0	0	8	4	0	0	0	0	0	0	1	157	1	173	1,586
4:50 PM	0	0	6	2	0	4	4	0	0	0	0	0	0	5	132	0	153	1,536
4:55 PM	0	0	1	0	0	11	3	0	0	0	0	0	0	1	105	0	121	1,510
5:00 PM	0	0	2	0	0	9	1	0	0	0	0	0	0	7	131	1	151	1,521
5:05 PM	0	0	3	1	0	5	3	0	0	0	0	0	0	2	125	0	139	
5:10 PM	0	0	8	1	0	12	4	0	0	0	0	0	0	4	105	0	134	
5:15 PM	0	0	3	1	0	8	2	0	0	0	0	0	0	3	125	0	142	
5:20 PM	0	0	4	1	0	3	7	0	0	0	0	0	0	3	114	0	132	
5:25 PM	0	0	3	0	0	7	0	0	0	0	0	0	0	3	100	0	113	
5:30 PM	0	0	2	0	0	4	2	0	0	0	0	0	0	3	94	0	105	
5:35 PM	0	0	2	1	0	12	2	0	0	0	0	0	0	1	92	0	110	
5:40 PM	0	0	4	0	0	6	2	0	0	0	0	0	0	2	99	0	113	
5:45 PM	0	0	4	0	0	6	4	0	0	0	0	0	0	2	106	1	123	
5:50 PM	0	0	4	0	0	4	1	0	0	0	0	0	0	0	117	1	127	
5:55 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	121	1	132	
Count Total	0	0	93	21	0	176	69	0	0	0	0	0	0	86	2,875	7	3,327	
Peak Hour	0	0	54	16	0	95	41	0	0	0	0	0	0	51	1,546	3	1,806	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	2	2	4:00 PM	1	0	0	0	1
4:05 PM	0	0	0	5	5	4:05 PM	0	0	0	0	0
4:10 PM	0	0	1	4	5	4:10 PM	0	0	0	1	1
4:15 PM	0	0	1	5	6	4:15 PM	0	0	1	0	1
4:20 PM	1	0	0	5	6	4:20 PM	0	0	0	1	1
4:25 PM	0	0	0	3	3	4:25 PM	0	0	0	1	1
4:30 PM	0	0	2	3	5	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	4	4	4:35 PM	3	0	0	1	4
4:40 PM	0	0	0	4	4	4:40 PM	2	0	1	1	4
4:45 PM	0	0	2	1	3	4:45 PM	2	0	0	1	3
4:50 PM	0	0	1	3	4	4:50 PM	1	0	1	1	3
4:55 PM	0	0	2	3	5	4:55 PM	2	0	0	0	2
5:00 PM	0	0	0	2	2	5:00 PM	1	0	0	1	2
5:05 PM	0	0	0	5	5	5:05 PM	0	0	0	0	0
5:10 PM	0	0	1	2	3	5:10 PM	1	1	0	0	2
5:15 PM	0	0	0	3	3	5:15 PM	1	0	0	0	1
5:20 PM	0	0	0	2	2	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	1	1	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	4	4	5:30 PM	1	0	0	0	1
5:35 PM	0	0	0	3	3	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	1	1	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	0	1
5:50 PM	0	0	0	2	2	5:50 PM	0	2	0	0	2
5:55 PM	0	0	0	1	1	5:55 PM	1	0	0	0	1
Count Total	1	0	10	68	79	Count Total	17	3	3	8	31
Peak Hour	1	0	9	42	52	Peak Hour	11	0	3	7	21



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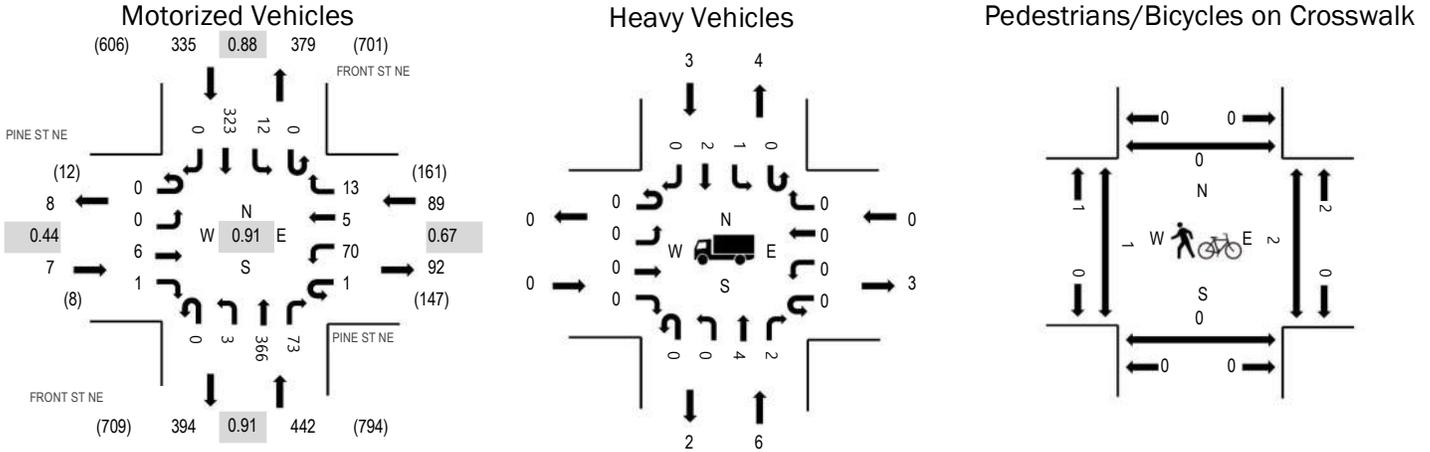
Location: 3 FRONT ST NE & PINE ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 05:00 PM - 06:00 PM

Peak 15-Minutes: 05:45 PM - 06:00 PM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.44
WB	0.0%	0.67
NB	1.4%	0.91
SB	0.9%	0.88
All	1.0%	0.91

**Traffic Counts - Motorized Vehicles**

Interval Start Time	PINE ST NE Eastbound				PINE ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	3	0	1	0	0	25	2	0	1	20	0	52	696
4:05 PM	0	0	0	0	0	5	0	1	0	0	20	1	0	1	17	0	45	717
4:10 PM	0	0	0	0	0	4	0	1	0	0	22	2	0	2	16	0	47	749
4:15 PM	0	0	0	0	0	8	0	1	0	0	23	5	0	1	22	0	60	775
4:20 PM	0	0	0	0	0	3	0	2	0	0	23	2	0	1	27	0	58	771
4:25 PM	0	0	0	0	0	8	0	1	0	1	27	4	0	0	25	0	66	779
4:30 PM	0	0	0	0	0	3	0	2	0	1	28	4	0	0	16	0	54	787
4:35 PM	0	0	0	0	0	5	0	0	0	0	25	4	0	0	17	0	51	790
4:40 PM	0	0	0	0	0	4	0	1	0	1	25	5	0	0	25	0	61	820
4:45 PM	0	0	1	0	0	5	1	2	0	0	33	5	0	3	27	0	77	836
4:50 PM	0	0	0	0	0	5	0	2	0	0	29	5	0	0	29	0	70	828
4:55 PM	0	0	0	0	0	2	0	2	0	0	26	4	0	2	19	0	55	839
5:00 PM	0	0	0	0	0	4	1	1	0	0	32	8	0	3	24	0	73	873
5:05 PM	0	0	0	0	0	4	0	1	0	0	29	9	0	3	31	0	77	
5:10 PM	0	0	0	0	0	2	0	0	0	0	32	5	0	3	31	0	73	
5:15 PM	0	0	0	1	0	4	0	2	0	1	23	2	0	1	22	0	56	
5:20 PM	0	0	1	0	0	7	0	2	0	0	16	10	0	0	30	0	66	
5:25 PM	0	0	0	0	0	6	0	1	0	0	40	6	0	0	21	0	74	
5:30 PM	0	0	0	0	0	4	1	1	0	0	25	4	0	0	22	0	57	
5:35 PM	0	0	2	0	0	6	1	1	0	0	36	6	0	0	29	0	81	
5:40 PM	0	0	1	0	0	14	1	0	0	1	33	2	0	0	25	0	77	
5:45 PM	0	0	1	0	0	5	0	3	0	0	26	8	0	0	26	0	69	
5:50 PM	0	0	0	0	1	7	1	1	0	1	35	3	0	2	30	0	81	
5:55 PM	0	0	1	0	0	7	0	0	0	0	39	10	0	0	32	0	89	
Count Total	0	0	7	1	1	125	6	29	0	6	672	116	0	23	583	0	1,569	
Peak Hour	0	0	6	1	1	70	5	13	0	3	366	73	0	12	323	0	873	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	0	1	2	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	1	0	2	3	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	1	0	0	1	4:35 PM	1	0	0	0	1
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	1	1	0	2	4:45 PM	0	0	0	0	0
4:50 PM	0	1	0	0	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	1	1	4:55 PM	0	0	0	0	0
5:00 PM	0	2	0	0	2	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	1	1	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	0	1	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	0	1	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	1	0	0	0	1
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	1	0	0	1	5:40 PM	0	0	1	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	2	3	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	1	0	1
Count Total	0	11	1	7	19	Count Total	2	0	2	0	4
Peak Hour	0	6	0	3	9	Peak Hour	1	0	2	0	3



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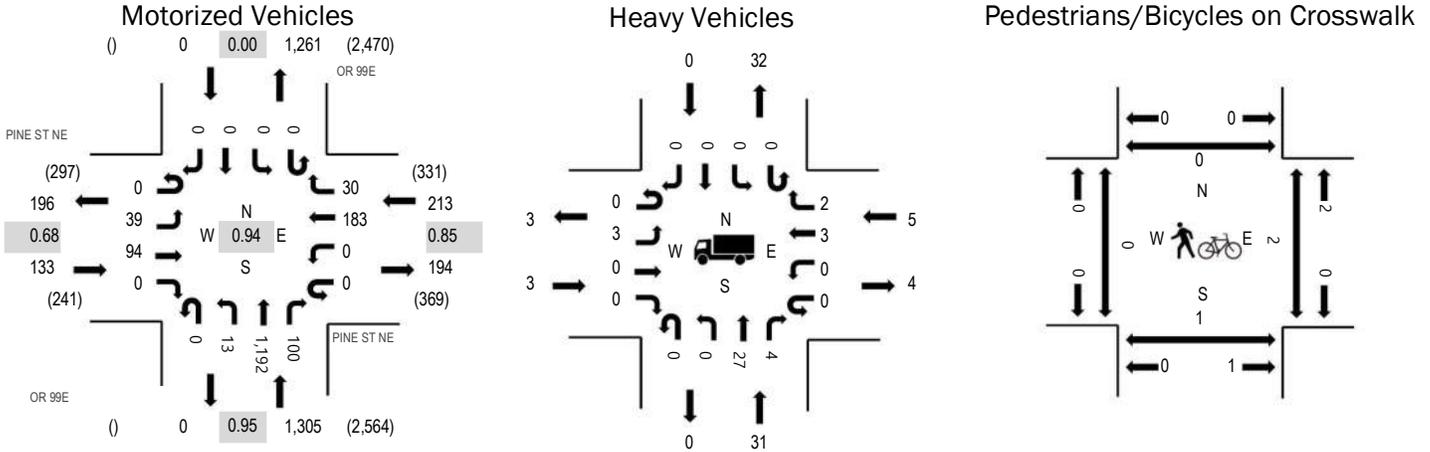
Location: 4 OR 99E & PINE ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:35 PM - 04:50 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.3%	0.68
WB	2.3%	0.85
NB	2.4%	0.95
SB	0.0%	0.00
All	2.4%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	PINE ST NE Eastbound				PINE ST NE Westbound				OR 99E Northbound				OR 99E Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	6	7	0	0	0	14	4	0	2	101	10	0	0	0	0	144	1,651
4:05 PM	0	8	16	0	0	0	13	3	0	1	93	5	0	0	0	0	139	1,635
4:10 PM	0	1	11	0	0	0	14	0	0	0	100	6	0	0	0	0	132	1,625
4:15 PM	0	3	6	0	0	0	18	3	0	2	93	9	0	0	0	0	134	1,631
4:20 PM	0	3	7	0	0	0	8	5	0	1	110	12	0	0	0	0	146	1,644
4:25 PM	0	5	4	0	0	0	19	4	0	1	105	10	0	0	0	0	148	1,634
4:30 PM	0	3	8	0	0	0	12	1	0	0	88	3	0	0	0	0	115	1,623
4:35 PM	0	1	6	0	0	0	11	1	0	0	119	6	0	0	0	0	144	1,629
4:40 PM	0	2	6	0	0	0	33	2	0	1	103	7	0	0	0	0	154	1,595
4:45 PM	0	1	7	0	0	0	14	2	0	1	98	17	0	0	0	0	140	1,564
4:50 PM	0	1	3	0	0	0	9	3	0	3	107	4	0	0	0	0	130	1,536
4:55 PM	0	5	13	0	0	0	18	2	0	1	75	11	0	0	0	0	125	1,510
5:00 PM	0	3	9	0	0	0	9	3	0	0	92	12	0	0	0	0	128	1,485
5:05 PM	0	7	9	0	0	0	10	2	0	1	93	7	0	0	0	0	129	
5:10 PM	0	2	9	0	0	0	8	1	0	0	105	13	0	0	0	0	138	
5:15 PM	0	4	6	0	0	0	16	5	0	0	108	8	0	0	0	0	147	
5:20 PM	0	2	6	0	0	0	8	3	0	2	108	7	0	0	0	0	136	
5:25 PM	0	2	7	0	0	0	9	0	0	0	113	6	0	0	0	0	137	
5:30 PM	0	1	1	0	0	0	6	3	0	1	102	7	0	0	0	0	121	
5:35 PM	0	2	8	0	0	0	3	1	0	1	84	11	0	0	0	0	110	
5:40 PM	0	2	7	0	0	0	9	2	0	2	93	8	0	0	0	0	123	
5:45 PM	0	4	1	0	0	0	6	1	0	0	88	12	0	0	0	0	112	
5:50 PM	0	3	11	0	0	0	7	1	0	0	77	5	0	0	0	0	104	
5:55 PM	0	1	1	0	0	0	3	2	0	0	89	4	0	0	0	0	100	
Count Total	0	72	169	0	0	0	277	54	0	20	2,344	200	0	0	0	0	3,136	
Peak Hour	0	39	94	0	0	0	183	30	0	13	1,192	100	0	0	0	0	1,651	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	2	0	0	2	4:00 PM	0	0	0	0	0
4:05 PM	0	3	1	0	4	4:05 PM	0	0	0	0	0
4:10 PM	0	3	1	0	4	4:10 PM	0	1	0	0	1
4:15 PM	1	1	1	0	3	4:15 PM	0	0	0	0	0
4:20 PM	0	6	0	0	6	4:20 PM	0	0	0	0	0
4:25 PM	1	3	0	0	4	4:25 PM	0	0	0	0	0
4:30 PM	0	3	0	0	3	4:30 PM	0	0	0	0	0
4:35 PM	0	2	0	0	2	4:35 PM	0	0	0	0	0
4:40 PM	0	1	0	0	1	4:40 PM	0	0	1	0	1
4:45 PM	0	3	1	0	4	4:45 PM	0	0	1	0	1
4:50 PM	1	3	0	0	4	4:50 PM	0	0	0	0	0
4:55 PM	0	1	1	0	2	4:55 PM	0	0	0	0	0
5:00 PM	0	7	0	0	7	5:00 PM	1	0	1	1	3
5:05 PM	0	6	0	0	6	5:05 PM	0	1	0	0	1
5:10 PM	0	2	0	0	2	5:10 PM	0	0	0	0	0
5:15 PM	0	5	0	0	5	5:15 PM	0	0	0	0	0
5:20 PM	1	1	1	0	3	5:20 PM	0	0	0	0	0
5:25 PM	0	5	0	0	5	5:25 PM	0	1	0	0	1
5:30 PM	0	3	0	0	3	5:30 PM	0	0	0	0	0
5:35 PM	0	5	0	0	5	5:35 PM	0	0	0	0	0
5:40 PM	0	10	0	0	10	5:40 PM	0	0	0	0	0
5:45 PM	0	2	0	0	2	5:45 PM	0	0	0	0	0
5:50 PM	0	3	0	0	3	5:50 PM	0	0	0	1	1
5:55 PM	0	1	0	0	1	5:55 PM	0	0	0	0	0
Count Total	4	81	6	0	91	Count Total	1	3	3	2	9
Peak Hour	3	31	5	0	39	Peak Hour	0	1	2	0	3



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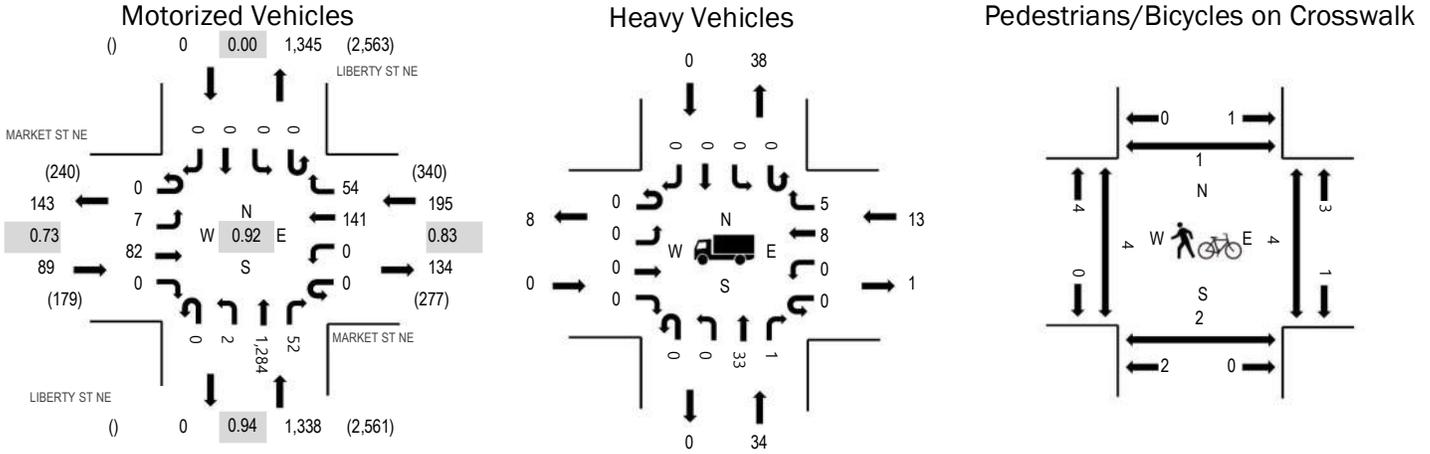
Location: 5 LIBERTY ST NE & MARKET ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.73
WB	6.7%	0.83
NB	2.5%	0.94
SB	0.0%	0.00
All	2.9%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	MARKET ST NE Eastbound				MARKET ST NE Westbound				LIBERTY ST NE Northbound				LIBERTY ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	1	15	0	0	0	7	4	0	2	102	4	0	0	0	0	135	1,580
4:05 PM	0	2	10	0	0	0	7	4	0	1	92	5	0	0	0	0	121	1,561
4:10 PM	0	0	8	0	0	0	6	4	0	0	89	7	0	0	0	0	114	1,577
4:15 PM	0	2	12	0	0	0	7	5	0	0	111	0	0	0	0	0	137	1,607
4:20 PM	0	1	7	0	0	0	12	4	0	0	103	6	0	0	0	0	133	1,612
4:25 PM	0	0	2	0	0	0	6	4	0	1	111	3	0	0	0	0	127	1,618
4:30 PM	0	0	12	0	0	0	12	8	0	1	102	6	0	0	0	0	141	1,622
4:35 PM	0	0	5	0	0	0	16	1	0	0	115	5	0	0	0	0	142	1,610
4:40 PM	0	2	8	0	0	0	17	5	0	1	120	6	0	0	0	0	159	1,573
4:45 PM	0	0	4	0	0	0	13	6	0	0	89	4	0	0	0	0	116	1,549
4:50 PM	0	1	8	0	0	0	7	6	0	0	115	3	0	0	0	0	140	1,535
4:55 PM	0	0	5	0	0	0	14	4	0	0	88	4	0	0	0	0	115	1,495
5:00 PM	0	0	8	0	0	0	12	4	0	0	92	0	0	0	0	0	116	1,500
5:05 PM	0	1	6	0	0	0	4	3	0	0	118	5	0	0	0	0	137	
5:10 PM	0	2	8	0	0	0	16	4	0	0	109	5	0	0	0	0	144	
5:15 PM	0	1	5	0	0	0	11	4	0	0	118	3	0	0	0	0	142	
5:20 PM	0	0	8	0	0	0	10	6	0	0	111	4	0	0	0	0	139	
5:25 PM	0	0	5	0	0	0	9	3	0	0	107	7	0	0	0	0	131	
5:30 PM	0	1	4	0	0	0	4	4	0	1	110	5	0	0	0	0	129	
5:35 PM	0	0	3	0	0	0	16	5	0	0	75	6	0	0	0	0	105	
5:40 PM	0	0	7	0	0	0	11	6	0	0	102	9	0	0	0	0	135	
5:45 PM	0	0	5	0	0	0	7	3	0	0	83	4	0	0	0	0	102	
5:50 PM	0	0	5	0	0	0	4	5	0	0	81	5	0	0	0	0	100	
5:55 PM	0	0	5	0	0	0	5	5	0	0	99	6	0	0	0	0	120	
Count Total	0	14	165	0	0	0	233	107	0	7	2,442	112	0	0	0	0	3,080	
Peak Hour	0	7	82	0	0	0	141	54	0	2	1,284	52	0	0	0	0	1,622	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	0	0	1	4:00 PM	1	0	0	2	3
4:05 PM	0	3	0	0	3	4:05 PM	0	0	0	0	0
4:10 PM	0	2	1	0	3	4:10 PM	0	0	0	0	0
4:15 PM	0	5	1	0	6	4:15 PM	0	0	0	1	1
4:20 PM	0	2	2	0	4	4:20 PM	0	0	0	0	0
4:25 PM	1	3	1	0	5	4:25 PM	0	0	0	0	0
4:30 PM	0	2	3	0	5	4:30 PM	0	0	0	0	0
4:35 PM	0	1	0	0	1	4:35 PM	2	1	0	0	3
4:40 PM	0	3	0	0	3	4:40 PM	0	0	0	1	1
4:45 PM	0	4	4	0	8	4:45 PM	2	0	1	0	3
4:50 PM	0	4	2	0	6	4:50 PM	0	0	0	0	0
4:55 PM	0	1	3	0	4	4:55 PM	0	0	2	0	2
5:00 PM	0	8	0	0	8	5:00 PM	0	0	0	0	0
5:05 PM	0	4	0	0	4	5:05 PM	0	0	0	0	0
5:10 PM	0	2	1	0	3	5:10 PM	0	1	1	0	2
5:15 PM	0	2	0	0	2	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	0	1	5:20 PM	0	0	0	0	0
5:25 PM	0	2	0	0	2	5:25 PM	0	0	0	0	0
5:30 PM	0	3	0	0	3	5:30 PM	0	0	0	0	0
5:35 PM	0	3	0	0	3	5:35 PM	0	0	0	0	0
5:40 PM	0	1	0	0	1	5:40 PM	1	0	0	1	2
5:45 PM	0	2	0	0	2	5:45 PM	0	0	0	0	0
5:50 PM	0	3	0	0	3	5:50 PM	0	1	0	0	1
5:55 PM	0	3	0	0	3	5:55 PM	0	0	0	0	0
Count Total	2	64	18	0	84	Count Total	6	3	4	5	18
Peak Hour	0	34	13	0	47	Peak Hour	4	2	4	1	11



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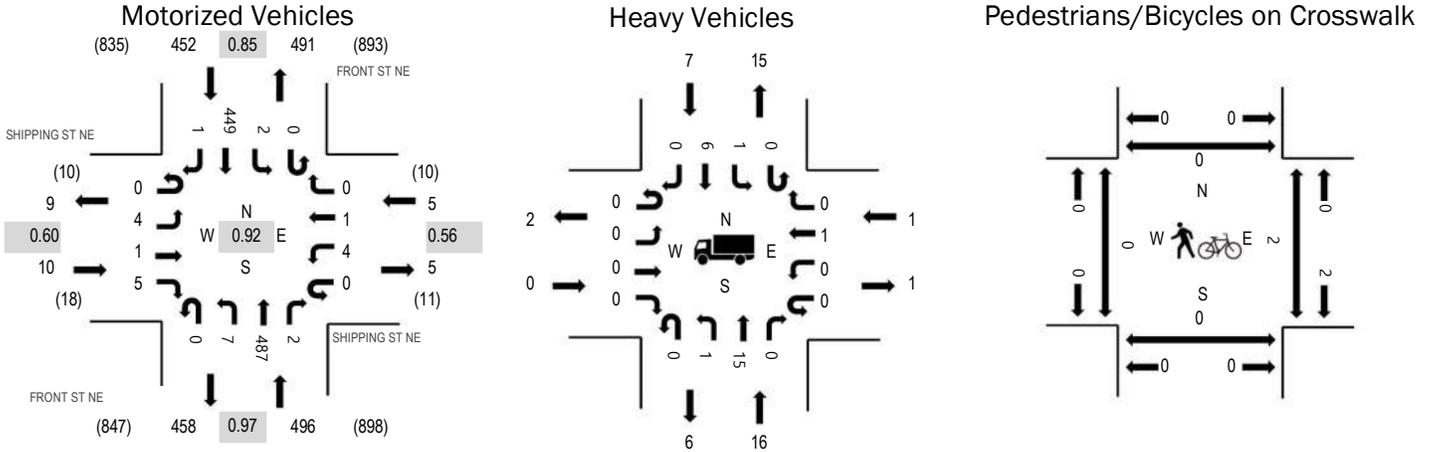
Location: 6 FRONT ST NE & SHIPPING ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.60
WB	20.0%	0.56
NB	3.2%	0.97
SB	1.5%	0.85
All	2.5%	0.92

**Traffic Counts - Motorized Vehicles**

Interval Start Time	SHIPPING ST NE				SHIPPING ST NE				FRONT ST NE				FRONT ST NE				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	1	0	0	0	0	0	0	35	0	0	0	35	0	71	902
4:05 PM	0	0	1	0	0	1	0	0	0	0	34	0	0	1	34	0	71	915
4:10 PM	0	0	0	2	0	1	0	0	0	0	36	1	0	0	44	0	84	930
4:15 PM	0	0	0	1	0	0	0	1	0	0	34	0	0	0	34	0	70	939
4:20 PM	0	0	0	0	0	0	0	0	0	0	33	0	0	0	30	0	63	942
4:25 PM	0	0	0	1	0	0	0	1	0	0	31	0	0	1	35	0	69	962
4:30 PM	0	1	1	0	0	1	0	0	0	1	36	0	0	0	32	0	72	963
4:35 PM	0	0	0	2	0	0	0	0	0	1	44	0	0	1	43	0	91	963
4:40 PM	0	0	0	0	0	1	0	0	0	2	40	0	0	0	35	0	78	929
4:45 PM	0	0	0	0	0	1	1	0	0	1	36	0	0	0	30	0	69	923
4:50 PM	0	0	0	1	0	1	0	0	0	0	41	1	0	0	39	0	83	925
4:55 PM	0	1	0	0	0	0	0	0	0	0	43	0	0	0	37	0	81	899
5:00 PM	0	0	0	0	0	0	0	0	0	1	41	1	0	0	41	0	84	859
5:05 PM	0	1	0	0	0	0	0	0	0	0	41	0	0	0	44	0	86	
5:10 PM	0	1	0	0	0	0	0	0	0	0	42	0	0	0	50	0	93	
5:15 PM	0	0	0	0	0	0	0	0	0	0	34	0	0	0	39	0	73	
5:20 PM	0	0	0	1	0	0	0	0	0	1	47	0	0	1	33	0	83	
5:25 PM	0	0	0	1	0	0	0	0	0	0	42	0	0	0	26	1	70	
5:30 PM	0	0	0	0	0	0	0	0	0	0	36	0	0	1	35	0	72	
5:35 PM	0	0	0	1	0	0	0	0	0	1	37	0	0	0	18	0	57	
5:40 PM	0	0	0	0	0	1	0	0	0	0	34	0	0	0	37	0	72	
5:45 PM	0	0	0	0	0	0	0	0	0	0	33	1	0	0	37	0	71	
5:50 PM	0	1	0	0	0	0	0	0	0	0	32	0	0	0	24	0	57	
5:55 PM	0	0	0	0	0	0	0	0	0	0	24	0	0	0	17	0	41	
Count Total	0	5	2	11	0	7	1	2	0	8	886	4	0	5	829	1	1,761	
Peak Hour	0	4	1	5	0	4	1	0	0	7	487	2	0	2	449	1	963	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	0	1	2	4:05 PM	1	0	0	0	1
4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	2	0	0	2	4:15 PM	0	2	0	0	2
4:20 PM	0	1	0	1	2	4:20 PM	1	0	0	0	1
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	2	0	1	3	4:30 PM	0	0	0	0	0
4:35 PM	0	1	0	1	2	4:35 PM	0	0	1	0	1
4:40 PM	0	1	0	0	1	4:40 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0
4:50 PM	0	2	0	1	3	4:50 PM	0	0	0	0	0
4:55 PM	0	1	0	1	2	4:55 PM	0	0	0	0	0
5:00 PM	0	3	0	0	3	5:00 PM	0	0	1	0	1
5:05 PM	0	3	0	1	4	5:05 PM	0	0	0	0	0
5:10 PM	0	2	0	0	2	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	1	1	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	1	2	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	0	1	5:55 PM	1	0	0	0	1
Count Total	0	22	1	9	32	Count Total	4	2	3	0	9
Peak Hour	0	16	1	7	24	Peak Hour	0	0	2	0	2



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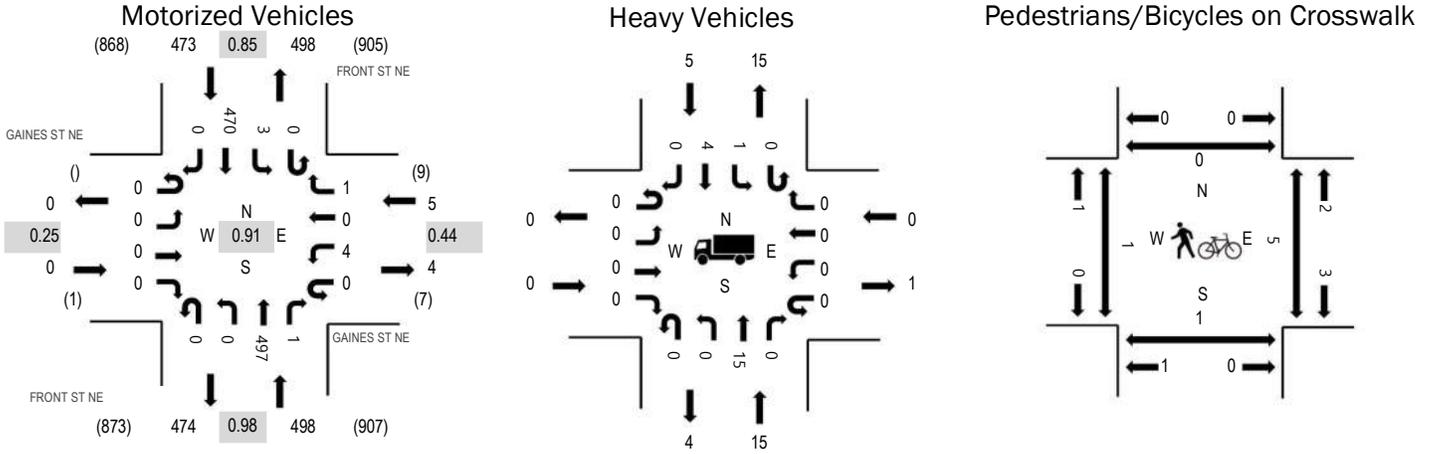
Location: 8 FRONT ST NE & GAINES ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:35 PM - 05:35 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.25
WB	0.0%	0.44
NB	3.0%	0.98
SB	1.1%	0.85
All	2.0%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	GAINES ST NE Eastbound				GAINES ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right														
4:00 PM	0	0	0	1	0	0	0	0	0	0	34	0	0	0	38	0	73	905
4:05 PM	0	0	0	0	0	1	0	0	0	0	34	1	0	0	33	0	69	919
4:10 PM	0	0	0	0	0	0	0	0	0	0	35	0	0	0	47	0	82	932
4:15 PM	0	0	0	0	0	0	0	0	0	0	34	0	0	0	35	0	69	948
4:20 PM	0	0	0	0	0	0	0	1	0	0	37	1	0	0	34	0	73	951
4:25 PM	0	0	0	0	0	0	0	0	0	0	27	0	0	0	35	0	62	967
4:30 PM	0	0	0	0	0	0	0	0	0	0	38	0	0	0	31	0	69	974
4:35 PM	0	0	0	0	0	0	0	0	0	0	48	1	0	0	44	0	93	976
4:40 PM	0	0	0	0	0	0	0	0	0	0	39	0	0	0	39	0	78	943
4:45 PM	0	0	0	0	0	0	0	0	0	0	37	0	0	0	34	0	71	941
4:50 PM	0	0	0	0	0	1	0	0	0	0	45	0	0	0	38	0	84	942
4:55 PM	0	0	0	0	0	0	0	1	0	0	42	0	0	1	38	0	82	914
5:00 PM	0	0	0	0	0	1	0	0	0	0	40	0	0	0	46	0	87	880
5:05 PM	0	0	0	0	0	2	0	0	0	0	41	0	0	0	39	0	82	
5:10 PM	0	0	0	0	0	0	0	0	0	0	43	0	0	0	55	0	98	
5:15 PM	0	0	0	0	0	0	0	0	0	0	33	0	0	1	38	0	72	
5:20 PM	0	0	0	0	0	0	0	0	0	0	52	0	0	0	37	0	89	
5:25 PM	0	0	0	0	0	0	0	0	0	0	41	0	0	0	28	0	69	
5:30 PM	0	0	0	0	0	0	0	0	0	0	36	0	0	1	34	0	71	
5:35 PM	0	0	0	0	0	0	0	0	0	0	38	0	0	0	22	0	60	
5:40 PM	0	0	0	0	0	1	0	0	0	0	37	0	0	0	38	0	76	
5:45 PM	0	0	0	0	0	1	0	0	0	0	33	0	0	0	38	0	72	
5:50 PM	0	0	0	0	0	0	0	0	0	0	30	1	0	0	25	0	56	
5:55 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	0	19	0	48	
Count Total	0	0	0	1	0	7	0	2	0	0	903	4	0	3	865	0	1,785	
Peak Hour	0	0	0	0	0	4	0	1	0	0	497	1	0	3	470	0	976	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	0	1	2	4:05 PM	0	0	0	0	0
4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	2	0	0	2	4:15 PM	0	0	0	0	0
4:20 PM	0	1	0	1	2	4:20 PM	1	0	0	0	1
4:25 PM	0	0	0	0	0	4:25 PM	1	0	0	0	1
4:30 PM	0	2	0	1	3	4:30 PM	0	0	0	0	0
4:35 PM	0	2	0	1	3	4:35 PM	0	0	1	0	1
4:40 PM	0	1	0	0	1	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	2	0	1	3	4:50 PM	0	0	1	0	1
4:55 PM	0	1	0	1	2	4:55 PM	0	0	0	0	0
5:00 PM	0	3	0	0	3	5:00 PM	0	0	0	0	0
5:05 PM	0	3	0	1	4	5:05 PM	0	0	1	0	1
5:10 PM	0	2	0	0	2	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	1	0	1	0	2
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	0	1	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	1	1	0	2
5:35 PM	0	0	0	0	0	5:35 PM	1	0	0	0	1
5:40 PM	0	0	0	0	0	5:40 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	1	1	2
5:55 PM	0	1	0	0	1	5:55 PM	0	0	0	0	0
Count Total	0	23	0	8	31	Count Total	5	1	6	1	13
Peak Hour	0	15	0	5	20	Peak Hour	1	1	5	0	7



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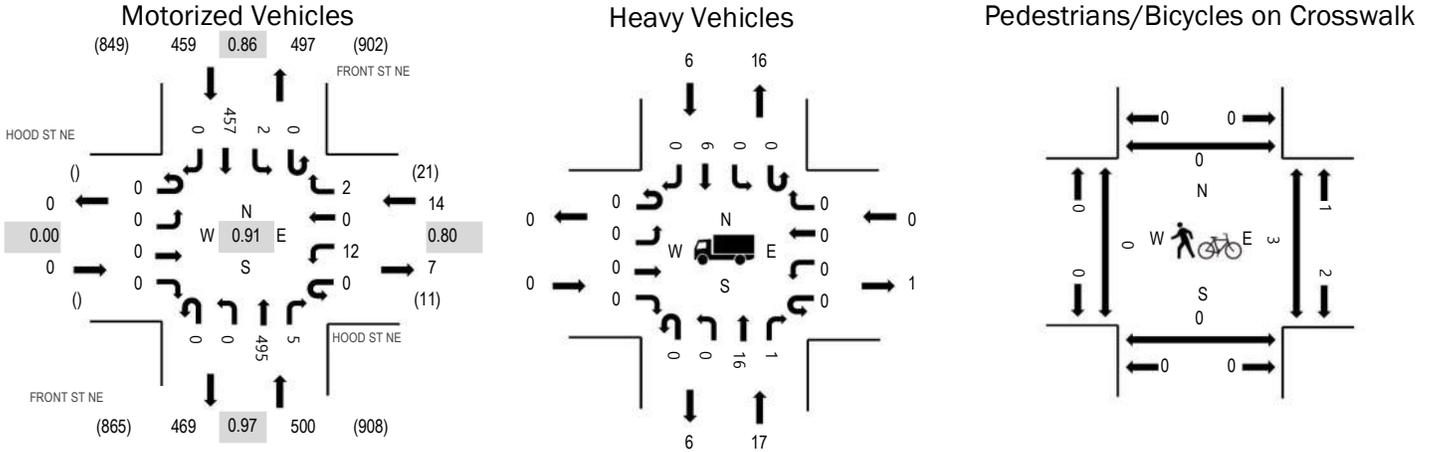
Location: 9 FRONT ST NE & HOOD ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.80
NB	3.4%	0.97
SB	1.3%	0.86
All	2.4%	0.91

**Traffic Counts - Motorized Vehicles**

Interval Start Time	HOOD ST NE Eastbound				HOOD ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	0	0	0	0	0	36	1	0	0	37	0	74	903
4:05 PM	0	0	0	0	0	0	0	0	0	0	32	1	0	0	34	0	67	918
4:10 PM	0	0	0	0	0	1	0	0	0	0	37	0	0	0	47	0	85	934
4:15 PM	0	0	0	0	0	0	0	0	0	0	34	0	0	0	34	0	68	944
4:20 PM	0	0	0	0	0	1	0	0	0	0	35	0	0	0	33	0	69	949
4:25 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	1	35	0	65	967
4:30 PM	0	0	0	0	0	0	0	0	0	0	39	0	0	0	33	0	72	973
4:35 PM	0	0	0	0	0	0	0	0	0	0	44	1	0	0	42	0	87	972
4:40 PM	0	0	0	0	0	2	0	0	0	0	41	0	0	1	38	0	82	943
4:45 PM	0	0	0	0	0	2	0	1	0	0	36	0	0	0	30	0	69	935
4:50 PM	0	0	0	0	0	0	0	0	0	0	45	0	0	0	39	0	84	939
4:55 PM	0	0	0	0	0	0	0	0	0	0	40	1	0	0	40	0	81	909
5:00 PM	0	0	0	0	0	4	0	1	0	0	43	0	0	0	41	0	89	875
5:05 PM	0	0	0	0	0	0	0	0	0	0	41	0	0	1	41	0	83	
5:10 PM	0	0	0	0	0	0	0	0	0	0	42	1	0	0	52	0	95	
5:15 PM	0	0	0	0	0	1	0	0	0	0	33	0	0	0	39	0	73	
5:20 PM	0	0	0	0	0	3	0	0	0	0	49	1	0	0	34	0	87	
5:25 PM	0	0	0	0	0	0	0	0	0	0	42	1	0	0	28	0	71	
5:30 PM	0	0	0	0	0	0	0	0	0	0	36	0	0	0	35	0	71	
5:35 PM	0	0	0	0	0	2	0	0	0	0	38	0	0	0	18	0	58	
5:40 PM	0	0	0	0	0	1	0	0	0	0	35	0	0	0	38	0	74	
5:45 PM	0	0	0	0	0	0	0	0	0	0	34	1	0	0	38	0	73	
5:50 PM	0	0	0	0	0	1	0	0	0	0	30	0	0	0	23	0	54	
5:55 PM	0	0	0	0	0	1	0	0	0	0	29	0	0	0	17	0	47	
Count Total	0	0	0	0	0	19	0	2	0	0	900	8	0	3	846	0	1,778	
Peak Hour	0	0	0	0	0	12	0	2	0	0	495	5	0	2	457	0	973	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	0	1	2	4:05 PM	1	0	0	0	1
4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	2	0	0	2	4:15 PM	0	0	0	0	0
4:20 PM	0	1	0	1	2	4:20 PM	1	0	0	0	1
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	2	0	1	3	4:30 PM	0	0	0	0	0
4:35 PM	0	2	0	1	3	4:35 PM	0	0	1	0	1
4:40 PM	0	1	0	0	1	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	2	0	1	3	4:50 PM	0	0	0	0	0
4:55 PM	0	1	0	1	2	4:55 PM	0	0	0	0	0
5:00 PM	0	3	0	0	3	5:00 PM	0	0	1	0	1
5:05 PM	0	3	0	1	4	5:05 PM	0	0	0	0	0
5:10 PM	0	2	0	0	2	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	1	2	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	1	0	0	0	1
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	0	1	5:55 PM	1	0	0	0	1
Count Total	0	23	0	8	31	Count Total	4	0	3	0	7
Peak Hour	0	17	0	6	23	Peak Hour	0	0	3	0	3



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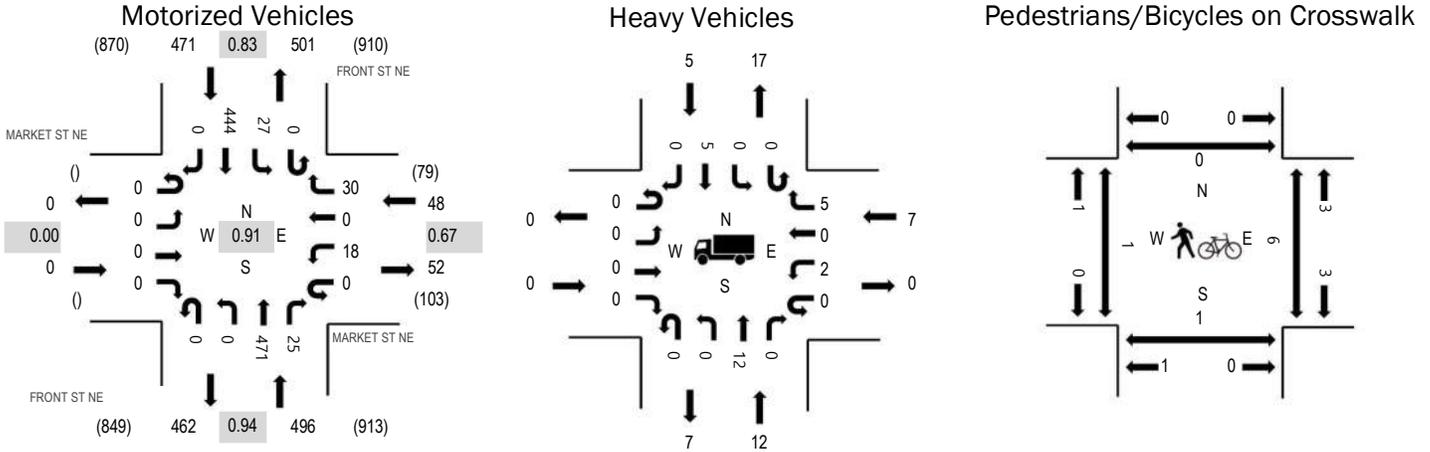
Location: 10 FRONT ST NE & MARKET ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	14.6%	0.67
NB	2.4%	0.94
SB	1.1%	0.83
All	2.4%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	MARKET ST NE				MARKET ST NE				FRONT ST NE				FRONT ST NE				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	1	0	2	0	0	33	3	0	5	32	0	76	947
4:05 PM	0	0	0	0	0	1	0	3	0	0	33	4	0	2	34	0	77	961
4:10 PM	0	0	0	0	0	1	0	3	0	0	32	3	0	3	44	0	86	969
4:15 PM	0	0	0	0	0	1	0	2	0	0	32	2	0	3	32	0	72	988
4:20 PM	0	0	0	0	0	0	0	0	0	0	39	0	0	3	30	0	72	989
4:25 PM	0	0	0	0	0	2	0	2	0	0	25	3	0	3	31	0	66	1,013
4:30 PM	0	0	0	0	0	2	0	2	0	0	36	1	0	1	30	0	72	1,015
4:35 PM	0	0	0	0	0	1	0	4	0	0	44	5	0	4	39	0	97	1,014
4:40 PM	0	0	0	0	0	4	0	5	0	0	34	2	0	2	38	0	85	980
4:45 PM	0	0	0	0	0	2	0	3	0	0	35	2	0	1	33	0	76	976
4:50 PM	0	0	0	0	0	0	0	3	0	0	40	3	0	5	33	0	84	973
4:55 PM	0	0	0	0	0	1	0	2	0	0	42	0	0	0	39	0	84	950
5:00 PM	0	0	0	0	0	1	0	2	0	0	39	2	0	1	45	0	90	915
5:05 PM	0	0	0	0	0	1	0	2	0	0	38	2	0	2	40	0	85	
5:10 PM	0	0	0	0	0	3	0	1	0	0	42	3	0	5	51	0	105	
5:15 PM	0	0	0	0	0	1	0	1	0	0	31	4	0	1	35	0	73	
5:20 PM	0	0	0	0	0	2	0	4	0	0	51	1	0	3	35	0	96	
5:25 PM	0	0	0	0	0	0	0	1	0	0	39	0	0	2	26	0	68	
5:30 PM	0	0	0	0	0	0	0	2	0	0	33	2	0	1	33	0	71	
5:35 PM	0	0	0	0	0	1	0	1	0	0	38	2	0	0	21	0	63	
5:40 PM	0	0	0	0	0	1	0	1	0	0	36	3	0	1	39	0	81	
5:45 PM	0	0	0	0	0	3	0	2	0	0	29	1	0	3	35	0	73	
5:50 PM	0	0	0	0	0	1	0	0	0	0	32	2	0	1	25	0	61	
5:55 PM	0	0	0	0	0	1	0	0	0	0	29	1	0	0	18	0	49	
Count Total	0	0	0	0	0	31	0	48	0	0	862	51	0	52	818	0	1,862	
Peak Hour	0	0	0	0	0	18	0	30	0	0	471	25	0	27	444	0	1,015	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

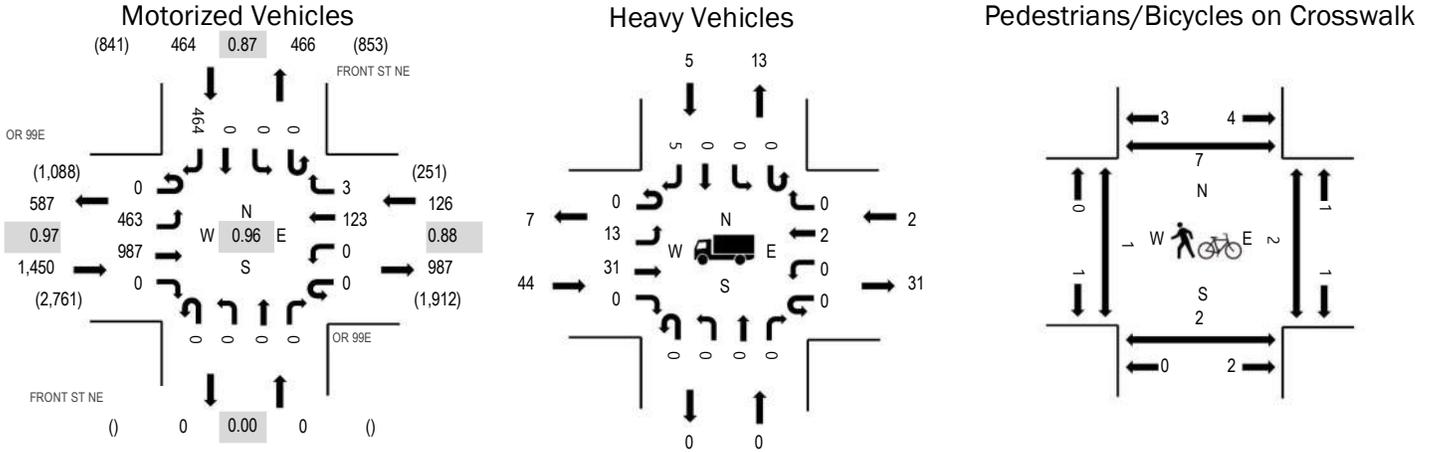
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	0	1	2	4:05 PM	1	0	0	0	1
4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	2	0	0	2	4:15 PM	0	0	0	0	0
4:20 PM	0	1	0	1	2	4:20 PM	2	1	1	0	4
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	1	0	2	4:30 PM	0	0	0	0	0
4:35 PM	0	1	1	1	3	4:35 PM	0	0	1	0	1
4:40 PM	0	1	0	1	2	4:40 PM	0	0	0	0	0
4:45 PM	0	0	2	0	2	4:45 PM	0	0	0	0	0
4:50 PM	0	1	1	1	3	4:50 PM	0	1	1	0	2
4:55 PM	0	0	2	1	3	4:55 PM	0	0	0	0	0
5:00 PM	0	2	0	0	2	5:00 PM	0	0	0	0	0
5:05 PM	0	3	0	1	4	5:05 PM	0	0	1	0	1
5:10 PM	0	2	0	0	2	5:10 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0	5:15 PM	1	0	1	0	2
5:20 PM	0	0	0	0	0	5:20 PM	0	0	1	0	1
5:25 PM	0	1	0	0	1	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	1	0	0	0	1
5:35 PM	0	0	0	0	0	5:35 PM	1	0	0	0	1
5:40 PM	0	0	0	0	0	5:40 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	0	1	5:55 PM	0	0	0	0	0
Count Total	0	18	7	7	32	Count Total	7	2	7	0	16
Peak Hour	0	12	7	5	24	Peak Hour	1	1	6	0	8



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**Location:** 11 FRONT ST NE & OR 99E PM  
**Date:** Tuesday, February 6, 2024  
**Peak Hour:** 04:20 PM - 05:20 PM  
**Peak 15-Minutes:** 05:05 PM - 05:20 PM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.0%	0.97
WB	1.6%	0.88
NB	0.0%	0.00
SB	1.1%	0.87
All	2.5%	0.96

**Traffic Counts - Motorized Vehicles**

Interval Start Time	OR 99E Eastbound				OR 99E Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			
4:00 PM	0	31	75	0	0	0	8	0	0	0	0	0	0	0	0	0	30	144	1,946
4:05 PM	0	35	66	0	0	0	15	0	0	0	0	0	0	0	0	0	31	147	1,971
4:10 PM	0	35	75	0	0	0	9	0	0	0	0	0	0	0	0	0	45	164	2,005
4:15 PM	0	22	95	0	0	0	7	0	0	0	0	0	0	0	0	0	27	151	2,009
4:20 PM	0	44	84	0	0	0	11	0	0	0	0	0	0	0	0	0	37	176	2,040
4:25 PM	0	28	84	0	0	0	11	0	0	0	0	0	0	0	0	0	29	152	2,031
4:30 PM	0	35	85	0	0	0	9	0	0	0	0	0	0	0	0	0	34	163	2,025
4:35 PM	0	44	81	0	0	0	9	0	0	0	0	0	0	0	0	0	36	170	2,039
4:40 PM	0	36	85	0	0	0	13	1	0	0	0	0	0	0	0	0	42	177	2,023
4:45 PM	0	37	88	0	0	0	14	0	0	0	0	0	0	0	0	0	39	178	1,988
4:50 PM	0	48	78	0	0	0	4	2	0	0	0	0	0	0	0	0	38	170	1,954
4:55 PM	0	32	75	0	0	0	9	0	0	0	0	0	0	0	0	0	38	154	1,939
5:00 PM	0	39	77	0	0	0	13	0	0	0	0	0	0	0	0	0	40	169	1,907
5:05 PM	0	39	90	0	0	0	8	0	0	0	0	0	0	0	0	0	44	181	
5:10 PM	0	35	73	0	0	0	10	0	0	0	0	0	0	0	0	0	50	168	
5:15 PM	0	46	87	0	0	0	12	0	0	0	0	0	0	0	0	0	37	182	
5:20 PM	0	39	87	0	0	0	13	0	0	0	0	0	0	0	0	0	28	167	
5:25 PM	0	35	74	0	0	0	10	0	0	0	0	0	0	0	0	0	27	146	
5:30 PM	0	40	81	0	0	0	12	0	0	0	0	0	0	0	0	0	44	177	
5:35 PM	0	31	85	0	0	0	9	0	0	0	0	0	0	0	0	0	29	154	
5:40 PM	0	40	71	0	0	0	8	0	0	0	0	0	0	0	0	0	23	142	
5:45 PM	0	25	63	0	0	0	10	1	0	0	0	0	0	0	0	0	45	144	
5:50 PM	0	26	88	0	0	0	12	0	0	0	0	0	0	0	0	0	29	155	
5:55 PM	0	27	65	0	0	0	11	0	0	0	0	0	0	0	0	0	19	122	
Count Total	0	849	1,912	0	0	0	247	4	0	0	0	0	0	0	0	0	841	3,853	
Peak Hour	0	463	987	0	0	0	123	3	0	0	0	0	0	0	0	0	464	2,040	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	1	1
4:05 PM	2	0	1	1	4	4:05 PM	0	0	0	0	0
4:10 PM	2	0	1	0	3	4:10 PM	0	0	0	0	0
4:15 PM	7	0	1	0	8	4:15 PM	0	0	0	0	0
4:20 PM	3	0	0	0	3	4:20 PM	0	0	0	1	1
4:25 PM	1	0	0	0	1	4:25 PM	0	0	1	0	1
4:30 PM	2	0	0	0	2	4:30 PM	0	0	0	1	1
4:35 PM	1	0	0	1	2	4:35 PM	0	1	0	1	2
4:40 PM	6	0	1	0	7	4:40 PM	0	0	0	0	0
4:45 PM	2	0	0	0	2	4:45 PM	0	0	0	0	0
4:50 PM	4	0	0	1	5	4:50 PM	0	1	0	0	1
4:55 PM	3	0	0	1	4	4:55 PM	0	0	0	3	3
5:00 PM	9	0	0	0	9	5:00 PM	0	0	0	0	0
5:05 PM	6	0	1	1	8	5:05 PM	1	0	0	0	1
5:10 PM	6	0	0	0	6	5:10 PM	0	0	0	1	1
5:15 PM	1	0	0	1	2	5:15 PM	0	0	1	0	1
5:20 PM	4	0	0	0	4	5:20 PM	0	0	0	0	0
5:25 PM	3	0	1	0	4	5:25 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0
5:35 PM	2	0	2	0	4	5:35 PM	0	1	0	0	1
5:40 PM	2	0	0	0	2	5:40 PM	0	0	1	2	3
5:45 PM	4	0	0	0	4	5:45 PM	0	0	0	2	2
5:50 PM	1	0	0	0	1	5:50 PM	0	3	3	2	8
5:55 PM	3	0	0	0	3	5:55 PM	0	0	0	0	0
Count Total	76	0	8	6	90	Count Total	1	6	6	14	27
Peak Hour	44	0	2	5	51	Peak Hour	1	2	2	7	12



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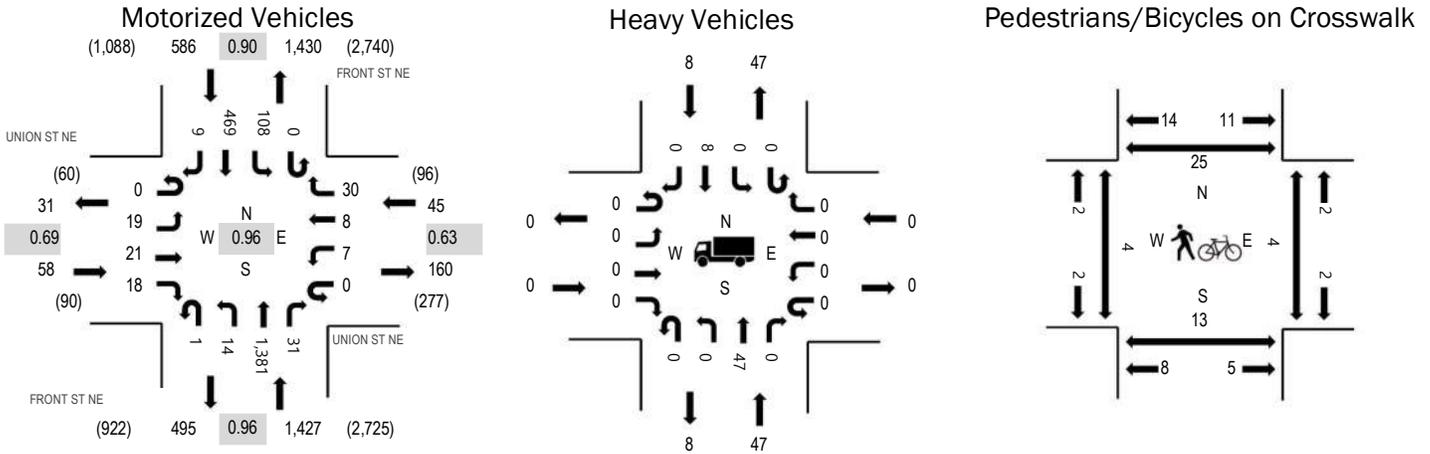
Location: 12 FRONT ST NE & UNION ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:35 PM - 05:35 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.69
WB	0.0%	0.63
NB	3.3%	0.96
SB	1.4%	0.90
All	2.6%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	UNION ST NE Eastbound				UNION ST NE Westbound				FRONT ST NE Northbound				FRONT ST NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	1	0	3	0	1	2	4	0	0	102	3	0	8	28	1	153	2,023
4:05 PM	0	0	1	1	0	1	1	4	0	0	102	2	0	7	42	1	162	2,046
4:10 PM	0	0	1	2	0	2	1	0	0	0	103	1	0	11	41	1	163	2,064
4:15 PM	0	0	0	1	0	0	0	1	0	2	120	2	0	6	27	4	163	2,085
4:20 PM	0	2	2	2	0	1	1	7	0	1	118	2	0	5	42	0	183	2,110
4:25 PM	0	0	0	1	0	0	1	1	0	0	113	2	0	4	28	0	150	2,096
4:30 PM	0	1	0	1	0	2	2	5	0	2	111	2	0	8	42	2	178	2,109
4:35 PM	0	5	2	2	0	0	2	3	0	0	116	3	0	5	32	1	171	2,116
4:40 PM	0	0	0	1	0	1	2	6	0	1	121	1	0	9	51	1	194	2,096
4:45 PM	0	0	2	1	0	0	0	1	0	4	112	4	0	11	40	0	175	2,050
4:50 PM	0	0	2	2	0	1	0	3	0	0	115	1	0	9	30	0	163	2,024
4:55 PM	0	1	1	1	0	0	0	2	0	1	108	4	0	10	40	0	168	2,025
5:00 PM	0	0	0	0	0	0	1	1	0	0	117	2	0	9	45	1	176	1,976
5:05 PM	0	8	3	1	0	4	0	1	0	0	117	1	0	8	36	1	180	
5:10 PM	0	1	5	0	0	1	0	4	0	2	102	6	0	12	50	1	184	
5:15 PM	0	0	1	2	0	0	1	1	0	3	127	2	0	11	38	2	188	
5:20 PM	0	0	1	2	0	0	1	1	0	0	124	2	0	5	32	1	169	
5:25 PM	0	2	3	1	0	0	1	5	1	1	108	3	0	6	32	0	163	
5:30 PM	0	2	1	5	0	0	0	2	0	2	114	2	0	13	43	1	185	
5:35 PM	0	0	0	0	0	0	0	2	0	1	110	2	0	7	29	0	151	
5:40 PM	0	2	2	0	0	1	1	3	0	1	105	2	0	8	22	1	148	
5:45 PM	0	2	1	0	0	0	0	2	0	0	83	3	0	11	46	1	149	
5:50 PM	0	1	0	1	0	1	0	3	0	0	114	2	0	6	34	2	164	
5:55 PM	0	2	2	0	0	1	0	0	0	0	86	1	0	3	24	0	119	
Count Total	0	30	30	30	0	17	17	62	1	21	2,648	55	0	192	874	22	3,999	
Peak Hour	0	19	21	18	0	7	8	30	1	14	1,381	31	0	108	469	9	2,116	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	2	0	0	2	4:00 PM	0	1	0	1	2
4:05 PM	0	3	0	2	5	4:05 PM	0	0	0	1	1
4:10 PM	0	1	0	1	2	4:10 PM	0	2	1	1	4
4:15 PM	0	6	0	1	7	4:15 PM	0	0	0	0	0
4:20 PM	0	3	0	0	3	4:20 PM	1	3	1	1	6
4:25 PM	0	1	0	0	1	4:25 PM	0	0	0	0	0
4:30 PM	0	3	0	0	3	4:30 PM	0	1	0	0	1
4:35 PM	0	2	0	0	2	4:35 PM	0	1	0	4	5
4:40 PM	0	4	0	2	6	4:40 PM	0	0	0	0	0
4:45 PM	0	2	0	0	2	4:45 PM	1	0	0	2	3
4:50 PM	0	4	0	1	5	4:50 PM	1	3	0	1	5
4:55 PM	0	4	0	1	5	4:55 PM	0	0	1	4	5
5:00 PM	0	8	0	0	8	5:00 PM	0	0	0	4	4
5:05 PM	0	6	0	2	8	5:05 PM	0	2	0	0	2
5:10 PM	0	7	0	0	7	5:10 PM	0	2	2	3	7
5:15 PM	0	0	0	1	1	5:15 PM	2	2	0	2	6
5:20 PM	0	4	0	0	4	5:20 PM	0	1	1	0	2
5:25 PM	0	3	0	1	4	5:25 PM	0	2	0	3	5
5:30 PM	0	3	0	0	3	5:30 PM	0	0	0	2	2
5:35 PM	0	0	0	2	2	5:35 PM	0	0	1	2	3
5:40 PM	0	2	0	0	2	5:40 PM	0	0	1	1	2
5:45 PM	0	4	0	0	4	5:45 PM	0	1	0	2	3
5:50 PM	0	2	0	0	2	5:50 PM	0	2	1	4	7
5:55 PM	0	3	0	0	3	5:55 PM	0	3	0	1	4
Count Total	0	77	0	14	91	Count Total	5	26	9	39	79
Peak Hour	0	47	0	8	55	Peak Hour	4	13	4	25	46



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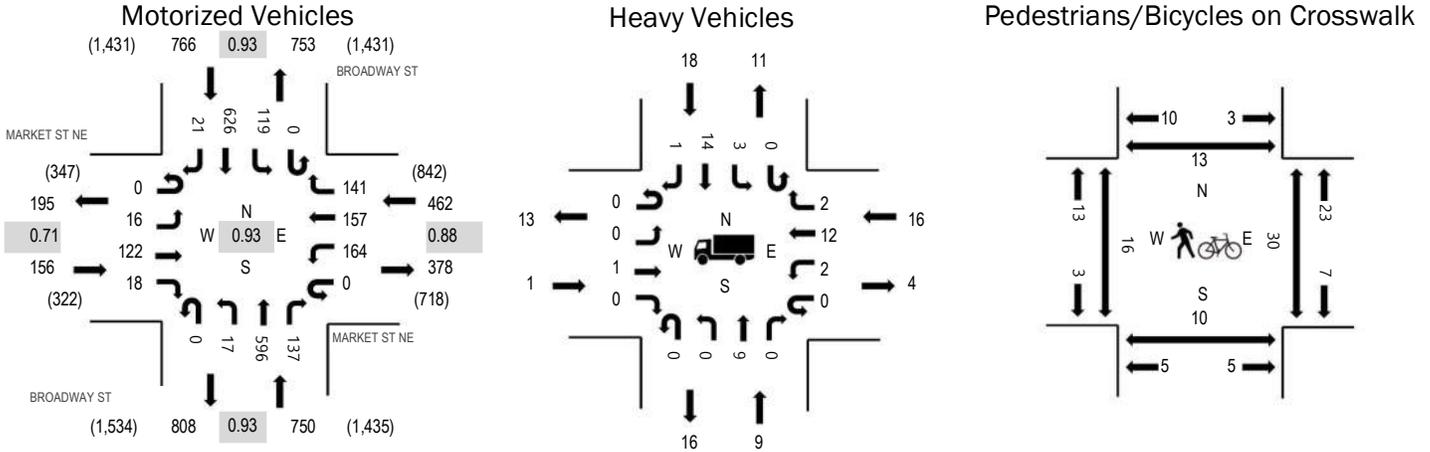
Location: 13 BROADWAY ST & MARKET ST NE PM

Date: Tuesday, February 6, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:10 PM - 05:25 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.71
WB	3.5%	0.88
NB	1.2%	0.93
SB	2.3%	0.93
All	2.1%	0.93

Traffic Counts - Motorized Vehicles

Interval Start Time	MARKET ST NE				MARKET ST NE				BROADWAY ST				BROADWAY ST				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	2	14	0	0	9	9	8	0	3	46	6	0	10	54	1	162	2,013
4:05 PM	0	0	19	2	0	7	12	7	0	1	53	6	0	6	49	2	164	2,019
4:10 PM	0	2	16	3	0	11	13	8	0	0	39	11	0	10	45	0	158	2,020
4:15 PM	0	0	15	1	0	16	13	14	0	0	53	5	0	5	33	0	155	2,049
4:20 PM	0	4	8	0	0	11	9	5	0	1	53	17	0	7	58	1	174	2,083
4:25 PM	0	2	4	1	0	4	6	8	0	3	44	9	0	10	53	2	146	2,104
4:30 PM	0	4	12	1	0	17	15	11	0	3	41	9	0	12	40	2	167	2,134
4:35 PM	0	0	7	1	0	16	16	7	0	2	57	12	0	8	55	2	183	2,129
4:40 PM	0	3	11	1	0	8	15	11	0	3	55	17	0	12	57	2	195	2,119
4:45 PM	0	2	8	0	0	18	14	8	0	0	47	12	0	11	47	1	168	2,090
4:50 PM	0	1	12	1	0	15	15	10	0	1	39	8	0	8	53	2	165	2,082
4:55 PM	0	0	7	1	0	12	13	11	0	2	42	14	0	9	64	1	176	2,056
5:00 PM	0	0	10	3	0	10	11	10	0	0	55	8	0	9	52	0	168	2,017
5:05 PM	0	1	11	1	0	9	8	11	0	1	55	13	0	8	45	2	165	
5:10 PM	0	0	16	2	0	10	15	13	0	3	54	13	0	7	52	2	187	
5:15 PM	0	0	8	1	0	17	12	16	0	0	58	6	0	8	61	2	189	
5:20 PM	0	1	12	0	0	15	13	15	0	0	53	10	0	14	60	2	195	
5:25 PM	0	4	8	6	0	17	10	18	0	2	40	15	0	13	40	3	176	
5:30 PM	0	2	15	2	0	9	8	12	0	1	53	14	0	5	41	0	162	
5:35 PM	0	0	4	0	0	14	11	14	0	1	39	13	0	13	63	1	173	
5:40 PM	0	2	14	1	0	14	20	13	0	1	46	10	0	3	40	2	166	
5:45 PM	0	2	12	1	0	21	10	15	0	3	39	14	0	4	39	0	160	
5:50 PM	0	1	4	2	0	14	4	6	0	4	38	9	0	3	54	0	139	
5:55 PM	0	0	11	0	0	10	9	6	0	0	42	8	0	6	44	1	137	
Count Total	0	33	258	31	0	304	281	257	0	35	1,141	259	0	201	1,199	31	4,030	
Peak Hour	0	16	122	18	0	164	157	141	0	17	596	137	0	119	626	21	2,134	

### Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	2	1	2	6	4:00 PM	0	0	0	0	0
4:05 PM	0	2	0	1	3	4:05 PM	1	0	0	0	1
4:10 PM	0	1	2	0	3	4:10 PM	2	1	1	1	5
4:15 PM	0	1	1	0	2	4:15 PM	3	1	6	5	15
4:20 PM	0	3	2	3	8	4:20 PM	1	1	1	2	5
4:25 PM	1	1	0	0	2	4:25 PM	1	1	1	0	3
4:30 PM	0	1	3	3	7	4:30 PM	1	1	3	1	6
4:35 PM	0	3	0	1	4	4:35 PM	0	0	1	1	2
4:40 PM	1	0	0	1	2	4:40 PM	1	1	2	0	4
4:45 PM	0	0	5	1	6	4:45 PM	1	2	3	1	7
4:50 PM	0	1	2	3	6	4:50 PM	2	1	3	2	8
4:55 PM	0	0	3	1	4	4:55 PM	2	2	5	3	12
5:00 PM	0	1	0	2	3	5:00 PM	2	0	4	1	7
5:05 PM	0	1	1	2	4	5:05 PM	1	2	4	1	8
5:10 PM	0	1	0	1	2	5:10 PM	1	1	2	1	5
5:15 PM	0	0	1	0	1	5:15 PM	1	0	2	1	4
5:20 PM	0	1	1	2	4	5:20 PM	2	0	1	1	4
5:25 PM	0	0	0	1	1	5:25 PM	2	0	0	0	2
5:30 PM	0	1	0	0	1	5:30 PM	2	2	4	0	8
5:35 PM	0	2	0	5	7	5:35 PM	0	0	3	1	4
5:40 PM	0	2	0	0	2	5:40 PM	0	3	1	0	4
5:45 PM	0	2	0	1	3	5:45 PM	1	1	2	0	4
5:50 PM	0	1	0	2	3	5:50 PM	1	1	3	0	5
5:55 PM	0	0	0	0	0	5:55 PM	0	0	4	0	4
Count Total	3	27	22	32	84	Count Total	28	21	56	22	127
Peak Hour	1	9	16	18	44	Peak Hour	16	10	30	13	69

SEASONAL TREND TABLE (Updated: 11/08/2023 )																								Seasonal Trend Peak Period Factor	
TREND	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec	
INTERSTATE URBANIZED	1.0869	1.1041	1.0688	1.0335	1.0182	1.0028	0.9995	0.9962	0.9901	0.9840	0.9641	0.9443	0.9502	0.9562	0.9510	0.9458	0.9575	0.9692	0.9791	0.9891	1.0107	1.0324	1.0532	1.0739	0.9056
INTERSTATE NONURBANIZED	1.2459	1.2915	1.2286	1.1657	1.0907	1.0158	1.0059	0.9960	0.9728	0.9496	0.9128	0.8760	0.8650	0.8540	0.8612	0.8684	0.8905	0.9126	0.9488	0.9850	1.0336	1.0822	1.1717	1.2612	0.8084
COMMUTER	1.0905	1.0986	1.0636	1.0285	1.0162	1.0038	0.9959	0.9879	0.9814	0.9749	0.9631	0.9512	0.9614	0.9717	0.9608	0.9500	0.9548	0.9595	0.9634	0.9673	1.0090	1.0507	1.0733	1.0958	0.9336
COASTAL DESTINATION	1.2064	1.1715	1.1234	1.0753	1.0545	1.0337	1.0372	1.0407	1.0216	1.0024	0.9586	0.9147	0.8760	0.8372	0.8371	0.8370	0.8678	0.8985	0.9578	1.0170	1.0730	1.1290	1.1823	1.2357	0.8130
COASTAL DESTINATION ROUTE	1.3937	1.2897	1.2245	1.1594	1.1247	1.0901	1.0911	1.0921	1.0516	1.0111	0.9493	0.8875	0.8172	0.7469	0.7455	0.7440	0.7916	0.8391	0.9274	1.0158	1.1126	1.2094	1.3193	1.4291	0.7225
AGRICULTURE	1.4537	1.4624	1.3705	1.2786	1.2139	1.1492	1.1207	1.0923	1.0075	0.9226	0.8742	0.8258	0.8348	0.8439	0.8422	0.8405	0.7976	0.7547	0.8073	0.8598	1.0041	1.1484	1.3339	1.5194	0.7960
RECREATIONAL SUMMER	1.6049	1.5814	1.4924	1.4034	1.3208	1.2382	1.2380	1.2377	1.0939	0.9500	0.8669	0.7839	0.7392	0.6945	0.7065	0.7185	0.7404	0.7624	0.8468	0.9311	1.1270	1.3230	1.5054	1.6879	0.7082
RECREATIONAL SUMMER WINTER	1.0075	0.9570	0.9184	0.8799	0.9701	1.0603	1.0675	1.0747	1.0843	1.0939	1.0045	0.9151	0.8244	0.7336	0.7795	0.8254	0.9368	1.0482	1.1794	1.3105	1.4969	1.6833	1.3470	1.0108	0.6767
RECREATIONAL WINTER**	0.8059	0.6710	0.6475	0.6240	0.7462	0.8685	0.9307	0.9928	1.1496	1.3064	1.2173	1.1282	0.9996	0.8709	0.9526	1.0342	1.1225	1.2108	1.4061	1.6013	1.9826	2.3639	1.6332	0.9026	0.5086
SUMMER	1.2374	1.2352	1.1733	1.1114	1.0786	1.0459	1.0330	1.0202	0.9851	0.9500	0.9160	0.8819	0.8660	0.8501	0.8561	0.8620	0.8891	0.9161	0.9430	0.9698	1.0525	1.1352	1.2002	1.2653	0.8279
SUMMER < 2500	1.2836	1.2576	1.1943	1.1310	1.1011	1.0712	1.0448	1.0184	0.9633	0.9082	0.8861	0.8641	0.8609	0.8578	0.8695	0.8813	0.8874	0.8936	0.9165	0.9394	1.0500	1.1607	1.2535	1.3463	0.8434

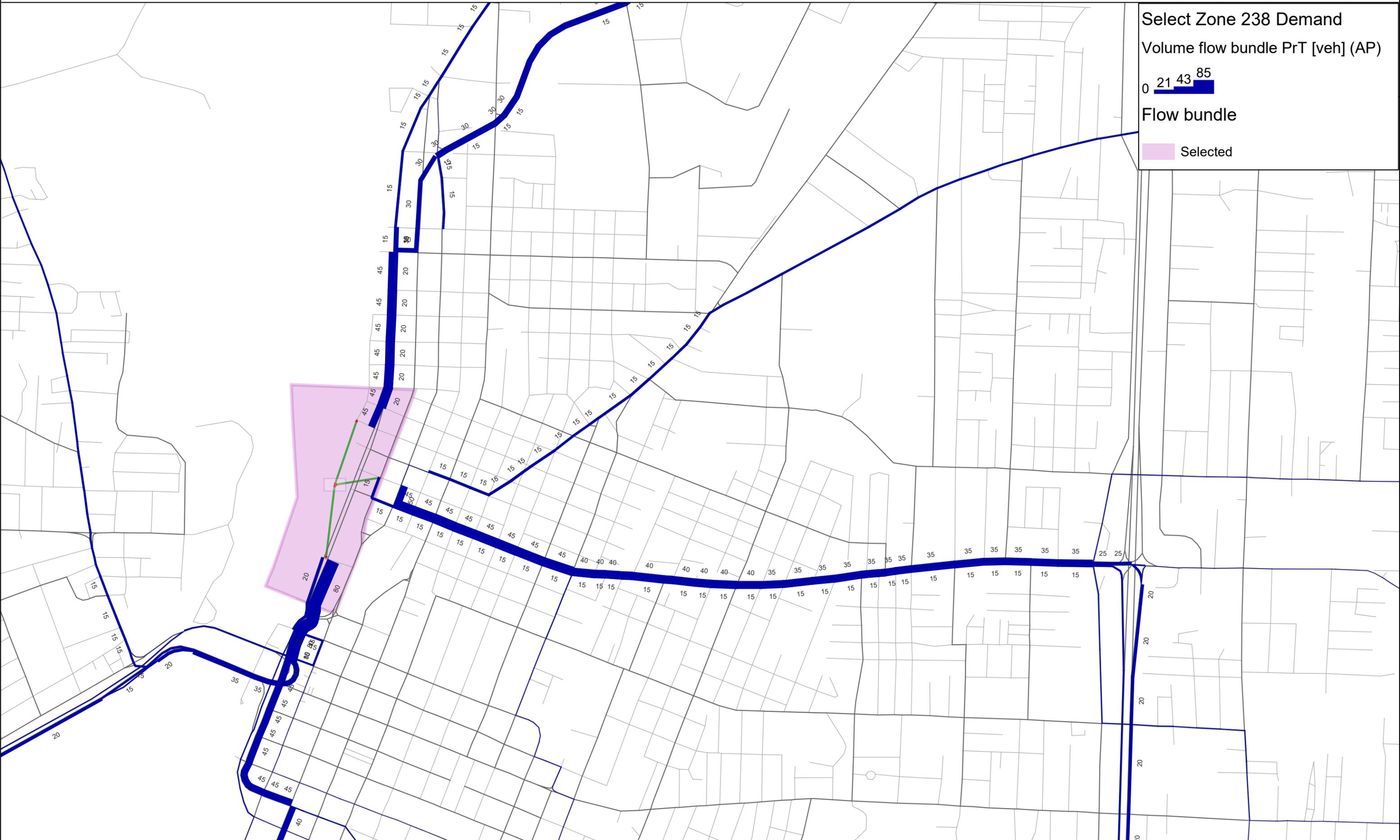
\* Seasonal Trend Table factors are based on previous year ATR data. The table is updated yearly.

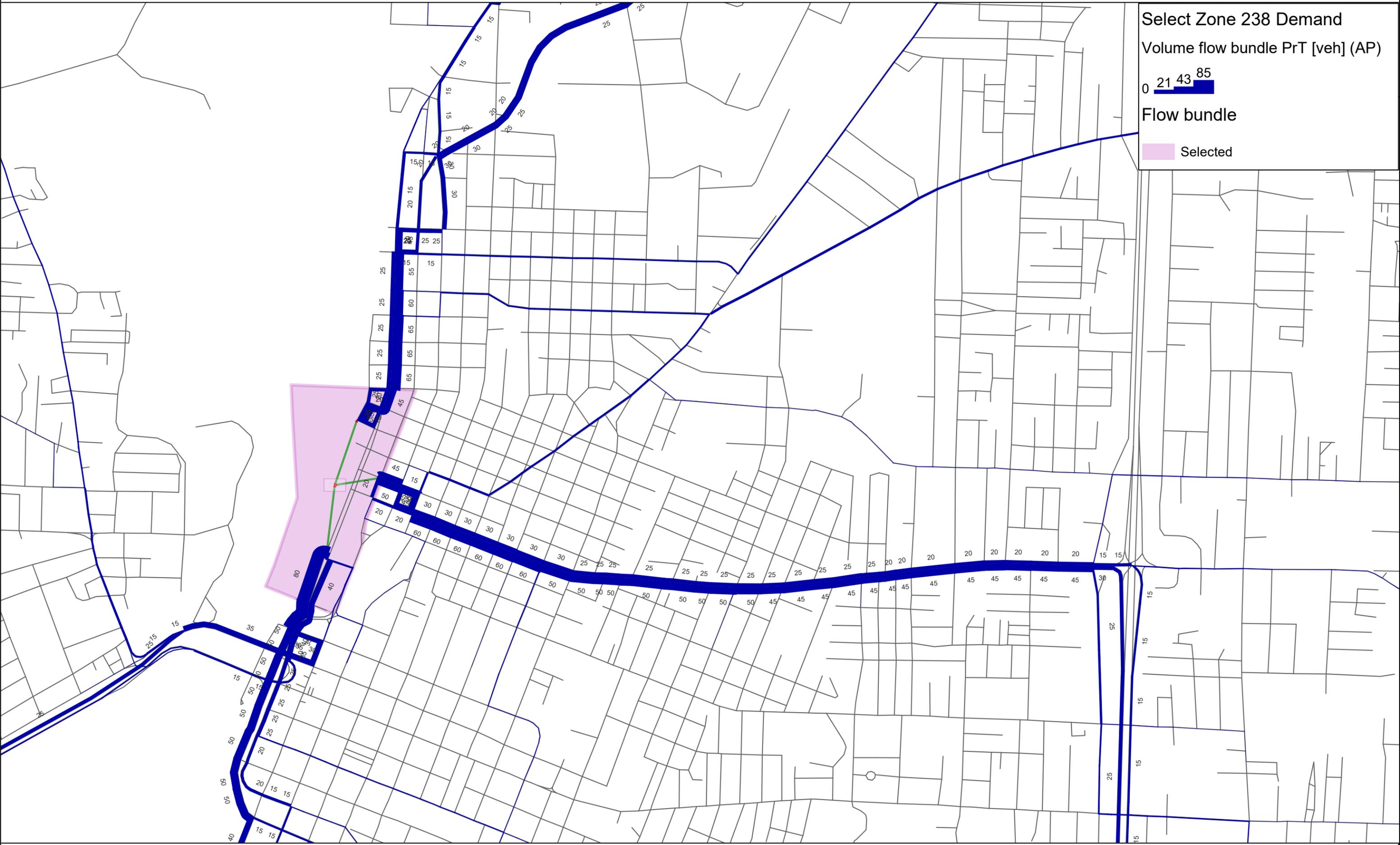
\* Grey shading indicates months where seasonal factor is greater than or less than 30%

\*\*Use Recreation Winter Trend with Caution! ATR site was down for most of 2022 due to loop issues and was estimated while the site was down

Count Date'	2/6/2024	1.0496	SAF	1.12
	2/1/2023	1.0636		
	2/15/2023	1.0285		

		2021						2050						2050				
		AM Peak		PM Peak		Daily		AM Peak		PM Peak		Daily		AM Peak	PM Peak	Daily		
		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	Total	Total	Total		
Front	North of Pine	64	371	471	507	4763	4833	267	624	446	568	4292	6860	3.6%	0.1%	0.6%		
	South of Pine	64	600	558	583	5680	6128	267	624	486	644	4747	6729	1.2%	0.0%	-0.1%		
	North of Shipping	88	614	539	616	5673	6378	315	627	667	695	6608	7197	1.2%	0.6%	0.5%		
	South of Shipping	88	568	539	589	5673	5988	314	564	667	647	6604	6847	1.2%	0.6%	0.5%		
	South of Hood	55	568	507	589	5408	5988	288	564	641	647	6320	6847	1.3%	0.6%	0.5%		
	North of Market	55	568	507	589	5408	5988	288	564	641	647	6320	6847	1.3%	0.6%	0.5%		
	South of Market	55	568	507	589	5408	5939	288	563	641	643	6320	6801	1.3%	0.6%	0.5%		
	North of 99E	134	587	534	670	5973	6306	404	576	641	680	6719	6788	1.2%	0.3%	0.3%		
Commercial/ Liberty/99E	North of Pine	1077	1287	1268	1186	12395	13674	1168	1181	1408	1353	14073	14484	0.0%	0.4%	0.3%		
	South of Pine	1038	1037	1426	1014	13433	11853	1232	1183	1755	1294	17967	14827	0.6%	0.9%	1.0%		
	North of Hood	1014	1055	1506	1389	13100	12267	1193	1187	1484	1281	15453	14425	0.5%	-0.2%	0.6%		
	South of Hood	1050	1080	1045	1262	13838	12750	1225	1209	1556	1443	15888	14605	0.5%	1.0%	0.5%		
	North of Market	1097	1102	1317	1533	11175	13149	1289	1226	1623	1455	16688	14606	0.5%	0.3%	1.0%		
	South of Market	1021	1065	1299	1445	13311	13024	1180	1153	1473	1461	15524	14661	0.4%	0.2%	0.5%		
	North of Front	968	994	1306	1402	12241	12790	1145	972	1406	1628	15170	14510	0.3%	0.4%	0.6%		
Broadway	South of Union	1101	536	1587	527	3983	4824	1463	487	2038	643	7219	5795	0.7%	0.9%	1.6%		
	North of Market	660	673	718	661	7013	6729	580	675	733	663	7290	6813	-0.2%	0.0%	0.1%		
Pine	South of Market	548	756	687	746	6487	7610	670	772	680	764	6878	7834	0.4%	0.0%	0.2%		
	East of Liberty					3328	883					5824	1768			2.8%		
Hood	East of Front						265						284			0.2%		
	East of Commercial					395	1143					439	904			-0.4%		
	East of Liberty					868	878					629	659			-0.9%		
Market	East of Liberty	60	98			296	986	92	129			194	1367	1.4%		0.8%		
	East of Broadway	473	488	531	626	4984	5691	470	461	421	634	3898	5315	-0.1%	-0.3%	-0.5%	Avg	Pk Hr
All Roads													0.8%	0.4%	0.5%	0.6%	0.6%	
Local													1.1%	0.3%	0.4%	0.6%	0.7%	
Highway													0.4%	0.5%	0.8%	0.6%	0.5%	



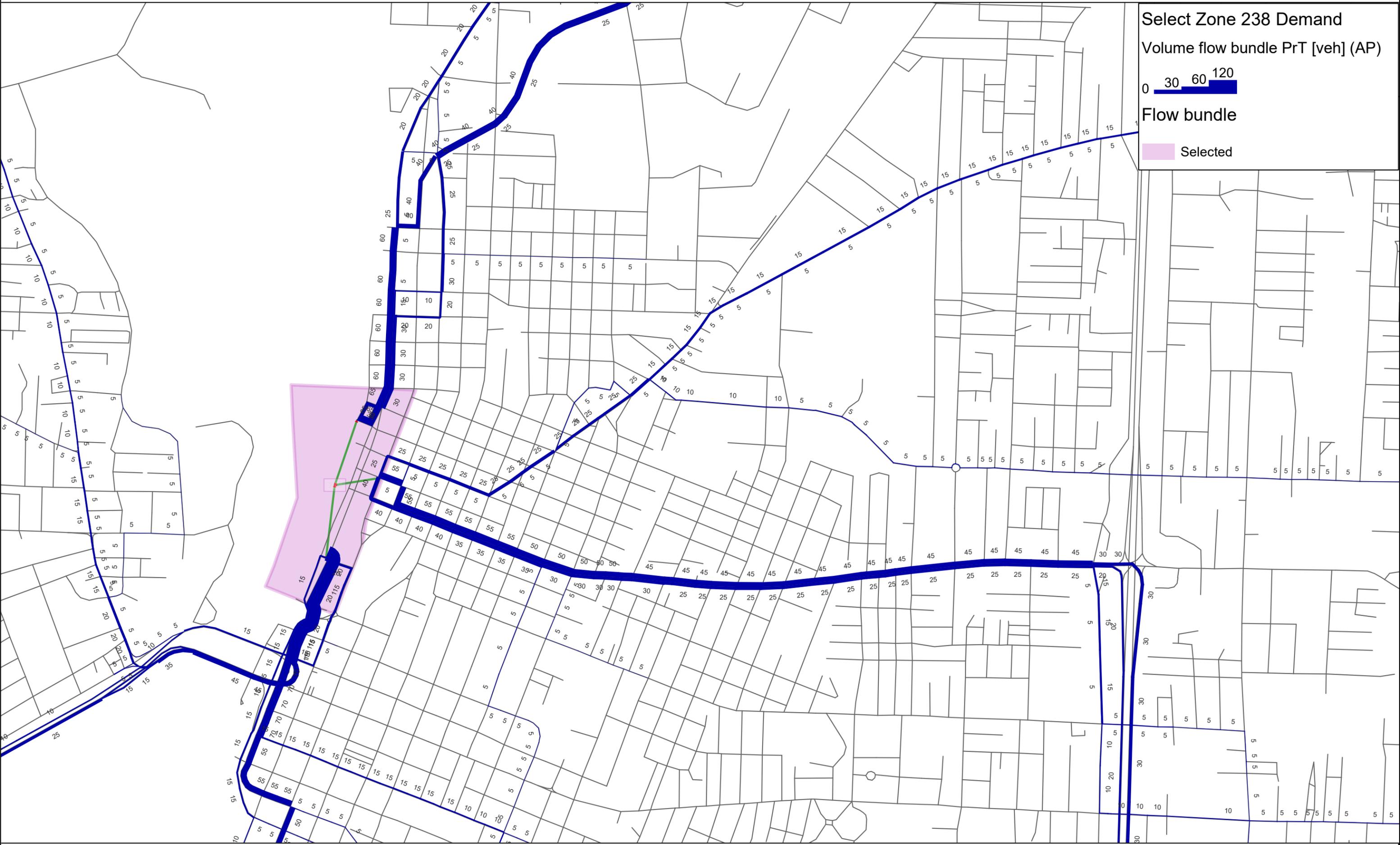


Select Zone 238 Demand  
Volume flow bundle PrT [veh] (AP)

0 21 43 85

Flow bundle

Selected

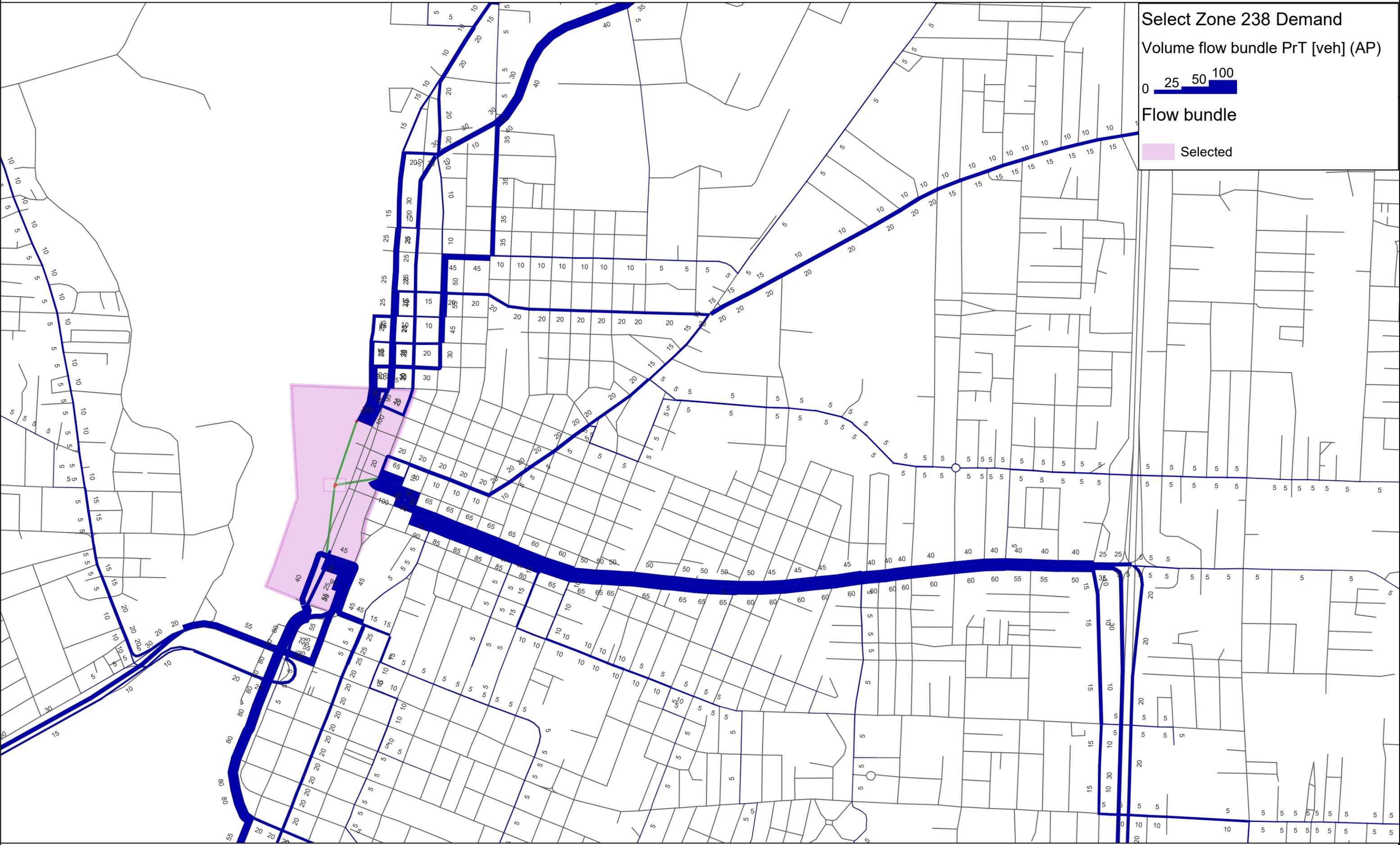


Select Zone 238 Demand  
Volume flow bundle PrT [veh] (AP)

0 30 60 120

Flow bundle

Selected



Select Zone 238 Demand  
Volume flow bundle PrT [veh] (AP)

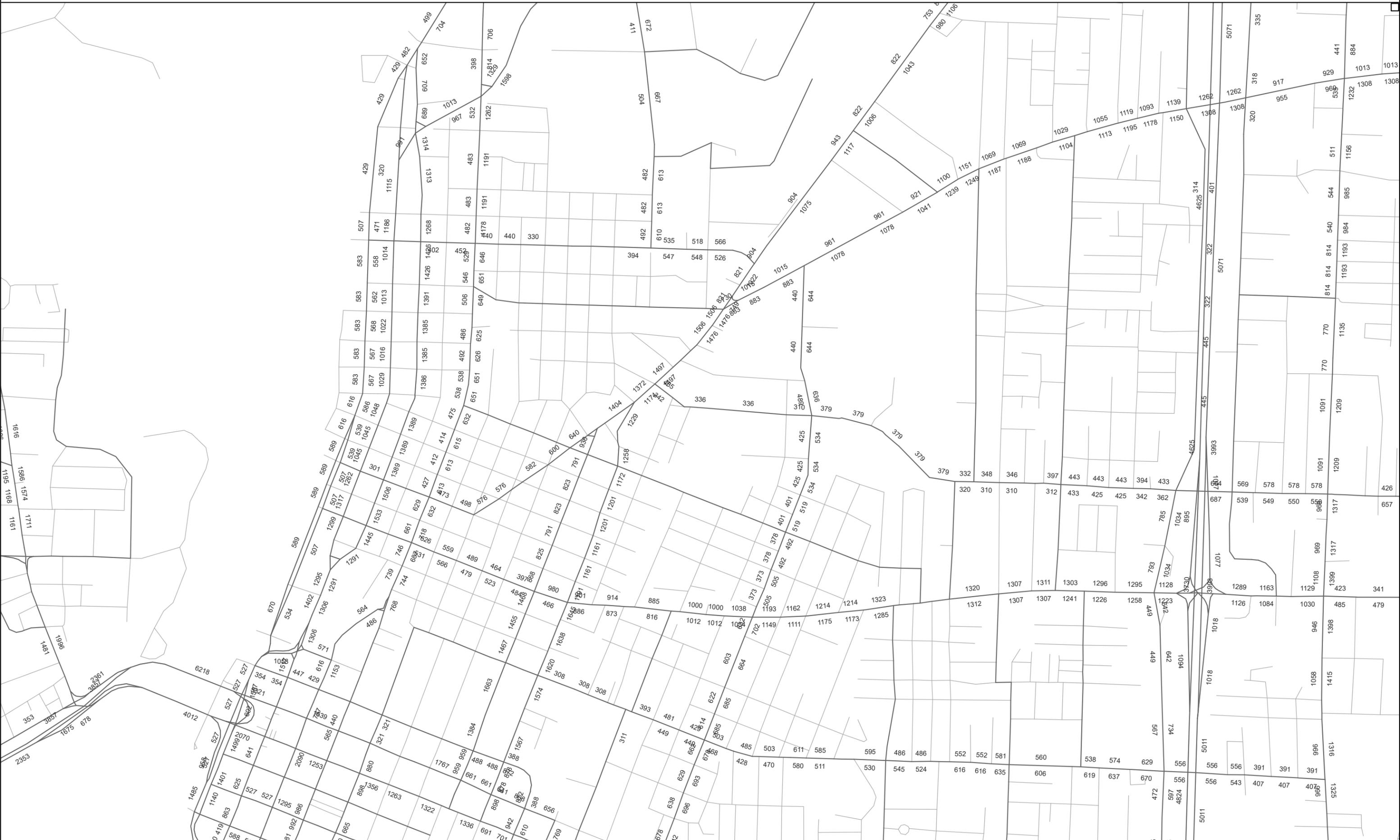
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Flow bundle

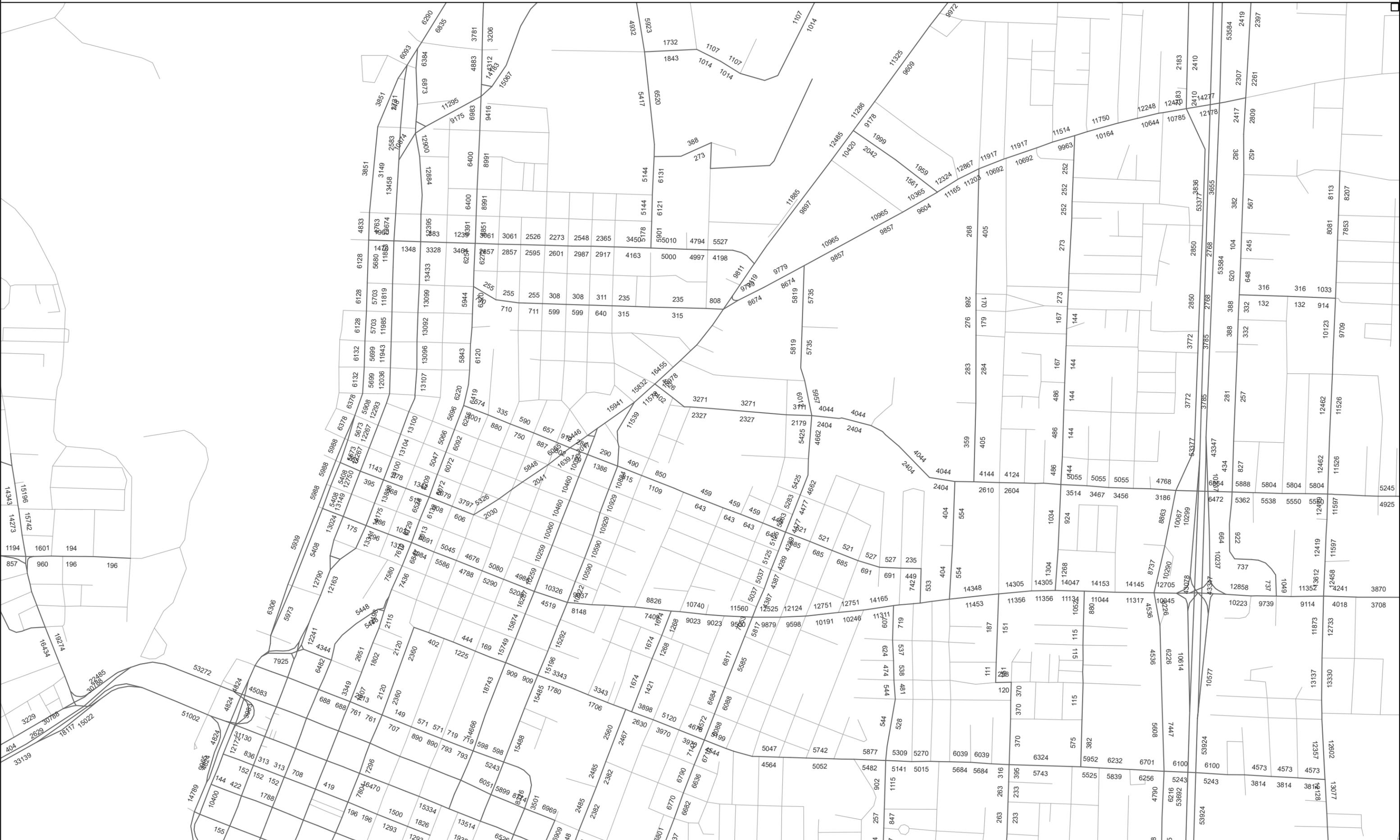
Selected



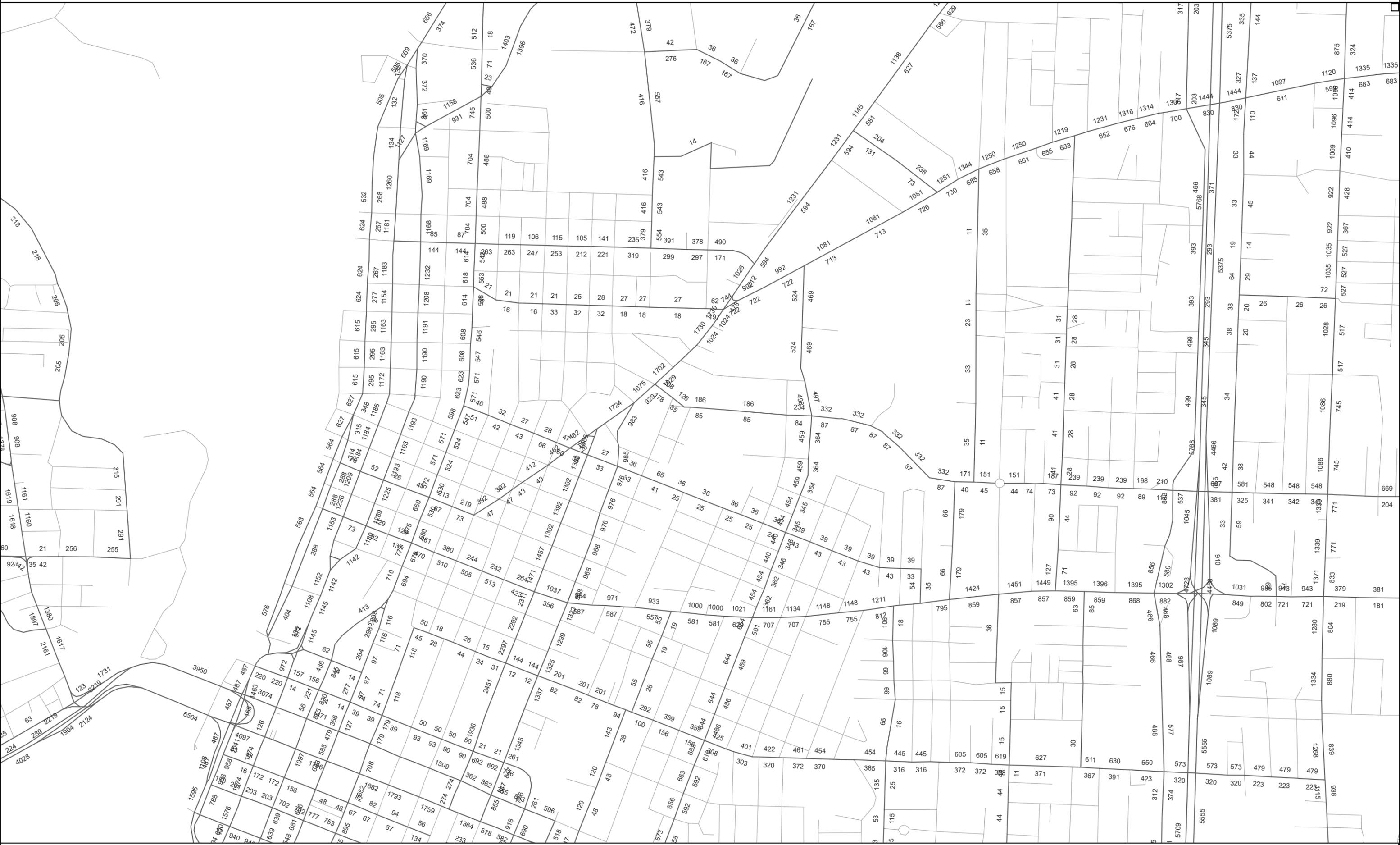
# 2021 PM Peak Demand



# 2021 Daily Demand

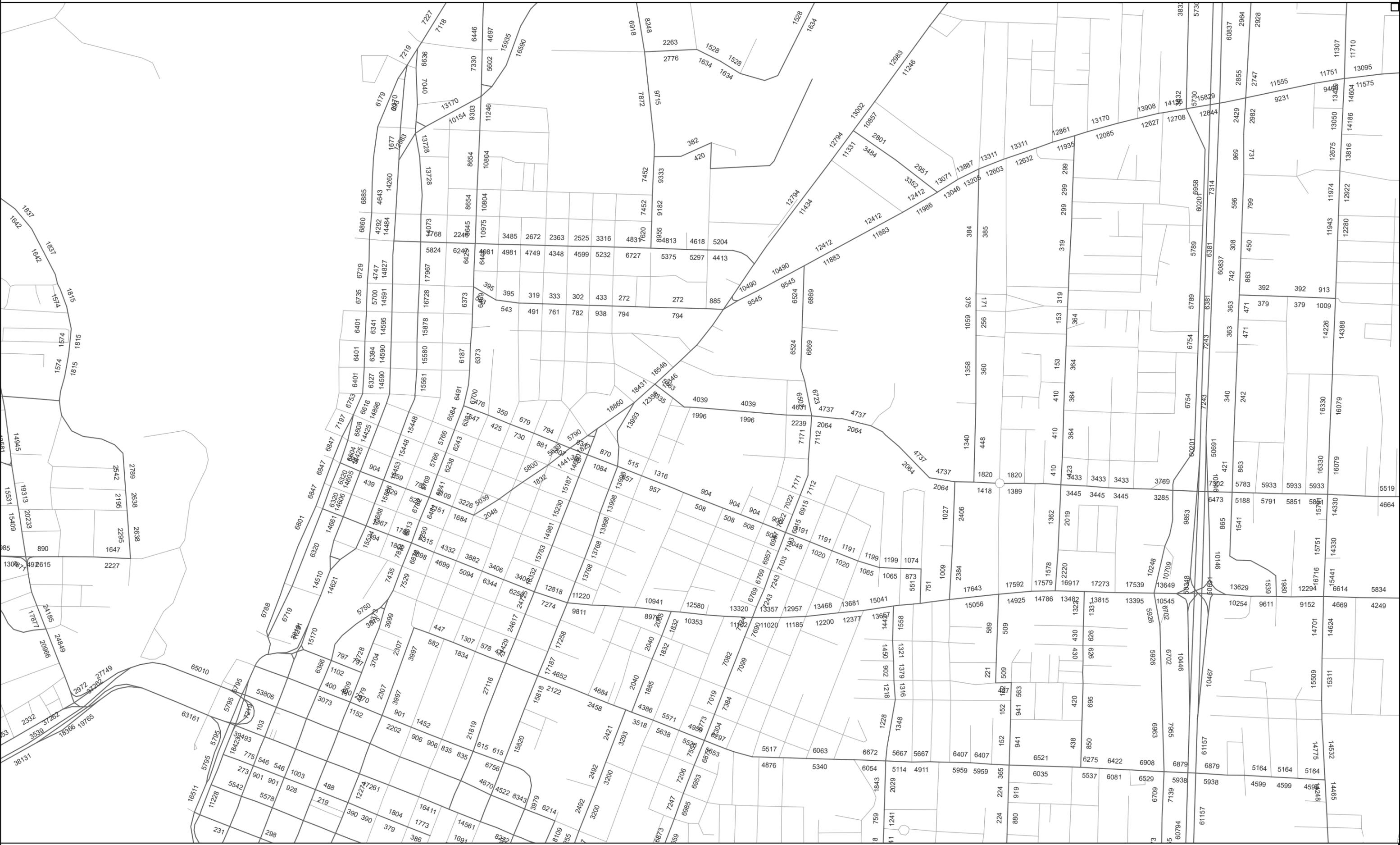


# 2050 AM Peak Demand



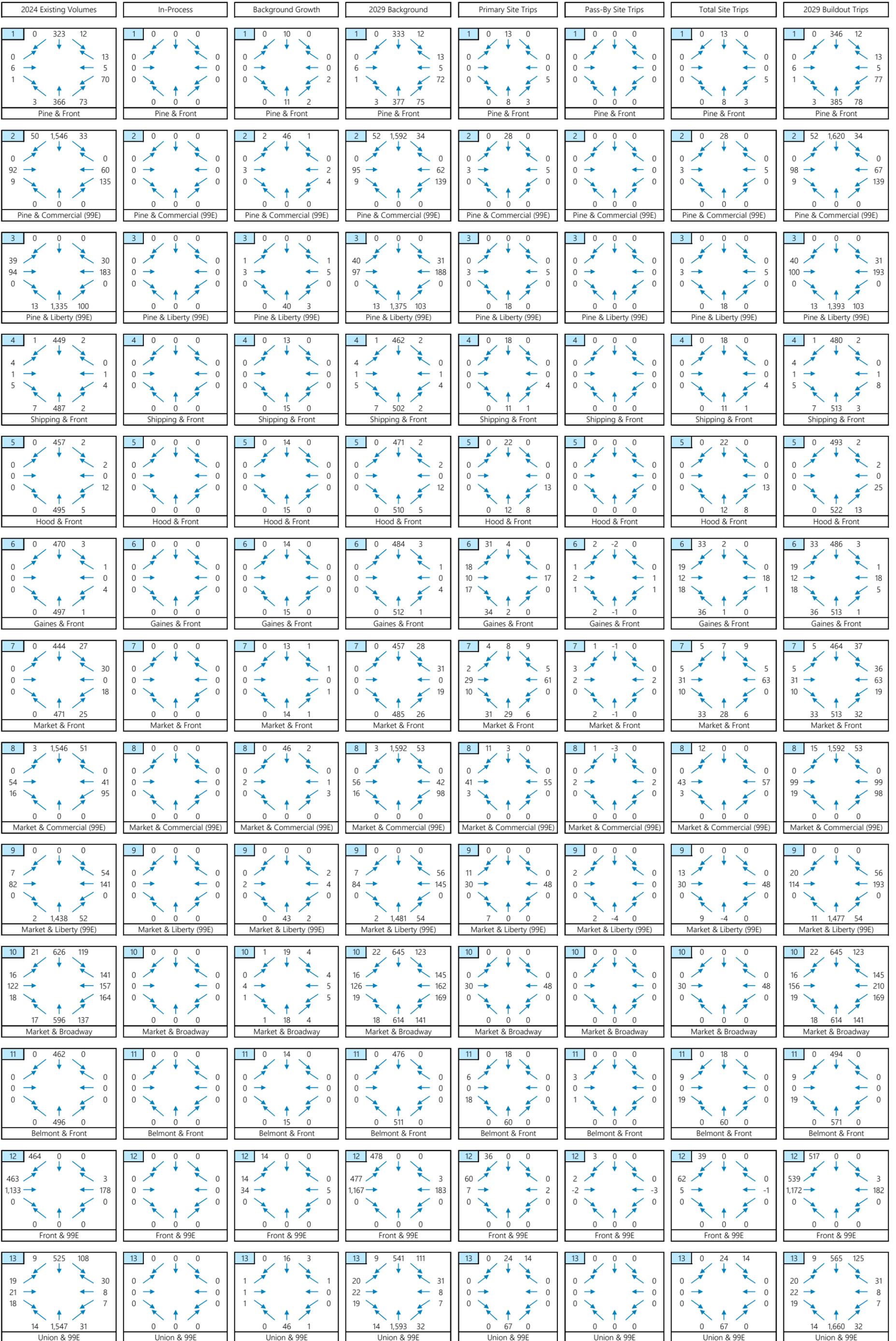


# 2050 Daily Demand





PM PEAK HOUR



## Appendix C - Safety

Crash History Data

Sight Distance Figures

Preliminary Signal Warrant Analysis



05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PINE ST at FRONT ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY	INJURY	INJURY	DAMAGE		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2022</b>										
ANGLE	0	0	2	1	0	3	0	0	2	2
<b>2022 TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>YEAR: 2021</b>										
ANGLE	0	0	0	1	0	1	0	0	0	3
<b>2021 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>YEAR: 2019</b>										
TURNING MOVEMENTS	0	0	0	1	1	2	0	0	0	1
<b>2019 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>YEAR: 2018</b>										
ANGLE	0	0	0	1	1	2	0	0	0	1
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>7</b>

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.





05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PINE ST at COMMERCIAL ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY CRASHES	INJURY CRASHES	INJURY CRASHES	DAMAGE ONLY		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2022</b>										
ANGLE	0	0	0	1	0	1	0	0	0	2
REAR-END	0	0	1	0	0	1	0	0	1	0
TURNING MOVEMENTS	0	0	0	2	0	2	0	0	0	2
<b>2022 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>
<b>YEAR: 2021</b>										
ANGLE	0	0	2	1	1	4	0	0	2	2
REAR-END	0	0	0	0	1	1	0	0	0	0
TURNING MOVEMENTS	0	0	1	0	0	1	0	0	1	0
<b>2021 TOTAL</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>
<b>YEAR: 2020</b>										
ANGLE	0	0	0	0	1	1	0	0	0	0
<b>2020 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YEAR: 2019</b>										
REAR-END	0	0	0	1	0	1	0	0	0	1
TURNING MOVEMENTS	0	0	0	1	0	1	0	0	0	1
<b>2019 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>YEAR: 2018</b>										
ANGLE	0	0	0	2	1	3	0	0	0	4
TURNING MOVEMENTS	0	0	1	1	0	2	0	0	1	3
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>7</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>9</b>	<b>4</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>15</b>

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05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PINE ST at LIBERTY ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY CRASHES	INJURY CRASHES	INJURY CRASHES	DAMAGE ONLY		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2022</b>										
ANGLE	0	0	1	0	0	1	0	0	1	0
<b>2022 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>YEAR: 2021</b>										
ANGLE	0	0	1	1	1	3	0	0	1	1
PEDESTRIAN	0	1	0	0	0	1	0	1	0	0
<b>2021 TOTAL</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>YEAR: 2020</b>										
ANGLE	0	0	0	4	0	4	0	0	0	6
<b>2020 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>
<b>YEAR: 2019</b>										
ANGLE	0	0	0	2	0	2	0	0	0	3
REAR-END	0	0	0	0	1	1	0	0	0	0
TURNING MOVEMENTS	0	0	0	1	0	1	0	0	0	1
<b>2019 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>YEAR: 2018</b>										
ANGLE	0	0	0	2	1	3	0	0	0	2
REAR-END	0	0	0	1	0	1	0	0	0	1
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>11</b>	<b>3</b>	<b>17</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>14</b>

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05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SHIPPING ST at FRONT ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY	INJURY	INJURY	DAMAGE		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2018</b>										
ANGLE	0	0	1	0	0	1	0	0	1	3
REAR-END	0	0	0	0	1	1	0	0	0	0
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE  
 HOOD ST at FRONT ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

	FATAL	MAJOR INJURY	MODERATE INJURY	MINOR INJURY	PROP DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	MAJOR INJURIES	MODERATE INJURIES	MINOR INJURIES
COLLISION TYPE	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES
FINAL TOTAL										

*Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.*

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

GAINES ST at FRONT ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

	FATAL	MAJOR INJURY	MODERATE INJURY	MINOR INJURY	PROP DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	MAJOR INJURIES	MODERATE INJURIES	MINOR INJURIES
COLLISION TYPE	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES	CRASHES
FINAL TOTAL										

*Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.*

05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

MARKET ST at FRONT ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY	INJURY	INJURY	DAMAGE		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2019</b>										
NON-COLLISION	0	0	0	1	0	1	0	0	0	1
TURNING MOVEMENTS	0	0	0	1	0	1	0	0	0	1
<b>2019 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>

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05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

## MARKET ST at COMMERCIAL ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE KILLED	MAJOR	MODERATE	MINOR
	CRASHES	INJURY CRASHES	INJURY CRASHES	INJURY CRASHES	DAMAGE ONLY			INJURIES	INJURIES	INJURIES
<b>YEAR: 2022</b>										
SIDESWIPE - OVERTAKING	0	0	0	0	1	1	0	0	0	0
<b>2022 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YEAR: 2021</b>										
FIXED / OTHER OBJECT	0	0	0	1	0	1	0	0	0	1
PEDESTRIAN	0	0	1	0	0	1	0	0	1	0
TURNING MOVEMENTS	0	0	0	0	1	1	0	0	0	0
<b>2021 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>YEAR: 2020</b>										
ANGLE	0	0	1	0	0	1	0	0	1	0
TURNING MOVEMENTS	0	0	0	1	0	1	0	0	0	1
<b>2020 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>YEAR: 2019</b>										
REAR-END	0	0	0	1	3	4	0	0	0	1
TURNING MOVEMENTS	0	0	1	0	0	1	0	0	1	0
<b>2019 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>YEAR: 2018</b>										
REAR-END	0	0	0	1	0	1	0	0	0	2
TURNING MOVEMENTS	0	0	0	1	0	1	0	0	0	2
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>7</b>

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05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

MARKET ST at LIBERTY ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY CRASHES	INJURY CRASHES	INJURY CRASHES	DAMAGE ONLY		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2022</b>										
REAR-END	0	0	0	1	0	1	0	0	0	1
<b>2022 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>YEAR: 2021</b>										
ANGLE	0	0	1	1	2	4	0	0	2	1
<b>2021 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>YEAR: 2020</b>										
ANGLE	0	0	0	1	0	1	0	0	0	3
TURNING MOVEMENTS	0	0	0	0	1	1	0	0	0	0
<b>2020 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>YEAR: 2019</b>										
ANGLE	0	1	0	0	0	1	0	1	0	1
<b>2019 TOTAL</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>6</b>

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05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

MARKET ST at BROADWAY ST, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY CRASHES	INJURY CRASHES	INJURY CRASHES	DAMAGE ONLY		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2022</b>										
TURNING MOVEMENTS	0	0	1	1	0	2	0	0	1	1
<b>2022 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>YEAR: 2021</b>										
TURNING MOVEMENTS	0	0	0	0	1	1	0	0	0	0
<b>2021 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YEAR: 2020</b>										
ANGLE	0	0	0	0	1	1	0	0	0	0
BACKING	0	0	0	1	0	1	0	0	0	2
REAR-END	0	0	0	1	0	1	0	0	0	2
TURNING MOVEMENTS	0	0	0	1	0	1	0	0	0	1
<b>2020 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>
<b>YEAR: 2019</b>										
REAR-END	0	0	0	4	0	4	0	0	0	5
<b>2019 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>
<b>YEAR: 2018</b>										
ANGLE	0	0	0	1	0	1	0	0	0	1
REAR-END	0	0	0	0	1	1	0	0	0	0
TURNING MOVEMENTS	0	0	0	2	0	2	0	0	0	2
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>11</b>	<b>3</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>14</b>

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05/29/2024

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

FRONT ST at FRONT ST PKY, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY	INJURY	INJURY	DAMAGE		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2018</b>										
BACKING	0	0	0	1	0	1	0	0	0	1
TURNING MOVEMENTS	0	0	1	0	0	1	0	0	2	1
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>

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05/29/2024

## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

UNION ST at FRONT ST PKY, City of Salem, Marion County, 01/01/2018 to 12/31/2022

COLLISION TYPE	FATAL	MAJOR	MODERATE	MINOR	PROP	TOTAL	PEOPLE	MAJOR	MODERATE	MINOR
	CRASHES	INJURY CRASHES	INJURY CRASHES	INJURY CRASHES	DAMAGE ONLY		KILLED	INJURIES	INJURIES	INJURIES
<b>YEAR: 2022</b>										
ANGLE	0	0	1	0	0	1	0	0	2	0
FIXED / OTHER OBJECT	0	0	0	1	0	1	0	0	0	1
REAR-END	0	0	1	0	1	2	0	0	1	0
TURNING MOVEMENTS	0	0	3	0	0	3	0	0	3	2
<b>2022 TOTAL</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>3</b>
<b>YEAR: 2021</b>										
TURNING MOVEMENTS	0	0	0	0	1	1	0	0	0	0
<b>2021 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YEAR: 2020</b>										
ANGLE	0	0	0	0	1	1	0	0	0	0
<b>2020 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YEAR: 2019</b>										
ANGLE	0	0	0	1	0	1	0	0	0	1
REAR-END	0	0	0	0	1	1	0	0	0	0
TURNING MOVEMENTS	0	0	0	1	0	1	0	0	0	2
<b>2019 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>YEAR: 2018</b>										
ANGLE	0	0	0	1	1	2	0	0	0	1
REAR-END	0	0	2	0	0	2	0	0	2	4
SIDESWIPE - OVERTAKING	0	0	0	1	0	1	0	0	0	1
<b>2018 TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>6</b>
<b>FINAL TOTAL</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>12</b>

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
URBAN NON-SYSTEM CRASH LISTING

CITY OF SALEM, MARION COUNTY

UNION ST at FRONT ST PKY, City of Salem, Marion County, 01/01/2018 to 12/31/2022

1 - 3 of 17 Crash records shown.

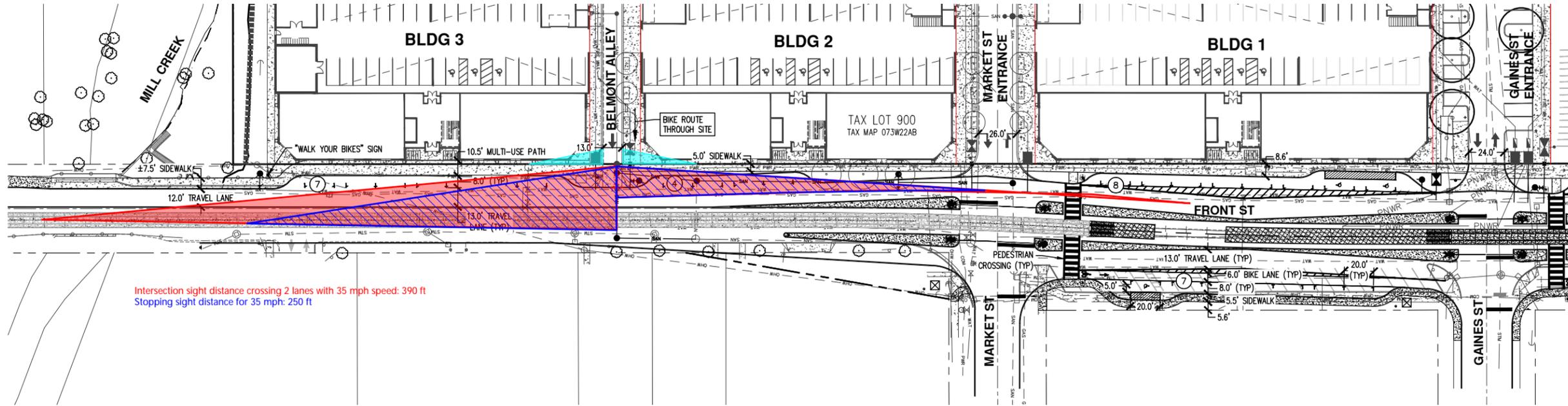
SER#	S	D	M	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	ACT	EVENT	CAUSE															
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE	A	S												
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED								
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
02006	N	N	N	N	N	N	05/30/2019	14	FRONT ST PKY NE	INTER	CROSS	N	N	CLR	BIKE													110	04,18		
CITY							TH		UNION ST NE	NE		TRF SIGNAL	N	DRY	ANGL		-														
N							4P			06	0		N	DAY	INJ		STRGHT	01	BIKE	INJC	42	F		I	XWLK	020	000	110	04,18		
N							44 56 47.06	-123 2	007200100S00								SE	NW													
							22.14										01	NONE	0	STRGHT											
																	PRVTE											000	00		
																	PSNGR	CAR		01	DRVR	NONE	20	F	OR-Y		000	000	00		
01211	N	N	N	N	N	N	04/11/2018	14	FRONT ST PKY NE	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE	0	STRGHT										29		
CITY							WE		UNION ST NE	SW		TRF SIGNAL	N	WET	REAR		PRVTE											000	00		
N							6P			06	0		N	DAY	INJ		PSNGR	CAR		01	DRVR	NONE	29	F	SUSP		026	000	29		
N							44 56 46.89	-123 2	007200200S00																						
							21.45										02	NONE	0	STOP											
																	PRVTE											011	00		
																	PSNGR	CAR		01	DRVR	INJB	22	F	OR-Y		000	000	00		
04300	N	N	N	N	N	N	11/12/2018	14	FRONT ST PKY NE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0	STRGHT										013	29	
CITY							MO		UNION ST NE	SW		TRF SIGNAL	N	DRY	REAR		PRVTE												000	00	
N							2P			06	0		N	DAY	INJ		PSNGR	CAR		01	DRVR	INJC	35	M	OR-Y		026	000	29		
N							44 56 46.89	-123 2	007200200S00																						
							21.45										01	NONE	0	STRGHT											
																	PRVTE												000	00	
																	PSNGR	CAR		02	PSNG	INJB	07	M				000	000	00	
																	02	NONE	0	STOP											
																	PRVTE												011	013	00
																	PSNGR	CAR		01	DRVR	INJC	39	F	OR-Y		000	022	00		
																	03	NONE	0	STOP									011	00	
																	PRVTE												000	00	
																	PSNGR	CAR		01	DRVR	INJC	19	F	OR-Y		000	000	00		
																	03	NONE	0	STOP									011	00	
																	PRVTE												000	00	
																	PSNGR	CAR		02	PSNG	INJC	52	M				000	000	00	
04789	N	N	N	N	N	N	12/13/2018	14	FRONT ST PKY NE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	1	STRGHT										022	10	
CITY							TH		UNION ST NE	SW		TRF SIGNAL	N	DRY	SS-O		PRVTE												000	022	00
N							5P			06	0		N	DLIT	INJ		PSNGR	CAR		01	DRVR	NONE	57	M	OR-Y		017,080	000	10		
N							44 56 46.88	-123 2	007200200S00																						
							21.45																								

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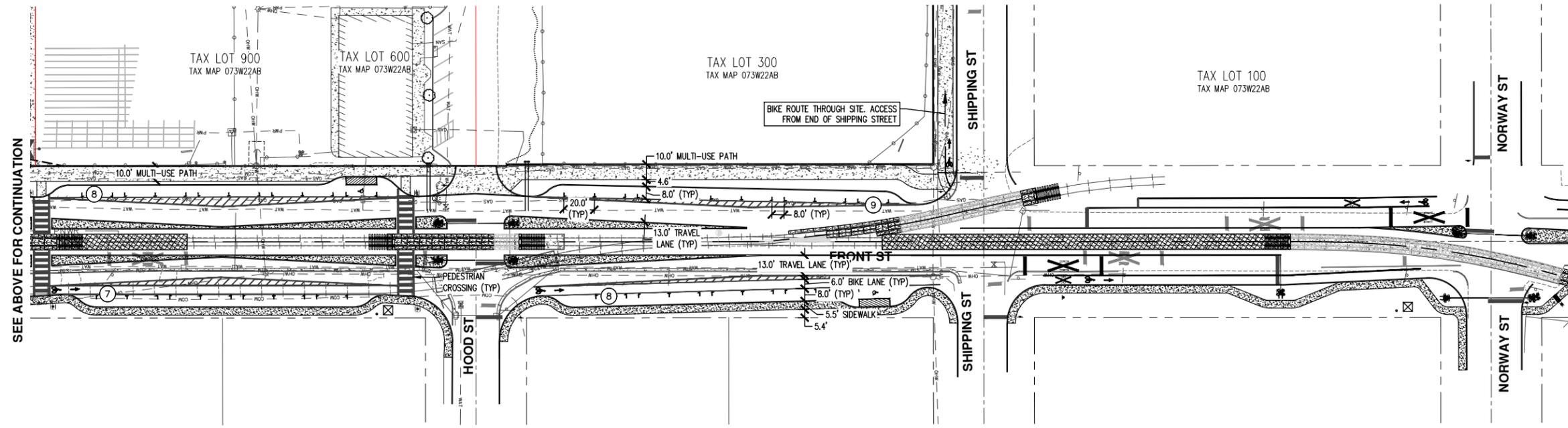






Intersection sight distance crossing 2 lanes with 35 mph speed: 390 ft  
Stopping sight distance for 35 mph: 250 ft

SEE BELOW FOR CONTINUATION



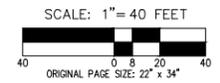
SEE ABOVE FOR CONTINUATION

LEGEND:

# NUMBER OF PARKING STALLS IN ROW

GENERAL NOTE:

PROPOSED FRONT STREET IMPROVEMENTS ARE SUBJECT TO CHANGE BASED ON RAIL AND CITY FEEDBACK. INFORMATION SHOWN IS BASED ON LATEST COORDINATION EFFORTS WITH THE CITY OF SALEM AND RAILROAD ENGINEER.



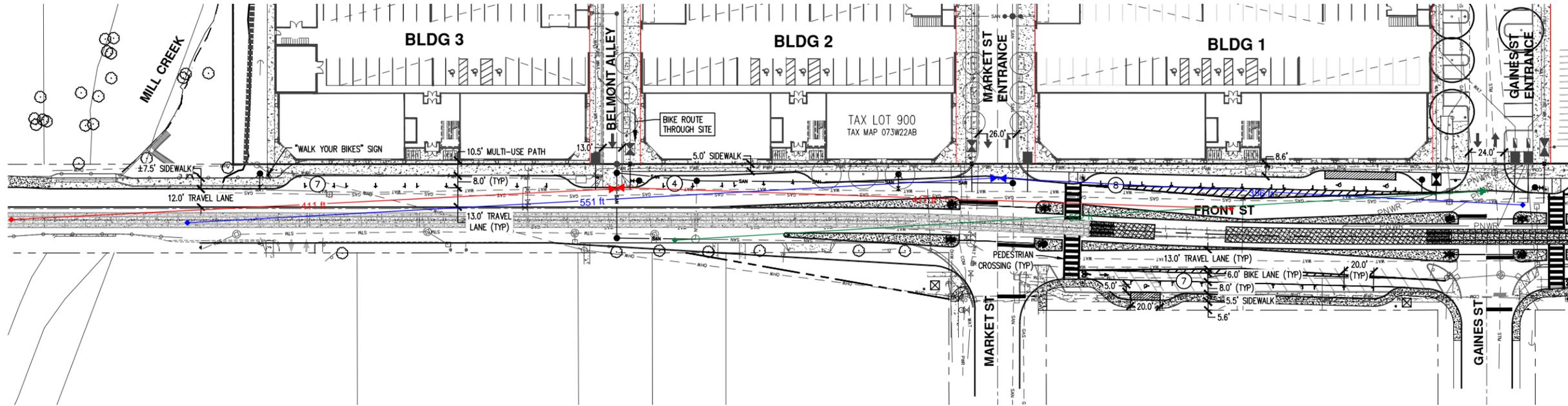
PRELIMINARY FRONT ST IMPROVEMENTS  
THE CANNERY  
FUND  
SALEM, OREGON



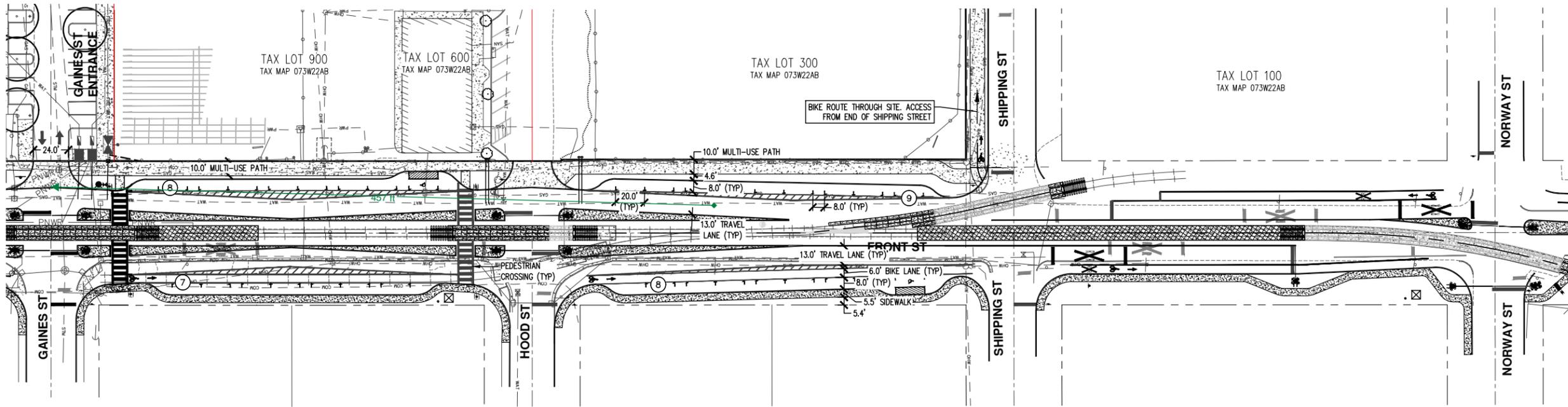
JOB NUMBER:	5968-01
DATE:	05/17/2024
DESIGNED BY:	TDR
DRAWN BY:	MJM
CHECKED BY:	TDR







SEE BELOW FOR CONTINUATION



LEGEND:

Ⓝ NUMBER OF PARKING STALLS IN ROW

GENERAL NOTE:

PROPOSED FRONT STREET IMPROVEMENTS ARE SUBJECT TO CHANGE BASED ON RAIL AND CITY FEEDBACK. INFORMATION SHOWN IS BASED ON LATEST COORDINATION EFFORTS WITH THE CITY OF SALEM AND RAILROAD ENGINEER.



PRELIMINARY FRONT ST IMPROVEMENTS  
 THE CANNERY  
 FUND  
 SALEM, OREGON



JOB NUMBER:	5968-01
DATE:	05/17/2024
DESIGNED BY:	TDR
DRAWN BY:	MJM
CHECKED BY:	TDR



## Preliminary Traffic Signal Warrant Analysis

Project: 24009 - The Cannery  
 Date: 5/31/2024  
 Scenario: 2029 AM Peak Hour

Major Street:	Front Street NE	Minor Street:	Gaines Street NE	
Number of Lanes:	1	Number of Lanes:	1	
Peak Hour Volumes:	835	Peak Hour Volumes:	67	Total Rights
			23	RT Discount
			0%	

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
<b>WARRANT 1, CONDITION A</b>					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
<b>WARRANT 1, CONDITION B</b>					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<b>Warrant 1</b>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	8,350	8,850	
Minor Street*	670	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	8,350	13,300	
Minor Street*	670	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	8,350	10,640	
Minor Street*	670	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 0%.



## Preliminary Traffic Signal Warrant Analysis

Project: 24009 - The Cannery  
 Date: 5/31/2024  
 Scenario: 2029 PM Peak Hour

Major Street:	Front Street NE	Minor Street:	Gaines Street NE	
Number of Lanes:	1	Number of Lanes:	1	Total
Peak Hour Volumes:	1072	Peak Hour Volumes:	49	Rights
			18	RT Discount
			0%	

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
<b>WARRANT 1, CONDITION A</b>					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
<b>WARRANT 1, CONDITION B</b>					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	10,720	8,850	
Minor Street*	490	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	10,720	13,300	
Minor Street*	490	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	10,720	10,640	
Minor Street*	490	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 0%.



## Preliminary Traffic Signal Warrant Analysis

Project: 24009 - The Cannery  
 Date: 5/31/2024  
 Scenario: 2029 AM Peak Hour

Major Street:	Front Street NE	Minor Street:	Market Street NE	
Number of Lanes:	1	Number of Lanes:	1	
Peak Hour Volumes:	841	Peak Hour Volumes:	92	Total Rights
			36	RT Discount
			0%	

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
<b>WARRANT 1, CONDITION A</b>					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
<b>WARRANT 1, CONDITION B</b>					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	8,410	8,850	
Minor Street*	920	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	8,410	13,300	
Minor Street*	920	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	8,410	10,640	
Minor Street*	920	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 0%.



## Preliminary Traffic Signal Warrant Analysis

Project: 24009 - The Cannery  
 Date: 5/31/2024  
 Scenario: 2029 PM Peak Hour

Major Street:	Front Street NE	Minor Street:	Market Street NE	
Number of Lanes:	1	Number of Lanes:	1	
Peak Hour Volumes:	1084	Peak Hour Volumes:	118	Total Rights
			63	RT Discount
			0%	

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
<b>WARRANT 1, CONDITION A</b>					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
<b>WARRANT 1, CONDITION B</b>					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	10,840	8,850	
Minor Street*	1,180	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	10,840	13,300	
Minor Street*	1,180	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	10,840	10,640	
Minor Street*	1,180	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 0%.



## Preliminary Traffic Signal Warrant Analysis

Project: 24009 - The Cannery  
 Date: 5/31/2024  
 Scenario: 2029 AM Peak Hour

Major Street:	Front Street NE	Minor Street:	Belmont Street NE	
Number of Lanes:	1	Number of Lanes:	1	
Peak Hour Volumes:	822	Peak Hour Volumes:	34	Total Rights
			24	RT Discount
			0%	

Warrant Used:  
 X 100 percent of standard warrants used  
 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
<b>WARRANT 1, CONDITION A</b>					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
<b>WARRANT 1, CONDITION B</b>					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	8,220	8,850	
Minor Street*	340	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	8,220	13,300	
Minor Street*	340	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	8,220	10,640	
Minor Street*	340	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 0%.



## Preliminary Traffic Signal Warrant Analysis

Project: 24009 - The Cannery  
 Date: 5/31/2024  
 Scenario: 2029 PM Peak Hour

Major Street:	Front Street NE	Minor Street:	Belmont Street NE	
Number of Lanes:	1	Number of Lanes:	1	
Peak Hour Volumes:	1065	Peak Hour Volumes:	28	Total Rights
			19	RT Discount
			0%	

Warrant Used:  
 X 100 percent of standard warrants used  
 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
<b>WARRANT 1, CONDITION A</b>					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
<b>WARRANT 1, CONDITION B</b>					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	10,650	8,850	
Minor Street*	280	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	10,650	13,300	
Minor Street*	280	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	10,650	10,640	
Minor Street*	280	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 0%.

INTERSECTION INFORMATION					
City:	Salem	Condition:	2029 Buildout		
Population:	100000				
Intersection Location: (Rural/Urban)	Urban				
Major Street Name:	Front	Minor Street Name:	Market		
Number of Moving Lanes for Each Approach:	1	Number of Moving Lanes for Each Approach:	1		
Speed:	35 mph	Speed:	25 mph		
Street Width:	35 ft	Street Width:	25 ft		
Direction:	NB SB	Direction:	EB WB		
Hour Beginning:		Hour Beginning:			
12:00 AM		12:00 AM			
1:00 AM		1:00 AM			
2:00 AM		2:00 AM			
3:00 AM		3:00 AM			
4:00 AM		4:00 AM			
5:00 AM		5:00 AM			
6:00 AM		6:00 AM			
7:00 AM	374	7:00 AM	57	92	
8:00 AM		8:00 AM			
9:00 AM		9:00 AM			
10:00 AM		10:00 AM			
11:00 AM		11:00 AM			
12:00 PM		12:00 PM			
1:00 PM		1:00 PM			
2:00 PM		2:00 PM			
3:00 PM		3:00 PM			
4:00 PM		4:00 PM			
5:00 PM	578	5:00 PM	46	118	
6:00 PM		6:00 PM			
7:00 PM		7:00 PM			
8:00 PM		8:00 PM			
9:00 PM		9:00 PM			
10:00 PM		10:00 PM			
11:00 PM		11:00 PM			
24-hour Total	952	24-hour Total	103	210	

**Warrants Evaluted:**

- Warrant 1, 8-Hour Vehicular Volume - Evaluated for Conditions A & B
- Warrant 2 , 4-Hour Vehicular Volume - Evaluated
- Warrant 3, Peak Hour - Evaluated for Conditions A-2, A-3 (A-1 needs to be evaluated separately), and Condition B
- Warrant 4, Pedestrian Volume - Not Analyzed
- Warrant 5, School Crossing - Not Analyzed
- Warrant 6, Coordinated Signal System - Not Analyzed
- Warrant 7, Accident Experience - Not Analyzed
- Warrant 8, Roadway Network - Not Analyzed
- Warrant 9, Intersection Near a Grade Crossing - Not Analyzed

WARRANT 3, PEAK HOUR VEHICULAR VOLUME									
	MAJOR			EB	MINOR		Calculated Threshold (B)	A-2&3	B
	NB	SB	Total		WB	Max			
5:00 PM	578	506	1,084	46	118	118	174	Y	N
7:00 AM	374	467	841	57	92	92	251	N	N
11:00 PM	0	0	0	0	0	0	885	N	N
10:00 PM	0	0	0	0	0	0	885	N	N

**Warrant Requirements:**  
 Major Street Lanes: 1  
 Minor Street Lanes: 1

**CONDITION A-1 - Stopped Delay**  
 Cannot be evaluated based on volumes alone. Condition met if traffic on one minor-street approach (one direction only) controlled by STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach.

**CONDITION A-2 - Minor Street Volume**  
 Minimum Volume on Higher Minor Street Approach: 100

**CONDITION A-3 - Total Approach Volume**  
 Minimum Volume of Total Approaches: 800

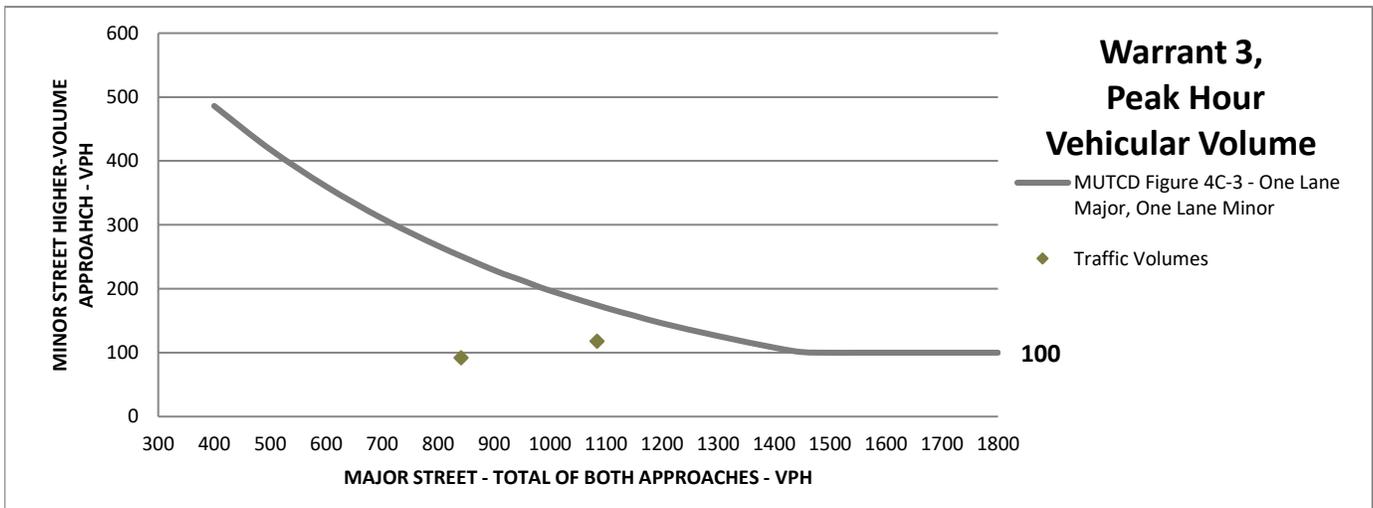
**CONDITION B - Plot of Minor Street Volume (high vol approach) vs. Major Street Volume (Both approaches)**

**ARE CONDITIONS A-2 AND A-3 OF SIGNAL WARRANT 3 MET?** NO  
~~YES~~ *Stopped Delay Needs to be Checked*

Note: All 3 subsections of Condition A must be met to warrant signal. *Total Stopped Delay is 72 seconds x 118 vehicles = 2.36 vehicles hours of delay. Criteria for Stopped delay is not met. Condition A is not met.*

**IS CONDITION B OF SIGNAL WARRANT 3 MET?** NO

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



## Appendix D - Operations

Definitions

Synchro Reports

Queuing Reports





## Level of Service Definitions

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

- *Level of service A:* Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.
- *Level of service B:* Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.
- *Level of service C:* Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.
- *Level of service D:* Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.
- *Level of service E:* Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.
- *Level of service F:* Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.



Level of Service Criteria  
For Signalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

Level of Service Criteria  
For Unsignalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50

HCM 7th TWSC  
1: Front St NE & Pine St NE

05/29/2024

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	1	46	1	11	4	205	35	5	348	2
Future Vol, veh/h	1	3	1	46	1	11	4	205	35	5	348	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	9	0	18	0	1	9	80	1	0
Mvmt Flow	1	4	1	61	1	15	5	273	47	7	464	3

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	763	809	465	787	787	297	467	0	0	320	0	0
Stage 1	479	479	-	307	307	-	-	-	-	-	-	-
Stage 2	285	331	-	479	480	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.38	4.1	-	-	4.9	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.462	2.2	-	-	2.92	-	-
Pot Cap-1 Maneuver	323	316	601	301	326	707	1105	-	-	906	-	-
Stage 1	572	559	-	688	664	-	-	-	-	-	-	-
Stage 2	727	649	-	554	558	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	310	311	601	292	321	707	1105	-	-	906	-	-
Mov Cap-2 Maneuver	310	311	-	292	321	-	-	-	-	-	-	-
Stage 1	566	553	-	684	660	-	-	-	-	-	-	-
Stage 2	706	645	-	544	552	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	15.66		19.26		0.14		0.13	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	29	-	-	344	329	25	-	-
HCM Lane V/C Ratio	0.005	-	-	0.019	0.235	0.007	-	-
HCM Control Delay (s/veh)	8.3	0	-	15.7	19.3	9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.9	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (vph)	0	58	6	83	44	0	0	0	0	27	1549	38
Future Volume (vph)	0	58	6	83	44	0	0	0	0	27	1549	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frbp, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1388		1447	1714						4530	
Flt Permitted		1.00		0.71	1.00						1.00	
Satd. Flow (perm)		1388		1078	1714						4530	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	69	7	99	52	0	0	0	0	32	1844	45
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	72	0	99	52	0	0	0	0	0	1919	0
Confl. Peds. (#/hr)	2		1	1		2	1		4	4		4
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	29%	17%	18%	5%	0%	0%	0%	0%	7%	8%	5%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		11.8		11.8	11.8						68.2	
Effective Green, g (s)		12.8		12.8	12.8						69.2	
Actuated g/C Ratio		0.14		0.14	0.14						0.77	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.5		2.5	2.5						2.5	
Lane Grp Cap (vph)		197		153	243						3483	
v/s Ratio Prot		0.05			0.03							
v/s Ratio Perm				0.09							0.42	
v/c Ratio		0.36		0.65	0.21						0.55	
Uniform Delay, d1		34.9		36.5	34.1						4.2	
Progression Factor		1.00		0.46	0.39						1.00	
Incremental Delay, d2		0.8		7.7	0.3						0.6	
Delay (s)		35.8		24.4	13.6						4.8	
Level of Service		D		C	B						A	
Approach Delay (s/veh)		35.8			20.7			0.0			4.8	
Approach LOS		D			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			7.0			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			56.7%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (veh/h)	0	58	6	83	44	0	0	0	0	27	1549	38
Future Volume (veh/h)	0	58	6	83	44	0	0	0	0	27	1549	38
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		0.98
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	1393	1561	1547	1730	0				1702	1688	1730
Adj Flow Rate, veh/h	0	69	2	99	52	0				32	1844	43
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	29	17	18	5	0				7	8	5
Cap, veh/h	0	221	6	218	284	0				61	3504	82
Arrive On Green	0.00	0.16	0.15	0.16	0.16	0.00				0.74	0.75	0.74
Sat Flow, veh/h	0	1347	39	1159	1730	0				81	4694	109
Grp Volume(v), veh/h	0	0	71	99	52	0				661	603	655
Grp Sat Flow(s),veh/h/ln	0	0	1386	1159	1730	0				1684	1536	1665
Q Serve(g_s), s	0.0	0.0	4.1	7.4	2.3	0.0				14.8	14.7	14.8
Cycle Q Clear(g_c), s	0.0	0.0	4.1	11.5	2.3	0.0				14.8	14.7	14.8
Prop In Lane	0.00		0.03	1.00		0.00				0.05		0.07
Lane Grp Cap(c), veh/h	0	0	228	218	284	0				1257	1147	1243
V/C Ratio(X)	0.00	0.00	0.31	0.45	0.18	0.00				0.53	0.53	0.53
Avail Cap(c_a), veh/h	0	0	308	285	384	0				1257	1147	1243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.73	0.73	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	33.1	38.2	32.4	0.0				4.8	4.8	4.8
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.8	0.2	0.0				1.6	1.7	1.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.4	2.1	1.0	0.0				4.3	4.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	33.7	39.0	32.6	0.0				6.3	6.5	6.4
LnGrp LOS			C	D	C					A	A	A
Approach Vol, veh/h		71			151						1919	
Approach Delay, s/veh		33.7			36.8						6.4	
Approach LOS		C			D						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		71.2		18.8				18.8				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		61.0		19.0				19.0				
Max Q Clear Time (g_c+I1), s		16.8		13.5				6.1				
Green Ext Time (p_c), s		26.1		0.3				0.1				

### Intersection Summary

HCM 7th Control Delay, s/veh	9.4
HCM 7th LOS	A

### Notes

User approved pedestrian interval to be less than phase max green.

# HCM Signalized Intersection Capacity Analysis

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑			↘			↙↘				
Traffic Volume (vph)	17	43	0	0	127	30	4	1155	89	0	0	0
Future Volume (vph)	17	43	0	0	127	30	4	1155	89	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frbp, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.99				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1525	1579			1478			4572				
Flt Permitted	0.50	1.00			1.00			1.00				
Satd. Flow (perm)	797	1579			1478			4572				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	18	46	0	0	135	32	4	1229	95	0	0	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	6	0	0	0	0
Lane Group Flow (vph)	18	46	0	0	155	0	0	1322	0	0	0	0
Confl. Peds. (#/hr)	1						1		2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	12%	14%	0%	0%	21%	7%	0%	6%	8%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)	14.3	14.3			14.3			65.7				
Effective Green, g (s)	15.3	15.3			15.3			66.7				
Actuated g/C Ratio	0.17	0.17			0.17			0.74				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.5	2.5			2.5			2.5				
Lane Grp Cap (vph)	135	268			251			3388				
v/s Ratio Prot		0.03			0.11							
v/s Ratio Perm	0.02							0.29				
v/c Ratio	0.13	0.17			0.62			0.39				
Uniform Delay, d1	31.7	31.9			34.6			4.2				
Progression Factor	1.65	1.63			1.00			1.00				
Incremental Delay, d2	0.3	0.2			3.9			0.3				
Delay (s)	52.8	52.3			38.5			4.6				
Level of Service	D	D			D			A				
Approach Delay (s/veh)		52.4			38.5			4.6			0.0	
Approach LOS		D			D			A			A	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

# HCM 7th Signalized Intersection Summary

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	43	0	0	127	30	4	1155	89	0	0	0
Future Volume (veh/h)	17	43	0	0	127	30	4	1155	89	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		0.98			
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	1632	1603	0	0	1505	1702	1800	1716	1688			
Adj Flow Rate, veh/h	18	46	0	0	135	22	4	1229	85			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	12	14	0	0	21	7	0	6	8			
Cap, veh/h	138	245	0	0	193	31	11	3483	241			
Arrive On Green	0.15	0.15	0.00	0.00	0.15	0.14	0.75	0.76	0.75			
Sat Flow, veh/h	1131	1603	0	0	1262	206	15	4594	318			
Grp Volume(v), veh/h	18	46	0	0	0	157	459	418	442			
Grp Sat Flow(s),veh/h/ln	1131	1603	0	0	0	1468	1715	1561	1650			
Q Serve(g_s), s	1.4	2.3	0.0	0.0	0.0	9.1	8.0	7.9	8.0			
Cycle Q Clear(g_c), s	10.5	2.3	0.0	0.0	0.0	9.1	8.0	7.9	8.0			
Prop In Lane	1.00		0.00	0.00		0.14	0.01		0.19			
Lane Grp Cap(c), veh/h	138	245	0	0	0	225	1300	1184	1251			
V/C Ratio(X)	0.13	0.19	0.00	0.00	0.00	0.70	0.35	0.35	0.35			
Avail Cap(c_a), veh/h	317	499	0	0	0	457	1300	1184	1251			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.1	33.2	0.0	0.0	0.0	36.2	3.6	3.6	3.6			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.0	2.9	0.8	0.8	0.8			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.4	0.9	0.0	0.0	0.0	3.4	2.1	1.9	2.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.4	33.5	0.0	0.0	0.0	39.1	4.3	4.4	4.4			
LnGrp LOS	D	C				D	A	A	A			
Approach Vol, veh/h		64			157			1318				
Approach Delay, s/veh		35.7			39.1			4.4				
Approach LOS		D			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				17.8		72.2		17.8				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				27.0		53.0		27.0				
Max Q Clear Time (g_c+I1), s				11.1		10.0		12.5				
Green Ext Time (p_c), s				0.5		13.6		0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			9.2									
HCM 7th LOS			A									

HCM 7th TWSC  
4: Front St NE & Shipping St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	3	0	0	1	7	343	5	1	410	3
Future Vol, veh/h	0	0	3	0	0	1	7	343	5	1	410	3
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	33	0	0	0	14	5	0	0	3	33
Mvmt Flow	0	0	4	0	0	1	9	418	6	1	500	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	944	950	506	941	949	421	508	0	0	424	0	0
Stage 1	508	508	-	438	438	-	-	-	-	-	-	-
Stage 2	435	441	-	502	510	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.1	6.5	6.2	4.24	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.5	4	3.3	2.326	-	-	2.2	-	-
Pot Cap-1 Maneuver	244	262	509	245	263	637	998	-	-	1146	-	-
Stage 1	551	542	-	601	582	-	-	-	-	-	-	-
Stage 2	603	580	-	555	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	240	258	507	241	258	637	995	-	-	1146	-	-
Mov Cap-2 Maneuver	240	258	-	241	258	-	-	-	-	-	-	-
Stage 1	548	539	-	594	575	-	-	-	-	-	-	-
Stage 2	595	574	-	550	538	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v12.15			10.67		0.17		0.02	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	35	-	-	507	637	4	-	-
HCM Lane V/C Ratio	0.009	-	-	0.007	0.002	0.001	-	-
HCM Control Delay (s/veh)	8.7	0	-	12.1	10.7	8.1	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

HCM 7th TWSC  
5: Front St NE & Hood St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	8	1	6	0	348	6	1	409	0
Future Vol, veh/h	0	0	1	8	1	6	0	348	6	1	409	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	13	0	67	0	4	17	0	3	0
Mvmt Flow	0	0	1	10	1	7	0	414	7	1	487	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	907	914	490	907	910	418	490	0	0	421	0	0
Stage 1	492	492	-	418	418	-	-	-	-	-	-	-
Stage 2	415	421	-	489	492	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.23	6.5	6.87	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.23	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.23	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.617	4	3.903	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	259	275	582	245	277	517	1084	-	-	1149	-	-
Stage 1	562	551	-	591	594	-	-	-	-	-	-	-
Stage 2	619	592	-	540	551	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	253	274	581	244	275	517	1081	-	-	1149	-	-
Mov Cap-2 Maneuver	253	274	-	244	275	-	-	-	-	-	-	-
Stage 1	560	548	-	591	594	-	-	-	-	-	-	-
Stage 2	609	592	-	538	548	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	11.21		17.21		0		0.02	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1081	-	-	581	313	4	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.057	0.001	-	-
HCM Control Delay (s/veh)	0	-	-	11.2	17.2	8.1	0	-
HCM Lane LOS	A	-	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

HCM 7th TWSC  
6: Front St NE & North Access/Gaines St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	2	0	10	4	343	3	1	418	1
Future Vol, veh/h	0	0	0	2	0	10	4	343	3	1	418	1
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	60	0	3	33	100	3	0
Mvmt Flow	0	0	0	2	0	12	5	404	4	1	492	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	911	914	495	909	913	405	496	0	0	407	0	0
Stage 1	498	498	-	415	415	-	-	-	-	-	-	-
Stage 2	413	416	-	494	498	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.8	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.84	2.2	-	-	3.1	-	-
Pot Cap-1 Maneuver	257	275	578	258	276	537	1078	-	-	773	-	-
Stage 1	558	548	-	619	596	-	-	-	-	-	-	-
Stage 2	620	595	-	561	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	249	272	577	256	273	537	1075	-	-	773	-	-
Mov Cap-2 Maneuver	249	272	-	256	273	-	-	-	-	-	-	-
Stage 1	555	545	-	615	593	-	-	-	-	-	-	-
Stage 2	603	592	-	560	545	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	13.18	0.1	0.02
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	21	-	-	-	454	4	-	-
HCM Lane V/C Ratio	0.004	-	-	-	0.031	0.002	-	-
HCM Control Delay (s/veh)	8.4	0	-	0	13.2	9.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

HCM 7th TWSC  
7: Front St NE & Center Access/Market St NE

05/29/2024

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	17	0	34	0	307	13	26	403	0
Future Vol, veh/h	0	0	0	17	0	34	0	307	13	26	403	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	6	0	6	0	3	0	23	1	0
Mvmt Flow	0	0	0	20	0	40	0	361	15	31	474	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	899	915	477	904	907	369	477	0	0	376	0	0
Stage 1	538	538	-	369	369	-	-	-	-	-	-	-
Stage 2	361	376	-	535	538	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.16	6.5	6.26	4.1	-	-	4.33	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.554	4	3.354	2.2	-	-	2.407	-	-
Pot Cap-1 Maneuver	262	275	592	254	278	668	1096	-	-	1076	-	-
Stage 1	531	525	-	643	624	-	-	-	-	-	-	-
Stage 2	661	620	-	522	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	236	263	590	244	266	668	1093	-	-	1076	-	-
Mov Cap-2 Maneuver	236	263	-	244	266	-	-	-	-	-	-	-
Stage 1	509	504	-	643	624	-	-	-	-	-	-	-
Stage 2	622	620	-	502	504	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	14.92	0	0.51
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1093	-	-	-	423	109	-	-
HCM Lane V/C Ratio	-	-	-	-	0.142	0.028	-	-
HCM Control Delay (s/veh)	0	-	-	0	14.9	8.4	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	↔
Traffic Volume (vph)	0	20	20	47	48	0	0	0	0	33	1503	5
Future Volume (vph)	0	20	20	47	48	0	0	0	0	33	1503	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frb, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1399			1620						3217	
Flt Permitted		1.00			0.82						1.00	
Satd. Flow (perm)		1399			1360						3217	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	23	23	54	55	0	0	0	0	38	1728	6
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	26	0	0	109	0	0	0	0	0	1772	0
Confl. Peds. (#/hr)	2					2	1		2	2		2
Heavy Vehicles (%)	0%	15%	25%	13%	4%	0%	0%	0%	0%	9%	6%	20%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		9.9			9.9						70.1	
Effective Green, g (s)		10.9			10.9						71.1	
Actuated g/C Ratio		0.12			0.12						0.79	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.5			2.5						2.5	
Lane Grp Cap (vph)		169			164						2541	
v/s Ratio Prot		0.02										
v/s Ratio Perm					0.08						0.55	
v/c Ratio		0.15			0.66						0.70	
Uniform Delay, d1		35.4			37.8						4.4	
Progression Factor		1.00			0.50						1.00	
Incremental Delay, d2		0.3			8.4						1.6	
Delay (s)		35.7			27.2						6.0	
Level of Service		D			C						A	
Approach Delay (s/veh)		35.7			27.2			0.0			6.0	
Approach LOS		D			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			7.9								A	
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0							8.0		
Intersection Capacity Utilization			67.3%								C	
Analysis Period (min)			15									

c Critical Lane Group

HCM 7th Signalized Intersection Summary  
 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (veh/h)	0	20	20	47	48	0	0	0	0	33	1503	5
Future Volume (veh/h)	0	20	20	47	48	0	0	0	0	33	1503	5
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	1589	1449	1617	1744	0				1674	1716	1519
Adj Flow Rate, veh/h	0	23	23	54	55	0				38	1728	6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %	0	15	25	13	4	0				9	6	20
Cap, veh/h	0	84	84	122	92	0				58	2660	9
Arrive On Green	0.00	0.12	0.10	0.10	0.12	0.00				0.78	0.80	0.78
Sat Flow, veh/h	0	729	729	542	796	0				73	3341	12
Grp Volume(v), veh/h	0	0	46	109	0	0				886	0	886
Grp Sat Flow(s),veh/h/ln	0	0	1458	1338	0	0				1712	0	1714
Q Serve(g_s), s	0.0	0.0	2.6	4.8	0.0	0.0				19.7	0.0	19.7
Cycle Q Clear(g_c), s	0.0	0.0	2.6	7.4	0.0	0.0				19.7	0.0	19.7
Prop In Lane	0.00		0.50	0.50		0.00				0.04		0.01
Lane Grp Cap(c), veh/h	0	0	168	199	0	0				1363	0	1364
V/C Ratio(X)	0.00	0.00	0.27	0.55	0.00	0.00				0.65	0.00	0.65
Avail Cap(c_a), veh/h	0	0	243	277	0	0				1363	0	1364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.81	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	36.6	39.0	0.0	0.0				3.9	0.0	3.9
Incr Delay (d2), s/veh	0.0	0.0	0.6	1.4	0.0	0.0				2.4	0.0	2.4
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	0.0	1.0	2.4	0.0	0.0				5.0	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	37.3	40.4	0.0	0.0				6.3	0.0	6.3
LnGrp LOS			D	D						A		A
Approach Vol, veh/h		46			109						1772	
Approach Delay, s/veh		37.3			40.4						6.3	
Approach LOS		D			D						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		75.6		14.4				14.4				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		66.0		14.0				14.0				
Max Q Clear Time (g_c+I1), s		21.7		9.4				4.6				
Green Ext Time (p_c), s		26.7		0.1				0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			9.0									
HCM 7th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	1	42	0	0	92	42	11	1244	38	0	0	0
Future Volume (vph)	1	42	0	0	92	42	11	1244	38	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			1.00				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1728			1666			3232				
Flt Permitted		0.99			1.00			1.00				
Satd. Flow (perm)		1720			1666			3232				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	47	0	0	102	47	12	1382	42	0	0	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	48	0	0	128	0	0	1434	0	0	0	0
Confl. Peds. (#/hr)			1	1			1					
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	100%	2%	0%	0%	5%	0%	36%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		12.2			12.2			67.8				
Effective Green, g (s)		13.2			13.2			68.8				
Actuated g/C Ratio		0.15			0.15			0.76				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.5			2.5			2.5				
Lane Grp Cap (vph)		252			244			2470				
v/s Ratio Prot					0.08							
v/s Ratio Perm		0.03						0.44				
v/c Ratio		0.19			0.52			0.58				
Uniform Delay, d1		33.7			35.5			4.5				
Progression Factor		1.09			1.00			1.00				
Incremental Delay, d2		0.2			1.5			1.0				
Delay (s)		37.1			37.0			5.5				
Level of Service		D			D			A				
Approach Delay (s/veh)		37.1			37.0			5.5			0.0	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			9.3				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			52.4%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (veh/h)	1	42	0	0	92	42	11	1244	38	0	0	0
Future Volume (veh/h)	1	42	0	0	92	42	11	1244	38	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		0.98			
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	396	1772	0	0	1730	1800	1295	1730	1730			
Adj Flow Rate, veh/h	1	47	0	0	102	47	12	1382	42			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	100	2	0	0	5	0	36	5	5			
Cap, veh/h	42	209	0	0	140	64	23	2601	79			
Arrive On Green	0.11	0.12	0.00	0.00	0.12	0.11	0.78	0.79	0.78			
Sat Flow, veh/h	8	1675	0	0	1121	516	29	3308	100			
Grp Volume(v), veh/h	48	0	0	0	0	149	721	0	715			
Grp Sat Flow(s),veh/h/ln	1683	0	0	0	0	1637	1728	0	1709			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	7.9	13.8	0.0	13.9			
Cycle Q Clear(g_c), s	7.9	0.0	0.0	0.0	0.0	7.9	13.8	0.0	13.9			
Prop In Lane	0.02		0.00	0.00		0.32	0.02		0.06			
Lane Grp Cap(c), veh/h	232	0	0	0	0	204	1359	0	1344			
V/C Ratio(X)	0.21	0.00	0.00	0.00	0.00	0.73	0.53	0.00	0.53			
Avail Cap(c_a), veh/h	462	0	0	0	0	418	1359	0	1344			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.99	0.00	0.00	0.00	0.00	0.76	1.00	0.00	1.00			
Uniform Delay (d), s/veh	35.4	0.0	0.0	0.0	0.0	38.1	3.5	0.0	3.5			
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	2.8	1.5	0.0	1.5			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	3.3	3.6	0.0	3.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.8	0.0	0.0	0.0	0.0	40.9	5.0	0.0	5.1			
LnGrp LOS	D					D	A		A			
Approach Vol, veh/h		48			149			1436				
Approach Delay, s/veh		35.8			40.9			5.0				
Approach LOS		D			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.2		74.8		15.2				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				22.0		58.0		22.0				
Max Q Clear Time (g_c+I1), s				9.9		15.9		9.9				
Green Ext Time (p_c), s				0.4		18.5		0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh				9.2								
HCM 7th LOS				A								

# HCM Signalized Intersection Capacity Analysis

## 10: Broadway St & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	
Traffic Volume (vph)	10	71	14	100	122	66	6	394	93	103	610	11
Future Volume (vph)	10	71	14	100	122	66	6	394	93	103	610	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1698	1654		1669	1625		1462	1748	1421	1582	1724	
Flt Permitted	0.55	1.00		0.50	1.00		0.27	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	983	1654		880	1625		409	1748	1421	610	1724	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	12	83	16	116	142	77	7	458	108	120	709	13
RTOR Reduction (vph)	0	6	0	0	16	0	0	0	32	0	0	0
Lane Group Flow (vph)	12	93	0	116	203	0	7	458	76	120	722	0
Confl. Peds. (#/hr)	8		5	5		8	7		3	3		3
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	4%	14%	2%	2%	6%	17%	3%	5%	8%	4%	9%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	8			4			6		6	2		
Actuated Green, G (s)	19.7	16.5		31.9	23.7		66.3	64.7	75.1	78.1	71.5	
Effective Green, g (s)	21.7	17.5		32.9	24.7		68.3	65.7	77.1	79.1	72.5	
Actuated g/C Ratio	0.18	0.15		0.27	0.21		0.57	0.55	0.64	0.66	0.60	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	202	241		316	334		255	957	960	478	1041	
v/s Ratio Prot	0.00	0.06		c0.03	c0.12		0.00	0.26	0.01	c0.02	c0.42	
v/s Ratio Perm	0.01			0.07			0.01		0.05	0.15		
v/c Ratio	0.06	0.39		0.37	0.61		0.03	0.48	0.08	0.25	0.69	
Uniform Delay, d1	40.6	46.4		34.1	43.3		13.1	16.6	8.1	9.2	16.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.7		0.5	2.6		0.0	1.7	0.0	0.2	3.8	
Delay (s)	40.7	47.1		34.7	45.9		13.1	18.4	8.1	9.4	20.0	
Level of Service	D	D		C	D		B	B	A	A	B	
Approach Delay (s/veh)		46.4			42.0			16.4			18.5	
Approach LOS		D			D			B			B	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

# HCM 7th Signalized Intersection Summary

## 10: Broadway St & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	71	14	100	122	66	6	394	93	103	610	11
Future Volume (veh/h)	10	71	14	100	122	66	6	394	93	103	610	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1744	1603	1772	1772	1716	1561	1758	1730	1688	1744	1674
Adj Flow Rate, veh/h	12	83	10	116	142	58	7	458	63	120	709	13
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	4	14	2	2	6	17	3	5	8	4	9
Cap, veh/h	156	165	20	260	180	74	363	1071	998	574	1127	21
Arrive On Green	0.03	0.11	0.10	0.08	0.15	0.15	0.02	0.61	0.61	0.07	0.66	0.65
Sat Flow, veh/h	1714	1519	183	1688	1176	480	1487	1758	1458	1607	1706	31
Grp Volume(v), veh/h	12	0	93	116	0	200	7	458	63	120	0	722
Grp Sat Flow(s),veh/h/ln	1714	0	1702	1688	0	1656	1487	1758	1458	1607	0	1737
Q Serve(g_s), s	0.7	0.0	6.2	7.1	0.0	14.0	0.2	16.5	1.7	2.9	0.0	29.0
Cycle Q Clear(g_c), s	0.7	0.0	6.2	7.1	0.0	14.0	0.2	16.5	1.7	2.9	0.0	29.0
Prop In Lane	1.00		0.11	1.00		0.29	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	156	0	185	260	0	254	363	1071	998	574	0	1148
V/C Ratio(X)	0.08	0.00	0.50	0.45	0.00	0.79	0.02	0.43	0.06	0.21	0.00	0.63
Avail Cap(c_a), veh/h	232	0	312	260	0	304	442	1071	998	576	0	1148
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.99	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.1	0.0	50.5	41.5	0.0	49.0	10.4	12.4	6.3	7.5	0.0	11.8
Incr Delay (d2), s/veh	0.2	0.0	1.5	0.9	0.0	10.1	0.0	1.3	0.1	0.1	0.0	2.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.7	3.0	0.0	6.5	0.1	6.7	0.5	0.9	0.0	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.2	0.0	52.0	42.4	0.0	59.1	10.4	13.6	6.4	7.7	0.0	14.4
LnGrp LOS	D		D	D		E	B	B	A	A		B
Approach Vol, veh/h		105			316			528			842	
Approach Delay, s/veh		51.2			53.0			12.7			13.5	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	83.3	7.6	22.4	12.9	77.1	13.0	17.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	63.0	8.0	21.0	8.0	63.0	8.0	21.0				
Max Q Clear Time (g_c+I1), s	2.2	31.0	2.7	16.0	4.9	18.5	9.1	8.2				
Green Ext Time (p_c), s	0.0	7.5	0.0	0.3	0.1	4.2	0.0	0.2				

### Intersection Summary

HCM 7th Control Delay, s/veh	22.4
HCM 7th LOS	C

### Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	320	420	0
Future Vol, veh/h	0	0	0	320	420	0
Conflicting Peds, #/hr	0	0	3	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	3	1	0
Mvmt Flow	0	0	0	376	494	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	874	497	497	0	-	0
Stage 1	497	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	323	577	1077	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	321	575	1074	-	-	-
Mov Cap-2 Maneuver	321	-	-	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	696	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1074	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗↗	↗	↗		↗
Traffic Vol, veh/h	353	1135	207	4	0	389
Future Vol, veh/h	353	1135	207	4	0	389
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	6	6	0	0	1
Mvmt Flow	397	1275	233	4	0	437

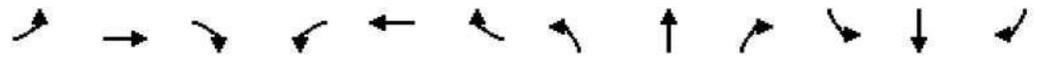
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	245	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.219	-	-
Pot Cap-1 Maneuver	1320	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1310	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.12	0	14.93
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1310	-	-	-	794
HCM Lane V/C Ratio	0.303	-	-	-	0.55
HCM Control Delay (s/veh)	8.9	-	-	-	14.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	1.3	-	-	-	3.4

HCM Signalized Intersection Capacity Analysis  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↗
Traffic Volume (vph)	2	2	3	4	2	17	7	1469	7	44	549	3
Future Volume (vph)	2	2	3	4	2	17	7	1469	7	44	549	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.94			0.90		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1447			1523		1710	3255		1629	1765	1497
Flt Permitted		0.91			0.95		0.40	1.00		0.09	1.00	1.00
Satd. Flow (perm)		1329			1451		728	3255		156	1765	1497
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2	2	3	4	2	19	8	1651	8	49	617	3
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	7	0	0	8	0	8	1659	0	49	617	2
Confl. Peds. (#/hr)	4		3	3		4	1		2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	50%	0%	0%	0%	50%	0%	0%	5%	0%	5%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		5.2			5.2		50.3	49.8		56.7	53.0	53.0
Effective Green, g (s)		6.2			6.2		52.3	50.8		58.7	54.0	54.0
Actuated g/C Ratio		0.08			0.08		0.71	0.69		0.80	0.73	0.73
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)		111			122		536	2243		218	1293	1096
v/s Ratio Prot							0.00	c0.51		c0.01	0.35	
v/s Ratio Perm		c0.01			0.01		0.01			0.17		0.00
v/c Ratio		0.06			0.06		0.01	0.74		0.22	0.48	0.00
Uniform Delay, d1		31.1			31.1		3.2	7.3		5.2	4.0	2.6
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			0.2		0.0	1.2		0.4	0.2	0.0
Delay (s)		31.3			31.2		3.2	8.5		5.6	4.3	2.6
Level of Service		C			C		A	A		A	A	A
Approach Delay (s/veh)		31.3			31.2			8.5			4.3	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay (s/veh)	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	73.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 7th Signalized Intersection Summary  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↖
Traffic Volume (veh/h)	2	2	3	4	2	17	7	1469	7	44	549	3
Future Volume (veh/h)	2	2	3	4	2	17	7	1469	7	44	549	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.97		0.98	0.95		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1098	1800	1800	1800	1098	1800	1800	1730	1800	1730	1772	1800
Adj Flow Rate, veh/h	2	2	3	4	2	1	8	1651	8	49	617	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	50	0	0	0	50	0	0	5	0	5	2	0
Cap, veh/h	100	23	35	121	13	7	635	2334	11	325	1284	1105
Arrive On Green	0.03	0.05	0.03	0.03	0.05	0.03	0.02	0.70	0.68	0.05	0.72	0.00
Sat Flow, veh/h	453	453	679	524	262	131	1714	3354	16	1647	1772	1525
Grp Volume(v), veh/h	7	0	0	7	0	0	8	809	850	49	617	0
Grp Sat Flow(s),veh/h/ln	1584	0	0	917	0	0	1714	1643	1726	1647	1772	1525
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	0.1	17.8	17.8	0.5	8.9	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	0.4	0.0	0.0	0.1	17.8	17.8	0.5	8.9	0.0
Prop In Lane	0.29		0.43	0.57		0.14	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	132	0	0	126	0	0	635	1144	1201	325	1284	1105
V/C Ratio(X)	0.05	0.00	0.00	0.06	0.00	0.00	0.01	0.71	0.71	0.15	0.48	0.00
Avail Cap(c_a), veh/h	283	0	0	214	0	0	734	1636	1719	483	1882	1620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.6	0.0	0.0	27.7	0.0	0.0	2.8	5.5	5.5	5.1	3.5	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.6	0.6	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.1	0.0	0.0	0.0	3.4	3.5	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.7	0.0	0.0	27.8	0.0	0.0	2.8	6.1	6.1	5.3	3.7	0.0
LnGrp LOS	C			C			A	A	A	A	A	
Approach Vol, veh/h		7			7			1667			666	
Approach Delay, s/veh		27.7			27.8			6.1			3.8	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	47.7		7.1	7.2	45.9		7.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	63.0		8.0	8.0	59.0		8.0				
Max Q Clear Time (g_c+I1), s	2.1	10.9		2.4	2.5	19.8		2.2				
Green Ext Time (p_c), s	0.0	6.3		0.0	0.0	21.1		0.0				

Intersection Summary

HCM 7th Control Delay, s/veh	5.6
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 7th TWSC  
1: Front St NE & Pine St NE

05/29/2024

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	6	1	70	5	13	3	366	73	12	323	0
Future Vol, veh/h	0	6	1	70	5	13	3	366	73	12	323	0
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	1	3	8	1	0
Mvmt Flow	0	7	1	77	5	14	3	402	80	13	355	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	794	872	356	835	832	443	356	0	0	483	0	0
Stage 1	382	382	-	450	450	-	-	-	-	-	-	-
Stage 2	412	490	-	385	382	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.272	-	-
Pot Cap-1 Maneuver	308	291	693	290	307	619	1214	-	-	1049	-	-
Stage 1	644	616	-	592	575	-	-	-	-	-	-	-
Stage 2	621	552	-	642	616	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	290	285	692	277	300	618	1213	-	-	1048	-	-
Mov Cap-2 Maneuver	290	285	-	277	300	-	-	-	-	-	-	-
Stage 1	634	606	-	590	572	-	-	-	-	-	-	-
Stage 2	599	549	-	625	606	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	16.87		22.36		0.05		0.3	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	12	-	-	311	303	64	-	-
HCM Lane V/C Ratio	0.003	-	-	0.025	0.319	0.013	-	-
HCM Control Delay (s/veh)	8	0	-	16.9	22.4	8.5	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.3	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (vph)	0	92	9	135	60	0	0	0	0	33	1546	50
Future Volume (vph)	0	92	9	135	60	0	0	0	0	33	1546	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frbp, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1730		1673	1800						4792	
Flt Permitted		1.00		0.66	1.00						1.00	
Satd. Flow (perm)		1730		1168	1800						4792	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	97	9	142	63	0	0	0	0	35	1627	53
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	102	0	142	63	0	0	0	0	0	1713	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	0%	3%	0%	2%	0%	0%	0%	0%	0%	0%	2%	0%
Turn Type		NA		Perm	NA						Perm	NA
Protected Phases		8			4							2
Permitted Phases				4						2		
Actuated Green, G (s)		15.4		15.4	15.4						64.6	
Effective Green, g (s)		16.4		16.4	16.4						65.6	
Actuated g/C Ratio		0.18		0.18	0.18						0.73	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.5		2.5	2.5						2.5	
Lane Grp Cap (vph)		315		212	328						3492	
v/s Ratio Prot		0.06			0.04							
v/s Ratio Perm				0.12							0.36	
v/c Ratio		0.32		0.67	0.19						0.49	
Uniform Delay, d1		32.0		34.3	31.2						5.1	
Progression Factor		1.00		0.31	0.23						1.00	
Incremental Delay, d2		0.4		6.5	0.2						0.5	
Delay (s)		32.4		17.2	7.3						5.6	
Level of Service		C		B	A						A	
Approach Delay (s/veh)		32.4			14.1			0.0			5.6	
Approach LOS		C			B			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			7.9								A	
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			90.0							8.0		
Intersection Capacity Utilization			58.6%								B	
ICU Level of Service												
Analysis Period (min)			15									

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (veh/h)	0	92	9	135	60	0	0	0	0	33	1546	50
Future Volume (veh/h)	0	92	9	135	60	0	0	0	0	33	1546	50
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	1758	1800	1772	1800	0				1800	1772	1800
Adj Flow Rate, veh/h	0	97	6	142	63	0				35	1627	50
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	3	0	2	0	0				0	2	0
Cap, veh/h	0	319	20	266	351	0				75	3487	107
Arrive On Green	0.00	0.19	0.18	0.33	0.33	0.00				0.71	0.72	0.71
Sat Flow, veh/h	0	1638	101	1288	1800	0				105	4870	150
Grp Volume(v), veh/h	0	0	103	142	63	0				590	539	583
Grp Sat Flow(s),veh/h/ln	0	0	1739	1288	1800	0				1767	1612	1745
Q Serve(g_s), s	0.0	0.0	4.6	9.2	2.3	0.0				12.8	12.8	12.9
Cycle Q Clear(g_c), s	0.0	0.0	4.6	13.8	2.3	0.0				12.8	12.8	12.9
Prop In Lane	0.00		0.06	1.00		0.00				0.06		0.09
Lane Grp Cap(c), veh/h	0	0	339	266	351	0				1265	1155	1250
V/C Ratio(X)	0.00	0.00	0.30	0.53	0.18	0.00				0.47	0.47	0.47
Avail Cap(c_a), veh/h	0	0	541	416	560	0				1265	1155	1250
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	0.00	1.00	0.69	0.69	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	31.0	31.2	25.2	0.0				5.5	5.4	5.5
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.9	0.1	0.0				1.2	1.4	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.9	2.5	0.9	0.0				4.2	3.8	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	31.4	32.1	25.3	0.0				6.7	6.8	6.7
LnGrp LOS			C	C	C					A	A	A
Approach Vol, veh/h		103			205						1712	
Approach Delay, s/veh		31.4			30.0						6.7	
Approach LOS		C			C						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		68.5		21.5				21.5				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		53.0		27.0				27.0				
Max Q Clear Time (g_c+I1), s		14.9		15.8				6.6				
Green Ext Time (p_c), s		20.3		0.6				0.3				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			10.4									
HCM 7th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	94	0	0	183	30	13	1335	100	0	0	0
Future Volume (vph)	39	94	0	0	183	30	13	1335	100	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.98			0.99				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1583	1800			1719			4752				
Flt Permitted	0.39	1.00			1.00			1.00				
Satd. Flow (perm)	642	1800			1719			4752				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	41	100	0	0	195	32	14	1420	106	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	6	0	0	0	0
Lane Group Flow (vph)	41	100	0	0	219	0	0	1534	0	0	0	0
Confl. Peds. (#/hr)			1	1					2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	8%	0%	0%	0%	2%	7%	0%	2%	4%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)	16.3	16.3			16.3			63.7				
Effective Green, g (s)	17.3	17.3			17.3			64.7				
Actuated g/C Ratio	0.19	0.19			0.19			0.72				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.5	2.5			2.5			2.5				
Lane Grp Cap (vph)	123	346			330			3416				
v/s Ratio Prot		0.06			0.13							
v/s Ratio Perm	0.06							0.32				
v/c Ratio	0.33	0.29			0.66			0.45				
Uniform Delay, d1	31.4	31.1			33.7			5.3				
Progression Factor	0.54	0.55			1.00			1.00				
Incremental Delay, d2	1.1	0.3			4.5			0.4				
Delay (s)	18.1	17.3			38.1			5.7				
Level of Service	B	B			D			A				
Approach Delay (s/veh)		17.6			38.1			5.7			0.0	
Approach LOS		B			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			10.4					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		8.0		
Intersection Capacity Utilization			58.6%					ICU Level of Service		B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↶			↶↷↸				
Traffic Volume (veh/h)	39	94	0	0	183	30	13	1335	100	0	0	0
Future Volume (veh/h)	39	94	0	0	183	30	13	1335	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		0.98			
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	1688	1800	0	0	1772	1702	1800	1772	1744			
Adj Flow Rate, veh/h	41	100	0	0	195	26	14	1420	96			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	8	0	0	0	2	7	0	2	4			
Cap, veh/h	159	342	0	0	291	39	34	3406	230			
Arrive On Green	0.38	0.38	0.00	0.00	0.19	0.18	0.71	0.72	0.71			
Sat Flow, veh/h	1105	1800	0	0	1531	204	47	4722	319			
Grp Volume(v), veh/h	41	100	0	0	0	221	532	485	513			
Grp Sat Flow(s),veh/h/ln	1105	1800	0	0	0	1735	1770	1612	1706			
Q Serve(g_s), s	3.1	3.5	0.0	0.0	0.0	10.6	10.8	10.8	10.9			
Cycle Q Clear(g_c), s	13.7	3.5	0.0	0.0	0.0	10.6	10.8	10.8	10.9			
Prop In Lane	1.00		0.00	0.00		0.12	0.03		0.19			
Lane Grp Cap(c), veh/h	159	342	0	0	0	330	1276	1163	1230			
V/C Ratio(X)	0.26	0.29	0.00	0.00	0.00	0.67	0.42	0.42	0.42			
Avail Cap(c_a), veh/h	293	560	0	0	0	540	1276	1163	1230			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	31.8	23.7	0.0	0.0	0.0	33.9	5.0	5.0	5.0			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	0.0	1.8	1.0	1.1	1.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.7	1.4	0.0	0.0	0.0	4.6	3.3	3.0	3.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.4	24.0	0.0	0.0	0.0	35.7	6.0	6.1	6.1			
LnGrp LOS	C	C				D	A	A	A			
Approach Vol, veh/h		141			221			1530				
Approach Delay, s/veh		26.5			35.7			6.1				
Approach LOS		C			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				21.1		68.9		21.1				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				27.0		53.0		27.0				
Max Q Clear Time (g_c+I1), s				12.6		12.9		15.7				
Green Ext Time (p_c), s				0.7		16.6		0.4				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			11.0									
HCM 7th LOS			B									

HCM 7th TWSC  
4: Front St NE & Shipping St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	5	4	1	0	7	487	2	2	449	1
Future Vol, veh/h	4	1	5	4	1	0	7	487	2	2	449	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	100	0	14	3	0	50	1	0
Mvmt Flow	4	1	5	4	1	0	8	529	2	2	488	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1040	1044	491	1041	1043	532	491	0	0	534	0	0
Stage 1	495	495	-	548	548	-	-	-	-	-	-	-
Stage 2	545	549	-	493	495	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	7.5	6.2	4.24	-	-	4.6	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.9	3.3	2.326	-	-	2.65	-	-
Pot Cap-1 Maneuver	210	231	582	210	157	551	1013	-	-	831	-	-
Stage 1	560	549	-	524	388	-	-	-	-	-	-	-
Stage 2	526	520	-	562	413	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	205	227	581	204	154	550	1011	-	-	829	-	-
Mov Cap-2 Maneuver	205	227	-	204	154	-	-	-	-	-	-	-
Stage 1	557	546	-	518	383	-	-	-	-	-	-	-
Stage 2	519	513	-	553	411	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	17.13		24.37		0.12		0.04	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	25	-	-	308	191	8	-	-
HCM Lane V/C Ratio	0.008	-	-	0.035	0.028	0.003	-	-
HCM Control Delay (s/veh)	8.6	0	-	17.1	24.4	9.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

HCM 7th TWSC  
5: Front St NE & Hood St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	12	0	2	0	495	5	2	457	0
Future Vol, veh/h	0	0	0	12	0	2	0	495	5	2	457	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	3	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	20	0	1	0
Mvmt Flow	0	0	0	13	0	2	0	544	5	2	502	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1054	1062	505	1056	1059	550	505	0	0	552	0	0
Stage 1	510	510	-	550	550	-	-	-	-	-	-	-
Stage 2	544	552	-	507	510	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	206	225	571	205	226	539	1070	-	-	1028	-	-
Stage 1	550	541	-	523	519	-	-	-	-	-	-	-
Stage 2	527	518	-	552	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	204	223	569	204	224	537	1067	-	-	1025	-	-
Mov Cap-2 Maneuver	204	223	-	204	224	-	-	-	-	-	-	-
Stage 1	547	538	-	522	518	-	-	-	-	-	-	-
Stage 2	525	516	-	550	538	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	22.29	0	0.04
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1067	-	-	-	224	8	-	-
HCM Lane V/C Ratio	-	-	-	-	0.069	0.002	-	-
HCM Control Delay (s/veh)	0	-	-	0	22.3	8.5	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

HCM 7th TWSC  
6: Front St NE & North Access/Gaines St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	4	0	1	0	497	1	3	470	0
Future Vol, veh/h	0	0	0	4	0	1	0	497	1	3	470	0
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	33	1	0
Mvmt Flow	0	0	0	4	0	1	0	546	1	3	516	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1071	1074	518	1072	1074	549	518	0	0	549	0	0
Stage 1	525	525	-	549	549	-	-	-	-	-	-	-
Stage 2	546	549	-	523	525	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.43	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.497	-	-
Pot Cap-1 Maneuver	200	222	561	200	222	540	1058	-	-	882	-	-
Stage 1	539	533	-	524	520	-	-	-	-	-	-	-
Stage 2	525	520	-	541	533	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	198	220	560	199	220	539	1056	-	-	880	-	-
Mov Cap-2 Maneuver	198	220	-	199	220	-	-	-	-	-	-	-
Stage 1	536	529	-	523	519	-	-	-	-	-	-	-
Stage 2	524	519	-	538	529	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	21.23	0	0.06
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1056	-	-	-	227	11	-	-
HCM Lane V/C Ratio	-	-	-	-	0.024	0.004	-	-
HCM Control Delay (s/veh)	0	-	-	0	21.2	9.1	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

HCM 7th TWSC  
7: Front St NE & Center Access/Market St NE

05/29/2024

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	18	0	30	0	471	25	27	444	0
Future Vol, veh/h	0	0	0	18	0	30	0	471	25	27	444	0
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	11	0	17	0	3	0	0	1	0
Mvmt Flow	0	0	0	20	0	33	0	518	27	30	488	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1070	1102	494	1085	1089	536	493	0	0	550	0	0
Stage 1	552	552	-	536	536	-	-	-	-	-	-	-
Stage 2	518	550	-	548	552	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.21	6.5	6.37	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.599	4	3.453	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	201	213	579	187	217	516	1081	-	-	1030	-	-
Stage 1	521	518	-	512	526	-	-	-	-	-	-	-
Stage 2	545	519	-	505	518	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	179	203	576	178	207	514	1076	-	-	1025	-	-
Mov Cap-2 Maneuver	179	203	-	178	207	-	-	-	-	-	-	-
Stage 1	498	495	-	510	524	-	-	-	-	-	-	-
Stage 2	510	517	-	484	495	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	19.47	0	0.49
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1076	-	-	-	301	103	-	-
HCM Lane V/C Ratio	-	-	-	-	0.175	0.029	-	-
HCM Control Delay (s/veh)	0	-	-	0	19.5	8.6	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.6	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	54	16	95	41	0	0	0	0	51	1546	3
Future Volume (vph)	0	54	16	95	41	0	0	0	0	51	1546	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.97			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1718			1633						3315	
Flt Permitted		1.00			0.75						1.00	
Satd. Flow (perm)		1718			1259						3315	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	58	17	102	44	0	0	0	0	55	1662	3
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	63	0	0	146	0	0	0	0	0	1720	0
Confl. Peds. (#/hr)	6					6	8		2	2		2
Heavy Vehicles (%)	0%	2%	0%	2%	17%	0%	0%	0%	0%	2%	3%	0%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.4			14.4						65.6	
Effective Green, g (s)		15.4			15.4						66.6	
Actuated g/C Ratio		0.17			0.17						0.74	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.5			2.5						2.5	
Lane Grp Cap (vph)		293			215						2453	
v/s Ratio Prot		0.04										
v/s Ratio Perm					0.12						0.52	
v/c Ratio		0.21			0.68						0.70	
Uniform Delay, d1		32.1			35.0						6.3	
Progression Factor		1.00			0.39						1.00	
Incremental Delay, d2		0.3			6.5						1.7	
Delay (s)		32.4			20.2						8.0	
Level of Service		C			C						A	
Approach Delay (s/veh)		32.4			20.2			0.0			8.0	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			9.9								A	
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			90.0							8.0		
Intersection Capacity Utilization			71.4%								C	
ICU Level of Service												
Analysis Period (min)			15									

c Critical Lane Group

HCM 7th Signalized Intersection Summary  
 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (veh/h)	0	54	16	95	41	0	0	0	0	51	1546	3
Future Volume (veh/h)	0	54	16	95	41	0	0	0	0	51	1546	3
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	1772	1800	1772	1561	0				1772	1758	1800
Adj Flow Rate, veh/h	0	58	5	102	44	0				55	1662	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	0	2	17	0				2	3	0
Cap, veh/h	0	267	23	186	67	0				84	2527	5
Arrive On Green	0.00	0.17	0.15	0.15	0.17	0.00				0.73	0.75	0.73
Sat Flow, veh/h	0	1608	139	710	403	0				112	3391	6
Grp Volume(v), veh/h	0	0	63	146	0	0				860	0	860
Grp Sat Flow(s),veh/h/ln	0	0	1747	1113	0	0				1752	0	1757
Q Serve(g_s), s	0.0	0.0	2.8	9.0	0.0	0.0				22.1	0.0	22.0
Cycle Q Clear(g_c), s	0.0	0.0	2.8	11.8	0.0	0.0				22.1	0.0	22.0
Prop In Lane	0.00		0.08	0.70		0.00				0.06		0.00
Lane Grp Cap(c), veh/h	0	0	290	240	0	0				1306	0	1309
V/C Ratio(X)	0.00	0.00	0.22	0.61	0.00	0.00				0.66	0.00	0.66
Avail Cap(c_a), veh/h	0	0	369	298	0	0				1306	0	1309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.67	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	32.5	37.2	0.0	0.0				5.8	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.3	1.2	0.0	0.0				2.6	0.0	2.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.2	3.2	0.0	0.0				6.9	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	32.8	38.5	0.0	0.0				8.4	0.0	8.3
LnGrp LOS			C	D						A		A
Approach Vol, veh/h		63			146						1720	
Approach Delay, s/veh		32.8			38.5						8.3	
Approach LOS		C			D						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		71.1		18.9				18.9				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		62.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		24.1		13.8				4.8				
Green Ext Time (p_c), s		23.1		0.2				0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			11.4									
HCM 7th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	7	82	0	0	141	54	2	1438	52	0	0	0
Future Volume (vph)	7	82	0	0	141	54	2	1438	52	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.99				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1792			1615			3301				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1744			1615			3301				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	89	0	0	153	59	2	1563	57	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	97	0	0	196	0	0	1620	0	0	0	0
Confl. Peds. (#/hr)	1		1	1		1	4		3	3		3
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	6%	9%	0%	3%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		15.3			15.3			64.7				
Effective Green, g (s)		16.3			16.3			65.7				
Actuated g/C Ratio		0.18			0.18			0.73				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.5			2.5			2.5				
Lane Grp Cap (vph)		315			292			2409				
v/s Ratio Prot					0.12							
v/s Ratio Perm		0.06						0.49				
v/c Ratio		0.31			0.67			0.67				
Uniform Delay, d1		32.0			34.3			6.4				
Progression Factor		0.70			1.00			1.00				
Incremental Delay, d2		0.4			5.2			1.5				
Delay (s)		22.8			39.5			8.0				
Level of Service		C			D			A				
Approach Delay (s/veh)		22.8			39.5			8.0			0.0	
Approach LOS		C			D			A			A	

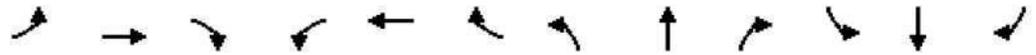
Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔↔				
Traffic Volume (veh/h)	7	82	0	0	141	54	2	1438	52	0	0	0
Future Volume (veh/h)	7	82	0	0	141	54	2	1438	52	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		0.98			
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	1800	1800	0	0	1716	1674	1800	1758	1772			
Adj Flow Rate, veh/h	8	89	0	0	153	44	2	1563	55			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	6	9	0	3	2			
Cap, veh/h	48	212	0	0	199	57	3	2545	89			
Arrive On Green	0.29	0.31	0.00	0.00	0.16	0.14	0.74	0.76	0.74			
Sat Flow, veh/h	29	1366	0	0	1280	368	4	3368	118			
Grp Volume(v), veh/h	97	0	0	0	0	197	813	0	807			
Grp Sat Flow(s),veh/h/ln	1395	0	0	0	0	1649	1758	0	1733			
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	10.3	18.9	0.0	19.2			
Cycle Q Clear(g_c), s	10.7	0.0	0.0	0.0	0.0	10.3	18.9	0.0	19.2			
Prop In Lane	0.08		0.00	0.00		0.22	0.00		0.07			
Lane Grp Cap(c), veh/h	245	0	0	0	0	256	1328	0	1310			
V/C Ratio(X)	0.40	0.00	0.00	0.00	0.00	0.77	0.61	0.00	0.62			
Avail Cap(c_a), veh/h	399	0	0	0	0	403	1328	0	1310			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.00	0.00	0.00	0.00	0.60	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.7	0.0	0.0	0.0	0.0	36.6	5.0	0.0	5.0			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	2.2	2.1	0.0	2.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	0.0	0.0	4.3	5.6	0.0	5.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.4	0.0	0.0	0.0	0.0	38.8	7.1	0.0	7.2			
LnGrp LOS	C					D	A		A			
Approach Vol, veh/h		97			197			1620				
Approach Delay, s/veh		28.4			38.8			7.2				
Approach LOS		C			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				18.0		72.0		18.0				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				21.0		59.0		21.0				
Max Q Clear Time (g_c+I1), s				12.3		21.2		12.7				
Green Ext Time (p_c), s				0.5		21.2		0.2				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			11.5									
HCM 7th LOS			B									

# HCM Signalized Intersection Capacity Analysis

## 10: Broadway St & Market St NE

05/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	122	18	164	157	141	17	596	137	119	626	21
Future Volume (vph)	16	122	18	164	157	141	17	596	137	119	626	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.91	1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.93		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1699	1741		1684	1559		1710	1765	1394	1660	1748	
Flt Permitted	0.40	1.00		0.42	1.00		0.23	1.00	1.00	0.21	1.00	
Satd. Flow (perm)	708	1741		740	1559		420	1765	1394	364	1748	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	131	19	176	169	152	18	641	147	128	673	23
RTOR Reduction (vph)	0	4	0	0	26	0	0	0	32	0	1	0
Lane Group Flow (vph)	17	146	0	176	295	0	18	641	115	128	695	0
Confl. Peds. (#/hr)	13		9	9		13	16		30	30		30
Confl. Bikes (#/hr)			1						1			1
Heavy Vehicles (%)	0%	1%	0%	1%	8%	1%	0%	2%	0%	3%	2%	5%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	8			4			6		6	2		
Actuated Green, G (s)	22.7	19.5		37.1	28.9		63.0	59.8	72.4	72.8	64.7	
Effective Green, g (s)	24.7	20.5		38.1	29.9		65.0	60.8	74.4	73.9	65.7	
Actuated g/C Ratio	0.21	0.17		0.32	0.25		0.54	0.51	0.62	0.62	0.55	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	180	297		341	388		272	894	910	322	957	
v/s Ratio Prot	0.00	0.08		c0.06	c0.19		0.00	0.36	0.01	c0.03	c0.40	
v/s Ratio Perm	0.02			0.11			0.03		0.07	0.21		
v/c Ratio	0.09	0.49		0.52	0.76		0.07	0.72	0.13	0.40	0.73	
Uniform Delay, d1	38.4	45.0		31.6	41.7		15.5	22.9	9.4	15.0	20.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.9		1.0	7.9		0.1	4.9	0.0	0.6	4.8	
Delay (s)	38.6	46.0		32.6	49.6		15.6	27.8	9.4	15.6	25.2	
Level of Service	D	D		C	D		B	C	A	B	C	
Approach Delay (s/veh)		45.2			43.6			24.2			23.7	
Approach LOS		D			D			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			29.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			82.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 10: Broadway St & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	122	18	164	157	141	17	596	137	119	626	21
Future Volume (veh/h)	16	122	18	164	157	141	17	596	137	119	626	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1786	1688	1786	1800	1772	1800	1758	1772	1730
Adj Flow Rate, veh/h	17	131	16	176	169	134	18	641	125	128	673	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	1	8	1	0	2	0	3	2	5
Cap, veh/h	153	228	28	328	188	149	348	951	944	375	973	33
Arrive On Green	0.04	0.15	0.14	0.11	0.22	0.21	0.04	0.54	0.54	0.07	0.57	0.56
Sat Flow, veh/h	1714	1547	189	1701	859	681	1714	1772	1452	1674	1700	58
Grp Volume(v), veh/h	17	0	147	176	0	303	18	641	125	128	0	696
Grp Sat Flow(s),veh/h/ln	1714	0	1736	1701	0	1540	1714	1772	1452	1674	0	1758
Q Serve(g_s), s	1.0	0.0	9.5	10.1	0.0	23.0	0.5	31.5	4.0	3.7	0.0	33.7
Cycle Q Clear(g_c), s	1.0	0.0	9.5	10.1	0.0	23.0	0.5	31.5	4.0	3.7	0.0	33.7
Prop In Lane	1.00		0.11	1.00		0.44	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	153	0	256	328	0	337	348	951	944	375	0	1006
V/C Ratio(X)	0.11	0.00	0.57	0.54	0.00	0.90	0.05	0.67	0.13	0.34	0.00	0.69
Avail Cap(c_a), veh/h	218	0	347	328	0	359	411	951	944	376	0	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.00	0.96	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.1	0.0	47.7	36.0	0.0	45.8	14.6	20.2	8.3	14.8	0.0	18.2
Incr Delay (d2), s/veh	0.2	0.0	1.4	1.4	0.0	23.2	0.0	3.8	0.3	0.4	0.0	3.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	4.2	4.4	0.0	11.0	0.2	13.6	1.3	1.4	0.0	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.4	0.0	49.1	37.4	0.0	69.0	14.7	24.0	8.6	15.2	0.0	22.1
LnGrp LOS	D		D	D		E	B	C	A	B		C
Approach Vol, veh/h		164			479			784			824	
Approach Delay, s/veh		48.3			57.4			21.3			21.0	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	72.7	8.5	30.3	12.9	68.4	17.0	21.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	57.0	8.0	27.0	8.0	57.0	12.0	23.0				
Max Q Clear Time (g_c+I1), s	2.5	35.7	3.0	25.0	5.7	33.5	12.1	11.5				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.3	0.1	6.0	0.0	0.4				

### Intersection Summary

HCM 7th Control Delay, s/veh	30.9
HCM 7th LOS	C

### Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	496	462	0
Future Vol, veh/h	0	0	0	496	462	0
Conflicting Peds, #/hr	0	1	0	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	3	1	0
Mvmt Flow	0	0	0	545	508	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1058	514	513	0	0
Stage 1	513	-	-	-	-
Stage 2	545	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	251	565	1063	-	-
Stage 1	605	-	-	-	-
Stage 2	585	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	249	561	1058	-	-
Mov Cap-2 Maneuver	249	-	-	-	-
Stage 1	602	-	-	-	-
Stage 2	582	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1058	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	463	1133	178	3	0	464
Future Vol, veh/h	463	1133	178	3	0	464
Conflicting Peds, #/hr	6	0	0	6	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	2	0	0	1
Mvmt Flow	482	1180	185	3	0	483

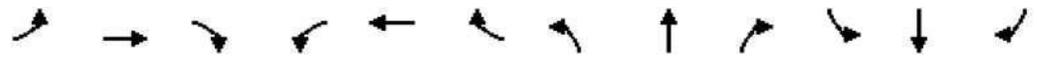
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	195	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.16	-	6.92
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.23	-	3.31
Pot Cap-1 Maneuver	1369	-	938
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1361	-	931
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.64	0	12.96
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1361	-	-	-	931
HCM Lane V/C Ratio	0.354	-	-	-	0.519
HCM Control Delay (s/veh)	9.1	-	-	-	13
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	1.6	-	-	-	3.1

HCM Signalized Intersection Capacity Analysis  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↖
Traffic Volume (vph)	19	21	18	7	8	30	14	1547	31	108	525	9
Future Volume (vph)	19	21	18	7	8	30	14	1547	31	108	525	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1667			1593		1707	3311		1710	1765	1493
Flt Permitted		0.88			0.95		0.46	1.00		0.08	1.00	1.00
Satd. Flow (perm)		1491			1520		825	3311		144	1765	1493
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	20	22	19	7	8	31	15	1611	32	112	547	9
RTOR Reduction (vph)	0	0	0	0	28	0	0	1	0	0	0	3
Lane Group Flow (vph)	0	61	0	0	18	0	15	1642	0	113	547	6
Confl. Peds. (#/hr)	15		11	11		15	4		4	4		4
Confl. Bikes (#/hr)			4			2			2			3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		7.4			7.4		49.7	49.2		60.2	54.7	54.7
Effective Green, g (s)		8.4			8.4		51.7	50.2		61.2	55.7	55.7
Actuated g/C Ratio		0.11			0.11		0.67	0.65		0.79	0.72	0.72
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)		161			164		566	2141		254	1266	1071
v/s Ratio Prot							0.00	c0.50		c0.04	0.31	
v/s Ratio Perm		c0.04			0.01		0.02			0.31		0.00
v/c Ratio		0.38			0.11		0.03	0.77		0.44	0.43	0.01
Uniform Delay, d1		32.2			31.2		4.4	9.6		9.0	4.5	3.1
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		1.1			0.2		0.0	1.6		0.9	0.2	0.0
Delay (s)		33.3			31.5		4.4	11.2		9.9	4.7	3.1
Level of Service		C			C		A	B		A	A	A
Approach Delay (s/veh)		33.3			31.5			11.2			5.5	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c	Critical Lane Group		

HCM 7th Signalized Intersection Summary  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↖
Traffic Volume (veh/h)	19	21	18	7	8	30	14	1547	31	108	525	9
Future Volume (veh/h)	19	21	18	7	8	30	14	1547	31	108	525	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.96		0.90	0.94		0.94	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800	1800	1758	1800	1800	1772	1800
Adj Flow Rate, veh/h	20	22	19	7	8	4	15	1611	30	112	547	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	3	0	0	2	0
Cap, veh/h	107	85	56	110	105	38	625	2166	40	315	1209	1041
Arrive On Green	0.10	0.12	0.10	0.10	0.12	0.10	0.03	0.65	0.63	0.07	0.68	0.00
Sat Flow, veh/h	326	741	482	338	915	334	1714	3352	62	1714	1772	1525
Grp Volume(v), veh/h	61	0	0	19	0	0	15	801	840	112	547	0
Grp Sat Flow(s),veh/h/ln	1549	0	0	1587	0	0	1714	1670	1745	1714	1772	1525
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	22.6	22.8	1.4	9.8	0.0
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.7	0.0	0.0	0.2	22.6	22.8	1.4	9.8	0.0
Prop In Lane	0.33		0.31	0.37		0.21	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	0	231	0	0	625	1079	1127	315	1209	1041
V/C Ratio(X)	0.27	0.00	0.00	0.08	0.00	0.00	0.02	0.74	0.75	0.36	0.45	0.00
Avail Cap(c_a), veh/h	269	0	0	275	0	0	700	1423	1487	425	1612	1388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.5	0.0	0.0	27.7	0.0	0.0	4.1	8.3	8.4	9.1	5.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.0	0.0	1.3	1.2	0.5	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.3	0.0	0.0	0.0	6.1	6.4	0.7	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.9	0.0	0.0	27.8	0.0	0.0	4.1	9.6	9.6	9.6	5.2	0.0
LnGrp LOS	C			C			A	A	A	A	A	
Approach Vol, veh/h	61			19			1656			659		
Approach Delay, s/veh	28.9			27.8			9.6			6.0		
Approach LOS	C			C			A			A		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	6.0	51.3	12.0		8.5	48.7	12.0					
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0	5.0	5.0					
Max Green Setting (Gmax), s	4.0	62.0	9.0		8.0	58.0	9.0					
Max Q Clear Time (g_c+I1), s	2.2	11.8	2.7		3.4	24.8	4.4					
Green Ext Time (p_c), s	0.0	5.3	0.0		0.1	19.0	0.1					

Intersection Summary												
HCM 7th Control Delay, s/veh			9.2									
HCM 7th LOS			A									

Notes  
 User approved pedestrian interval to be less than phase max green.

HCM 7th TWSC  
1: Front St NE & Pine St NE

05/29/2024

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	1	47	1	11	4	211	36	5	358	2
Future Vol, veh/h	1	3	1	47	1	11	4	211	36	5	358	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	9	0	18	0	1	9	80	1	0
Mvmt Flow	1	4	1	63	1	15	5	281	48	7	477	3

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	785	832	479	809	809	305	480	0	0	329	0	0
Stage 1	492	492	-	316	316	-	-	-	-	-	-	-
Stage 2	293	340	-	493	493	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.38	4.1	-	-	4.9	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.462	2.2	-	-	2.92	-	-
Pot Cap-1 Maneuver	313	307	591	291	316	699	1093	-	-	897	-	-
Stage 1	562	551	-	680	659	-	-	-	-	-	-	-
Stage 2	720	643	-	545	550	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	300	302	591	282	311	699	1093	-	-	897	-	-
Mov Cap-2 Maneuver	300	302	-	282	311	-	-	-	-	-	-	-
Stage 1	557	545	-	676	655	-	-	-	-	-	-	-
Stage 2	699	639	-	534	545	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v15.99		20.01	0.13	0.12
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	28	-	-	334	318	25	-	-
HCM Lane V/C Ratio	0.005	-	-	0.02	0.248	0.007	-	-
HCM Control Delay (s/veh)	8.3	0	-	16	20	9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗		↖	↖						↖↗↘	
Traffic Volume (vph)	0	60	6	85	45	0	0	0	0	28	1595	39
Future Volume (vph)	0	60	6	85	45	0	0	0	0	28	1595	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frbp, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1388		1447	1714						4530	
Flt Permitted		1.00		0.71	1.00						1.00	
Satd. Flow (perm)		1388		1076	1714						4530	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	71	7	101	54	0	0	0	0	33	1899	46
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	74	0	101	54	0	0	0	0	0	1976	0
Confl. Peds. (#/hr)	2		1	1		2	1			4	4	4
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	29%	17%	18%	5%	0%	0%	0%	0%	7%	8%	5%
Turn Type		NA		Perm	NA						Perm	NA
Protected Phases		8			4							2
Permitted Phases				4						2		
Actuated Green, G (s)		11.9		11.9	11.9						68.1	
Effective Green, g (s)		12.9		12.9	12.9						69.1	
Actuated g/C Ratio		0.14		0.14	0.14						0.77	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.5		2.5	2.5						2.5	
Lane Grp Cap (vph)		198		154	245						3478	
v/s Ratio Prot		0.05			0.03							
v/s Ratio Perm				0.09							0.44	
v/c Ratio		0.37		0.66	0.22						0.57	
Uniform Delay, d1		34.9		36.5	34.1						4.3	
Progression Factor		1.00		0.48	0.41						1.00	
Incremental Delay, d2		0.9		8.3	0.3						0.7	
Delay (s)		35.7		25.7	14.1						5.0	
Level of Service		D		C	B						A	
Approach Delay (s/veh)		35.7			21.7			0.0			5.0	
Approach LOS		D			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			7.2			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			57.7%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (veh/h)	0	60	6	85	45	0	0	0	0	28	1595	39
Future Volume (veh/h)	0	60	6	85	45	0	0	0	0	28	1595	39
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		0.98
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	1393	1561	1547	1730	0				1702	1688	1730
Adj Flow Rate, veh/h	0	71	2	101	54	0				33	1899	44
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	29	17	18	5	0				7	8	5
Cap, veh/h	0	227	6	221	291	0				61	3487	81
Arrive On Green	0.00	0.17	0.16	0.17	0.17	0.00				0.73	0.74	0.73
Sat Flow, veh/h	0	1348	38	1157	1730	0				82	4694	109
Grp Volume(v), veh/h	0	0	73	101	54	0				681	621	674
Grp Sat Flow(s),veh/h/ln	0	0	1386	1157	1730	0				1684	1536	1665
Q Serve(g_s), s	0.0	0.0	4.2	7.6	2.4	0.0				15.7	15.7	15.8
Cycle Q Clear(g_c), s	0.0	0.0	4.2	11.7	2.4	0.0				15.7	15.7	15.8
Prop In Lane	0.00		0.03	1.00		0.00				0.05		0.07
Lane Grp Cap(c), veh/h	0	0	233	221	291	0				1250	1141	1237
V/C Ratio(X)	0.00	0.00	0.31	0.46	0.19	0.00				0.54	0.54	0.55
Avail Cap(c_a), veh/h	0	0	339	309	423	0				1250	1141	1237
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.72	0.72	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	32.9	38.0	32.1	0.0				5.0	5.0	5.0
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.8	0.2	0.0				1.7	1.9	1.7
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	0.0	1.4	2.2	1.0	0.0				4.7	4.3	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	33.4	38.8	32.3	0.0				6.7	6.9	6.8
LnGrp LOS			C	D	C					A	A	A
Approach Vol, veh/h		73			155						1976	
Approach Delay, s/veh		33.4			36.5						6.8	
Approach LOS		C			D						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		70.8		19.2				19.2				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		59.0		21.0				21.0				
Max Q Clear Time (g_c+I1), s		17.8		13.7				6.2				
Green Ext Time (p_c), s		26.0		0.3				0.2				

### Intersection Summary

HCM 7th Control Delay, s/veh	9.8
HCM 7th LOS	A

### Notes

User approved pedestrian interval to be less than phase max green.

# HCM Signalized Intersection Capacity Analysis

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	44	0	0	131	31	4	1190	92	0	0	0
Future Volume (vph)	18	44	0	0	131	31	4	1190	92	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.99				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1525	1579			1478			4572				
Flt Permitted	0.49	1.00			1.00			1.00				
Satd. Flow (perm)	784	1579			1478			4572				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	47	0	0	139	33	4	1266	98	0	0	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	6	0	0	0	0
Lane Group Flow (vph)	19	47	0	0	160	0	0	1362	0	0	0	0
Confl. Peds. (#/hr)	1						1		2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	12%	14%	0%	0%	21%	7%	0%	6%	8%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)	14.6	14.6			14.6			65.4				
Effective Green, g (s)	15.6	15.6			15.6			66.4				
Actuated g/C Ratio	0.17	0.17			0.17			0.74				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.5	2.5			2.5			2.5				
Lane Grp Cap (vph)	135	273			256			3373				
v/s Ratio Prot		0.03			0.11							
v/s Ratio Perm	0.02							0.30				
v/c Ratio	0.14	0.17			0.63			0.40				
Uniform Delay, d1	31.5	31.7			34.5			4.4				
Progression Factor	1.62	1.62			1.00			1.00				
Incremental Delay, d2	0.3	0.2			4.1			0.4				
Delay (s)	51.5	51.5			38.6			4.8				
Level of Service	D	D			D			A				
Approach Delay (s/veh)		51.5			38.6			4.8			0.0	
Approach LOS		D			D			A			A	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

# HCM 7th Signalized Intersection Summary

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	44	0	0	131	31	4	1190	92	0	0	0
Future Volume (veh/h)	18	44	0	0	131	31	4	1190	92	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		0.98			
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	1632	1603	0	0	1505	1702	1800	1716	1688			
Adj Flow Rate, veh/h	19	47	0	0	139	23	4	1266	88			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	12	14	0	0	21	7	0	6	8			
Cap, veh/h	139	252	0	0	198	33	11	3463	241			
Arrive On Green	0.16	0.16	0.00	0.00	0.16	0.15	0.74	0.75	0.74			
Sat Flow, veh/h	1126	1603	0	0	1259	208	15	4593	319			
Grp Volume(v), veh/h	19	47	0	0	0	162	473	430	455			
Grp Sat Flow(s),veh/h/ln	1126	1603	0	0	0	1467	1715	1561	1650			
Q Serve(g_s), s	1.5	2.3	0.0	0.0	0.0	9.4	8.4	8.4	8.5			
Cycle Q Clear(g_c), s	10.9	2.3	0.0	0.0	0.0	9.4	8.4	8.4	8.5			
Prop In Lane	1.00		0.00	0.00		0.14	0.01		0.19			
Lane Grp Cap(c), veh/h	139	252	0	0	0	231	1293	1177	1244			
V/C Ratio(X)	0.14	0.19	0.00	0.00	0.00	0.70	0.37	0.37	0.37			
Avail Cap(c_a), veh/h	325	517	0	0	0	473	1293	1177	1244			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.1	32.9	0.0	0.0	0.0	36.0	3.8	3.8	3.8			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.0	2.9	0.8	0.9	0.8			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.4	0.9	0.0	0.0	0.0	3.5	2.3	2.1	2.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.4	33.2	0.0	0.0	0.0	38.9	4.6	4.6	4.6			
LnGrp LOS	D	C				D	A	A	A			
Approach Vol, veh/h		66			162			1358				
Approach Delay, s/veh		35.5			38.9			4.6				
Approach LOS		D			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				18.1		71.9		18.1				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				28.0		52.0		28.0				
Max Q Clear Time (g_c+I1), s				11.4		10.5		12.9				
Green Ext Time (p_c), s				0.5		14.1		0.2				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			9.4									
HCM 7th LOS			A									

HCM 7th TWSC  
4: Front St NE & Shipping St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	3	0	0	1	7	353	5	1	422	3
Future Vol, veh/h	0	0	3	0	0	1	7	353	5	1	422	3
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	33	0	0	0	14	5	0	0	3	33
Mvmt Flow	0	0	4	0	0	1	9	430	6	1	515	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	970	977	520	968	975	434	522	0	0	437	0	0
Stage 1	523	523	-	451	451	-	-	-	-	-	-	-
Stage 2	448	454	-	517	525	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.1	6.5	6.2	4.24	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.5	4	3.3	2.326	-	-	2.2	-	-
Pot Cap-1 Maneuver	234	253	499	235	253	627	986	-	-	1134	-	-
Stage 1	541	534	-	592	575	-	-	-	-	-	-	-
Stage 2	594	573	-	545	533	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	230	249	497	231	249	627	982	-	-	1134	-	-
Mov Cap-2 Maneuver	230	249	-	231	249	-	-	-	-	-	-	-
Stage 1	538	531	-	585	568	-	-	-	-	-	-	-
Stage 2	586	566	-	540	530	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s/v12.29			10.76		0.17			0.02		
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	34	-	-	497	627	4	-	-
HCM Lane V/C Ratio	0.009	-	-	0.007	0.002	0.001	-	-
HCM Control Delay (s/veh)	8.7	0	-	12.3	10.8	8.2	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

HCM 7th TWSC  
5: Front St NE & Hood St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	8	1	6	0	358	6	1	421	0
Future Vol, veh/h	0	0	1	8	1	6	0	358	6	1	421	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	13	0	67	0	4	17	0	3	0
Mvmt Flow	0	0	1	10	1	7	0	426	7	1	501	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	933	940	504	933	936	430	504	0	0	433	0	0
Stage 1	507	507	-	430	430	-	-	-	-	-	-	-
Stage 2	427	433	-	504	507	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.23	6.5	6.87	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.23	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.23	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.617	4	3.903	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	248	266	572	235	267	508	1071	-	-	1137	-	-
Stage 1	552	543	-	583	587	-	-	-	-	-	-	-
Stage 2	610	585	-	531	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	243	265	570	235	266	508	1068	-	-	1137	-	-
Mov Cap-2 Maneuver	243	265	-	235	266	-	-	-	-	-	-	-
Stage 1	550	540	-	583	587	-	-	-	-	-	-	-
Stage 2	600	585	-	529	540	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v11.33			17.67		0		0.02	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1068	-	-	570	302	4	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.059	0.001	-	-
HCM Control Delay (s/veh)	0	-	-	11.3	17.7	8.2	0	-
HCM Lane LOS	A	-	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

HCM 7th TWSC  
6: Front St NE & North Access/Gaines St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	2	0	10	4	353	3	1	431	1
Future Vol, veh/h	0	0	0	2	0	10	4	353	3	1	431	1
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	60	0	3	33	100	3	0
Mvmt Flow	0	0	0	2	0	12	5	415	4	1	507	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	938	941	511	936	940	417	511	0	0	419	0	0
Stage 1	513	513	-	426	426	-	-	-	-	-	-	-
Stage 2	425	428	-	509	514	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.8	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.84	2.2	-	-	3.1	-	-
Pot Cap-1 Maneuver	247	265	567	247	266	528	1064	-	-	764	-	-
Stage 1	548	539	-	610	589	-	-	-	-	-	-	-
Stage 2	611	588	-	550	539	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	239	262	565	245	263	528	1061	-	-	764	-	-
Mov Cap-2 Maneuver	239	262	-	245	263	-	-	-	-	-	-	-
Stage 1	545	537	-	606	586	-	-	-	-	-	-	-
Stage 2	594	585	-	549	536	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	13.39	0.09	0.02
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	20	-	-	-	443	4	-	-
HCM Lane V/C Ratio	0.004	-	-	-	0.032	0.002	-	-
HCM Control Delay (s/veh)	8.4	0	-	0	13.4	9.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

HCM 7th TWSC  
7: Front St NE & Center Access/Market St NE

05/29/2024

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	18	0	35	0	316	13	27	415	0
Future Vol, veh/h	0	0	0	18	0	35	0	316	13	27	415	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	6	0	6	0	3	0	23	1	0
Mvmt Flow	0	0	0	21	0	41	0	372	15	32	488	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	927	942	491	931	934	379	491	0	0	387	0	0
Stage 1	555	555	-	379	379	-	-	-	-	-	-	-
Stage 2	372	387	-	552	555	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.16	6.5	6.26	4.1	-	-	4.33	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.554	4	3.354	2.2	-	-	2.407	-	-
Pot Cap-1 Maneuver	251	265	581	243	268	659	1083	-	-	1066	-	-
Stage 1	520	517	-	635	618	-	-	-	-	-	-	-
Stage 2	653	613	-	511	517	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	225	253	580	233	256	659	1080	-	-	1066	-	-
Mov Cap-2 Maneuver	225	253	-	233	256	-	-	-	-	-	-	-
Stage 1	497	494	-	635	618	-	-	-	-	-	-	-
Stage 2	612	613	-	490	494	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	15.45	0	0.52
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1080	-	-	-	407	110	-	-
HCM Lane V/C Ratio	-	-	-	-	0.153	0.03	-	-
HCM Control Delay (s/veh)	0	-	-	0	15.5	8.5	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	21	21	48	49	0	0	0	0	34	1548	5
Future Volume (vph)	0	21	21	48	49	0	0	0	0	34	1548	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frb, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1399			1619						3217	
Flt Permitted		1.00			0.82						1.00	
Satd. Flow (perm)		1399			1358						3217	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	24	24	55	56	0	0	0	0	39	1779	6
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	27	0	0	111	0	0	0	0	0	1824	0
Confl. Peds. (#/hr)	2					2	1		2	2		2
Heavy Vehicles (%)	0%	15%	25%	13%	4%	0%	0%	0%	0%	9%	6%	20%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		10.0			10.0						7.0	
Effective Green, g (s)		11.0			11.0						7.1	
Actuated g/C Ratio		0.12			0.12						0.79	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.5			2.5						2.5	
Lane Grp Cap (vph)		170			165						2537	
v/s Ratio Prot		0.02										
v/s Ratio Perm					0.08							0.57
v/c Ratio		0.16			0.67							0.72
Uniform Delay, d1		35.4			37.8							4.6
Progression Factor		1.00			0.49							1.00
Incremental Delay, d2		0.3			8.9							1.8
Delay (s)		35.7			27.4							6.4
Level of Service		D			C							A
Approach Delay (s/veh)		35.7			27.4			0.0				6.4
Approach LOS		D			C			A				A
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			8.3									A
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			90.0								8.0	
Intersection Capacity Utilization			68.7%									C
Analysis Period (min)			15									

c Critical Lane Group

HCM 7th Signalized Intersection Summary  
 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (veh/h)	0	21	21	48	49	0	0	0	0	34	1548	5
Future Volume (veh/h)	0	21	21	48	49	0	0	0	0	34	1548	5
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	1589	1449	1617	1744	0				1674	1716	1519
Adj Flow Rate, veh/h	0	24	2	55	56	0				39	1779	6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %	0	15	25	13	4	0				9	6	20
Cap, veh/h	0	153	13	127	89	0				59	2692	9
Arrive On Green	0.00	0.11	0.09	0.09	0.11	0.00				0.79	0.81	0.79
Sat Flow, veh/h	0	1447	121	637	848	0				73	3341	11
Grp Volume(v), veh/h	0	0	26	111	0	0				912	0	912
Grp Sat Flow(s),veh/h/ln	0	0	1568	1486	0	0				1712	0	1714
Q Serve(g_s), s	0.0	0.0	1.4	5.3	0.0	0.0				20.0	0.0	19.9
Cycle Q Clear(g_c), s	0.0	0.0	1.4	6.6	0.0	0.0				20.0	0.0	19.9
Prop In Lane	0.00		0.08	0.50		0.00				0.04		0.01
Lane Grp Cap(c), veh/h	0	0	165	200	0	0				1379	0	1381
V/C Ratio(X)	0.00	0.00	0.16	0.55	0.00	0.00				0.66	0.00	0.66
Avail Cap(c_a), veh/h	0	0	261	294	0	0				1379	0	1381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.79	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	36.7	39.3	0.0	0.0				3.6	0.0	3.6
Incr Delay (d2), s/veh	0.0	0.0	0.3	1.4	0.0	0.0				2.5	0.0	2.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.5	2.5	0.0	0.0				4.8	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	37.0	40.7	0.0	0.0				6.2	0.0	6.1
LnGrp LOS			D	D						A		A
Approach Vol, veh/h		26			111						1824	
Approach Delay, s/veh		37.0			40.7						6.1	
Approach LOS		D			D						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		76.5		13.5				13.5				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		66.0		14.0				14.0				
Max Q Clear Time (g_c+I1), s		22.0		8.6				3.4				
Green Ext Time (p_c), s		27.8		0.1				0.0				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			8.5									
HCM 7th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	1	43	0	0	95	43	11	1281	39	0	0	0
Future Volume (vph)	1	43	0	0	95	43	11	1281	39	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			1.00				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1729			1667			3232				
Flt Permitted		0.99			1.00			1.00				
Satd. Flow (perm)		1721			1667			3232				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	48	0	0	106	48	12	1423	43	0	0	0
RTOR Reduction (vph)	0	0	0	0	20	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	49	0	0	134	0	0	1476	0	0	0	0
Confl. Peds. (#/hr)			1	1			1					
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	100%	2%	0%	0%	5%	0%	36%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		12.4			12.4			67.6				
Effective Green, g (s)		13.4			13.4			68.6				
Actuated g/C Ratio		0.15			0.15			0.76				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.5			2.5			2.5				
Lane Grp Cap (vph)		256			248			2463				
v/s Ratio Prot					0.08							
v/s Ratio Perm		0.03						0.46				
v/c Ratio		0.19			0.54			0.60				
Uniform Delay, d1		33.6			35.4			4.7				
Progression Factor		1.09			1.00			1.00				
Incremental Delay, d2		0.2			1.7			1.1				
Delay (s)		36.9			37.2			5.8				
Level of Service		D			D			A				
Approach Delay (s/veh)		36.9			37.2			5.8			0.0	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			9.6					HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		8.0		
Intersection Capacity Utilization			53.7%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (veh/h)	1	43	0	0	95	43	11	1281	39	0	0	0
Future Volume (veh/h)	1	43	0	0	95	43	11	1281	39	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		0.98			
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	396	1772	0	0	1730	1800	1295	1730	1730			
Adj Flow Rate, veh/h	1	48	0	0	106	29	12	1423	41			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	100	2	0	0	5	0	36	5	5			
Cap, veh/h	42	190	0	0	150	41	22	2641	76			
Arrive On Green	0.10	0.11	0.00	0.00	0.11	0.10	0.79	0.80	0.79			
Sat Flow, veh/h	9	1665	0	0	1308	358	28	3315	95			
Grp Volume(v), veh/h	49	0	0	0	0	135	741	0	735			
Grp Sat Flow(s),veh/h/ln	1674	0	0	0	0	1665	1728	0	1710			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	7.0	13.7	0.0	13.8			
Cycle Q Clear(g_c), s	7.1	0.0	0.0	0.0	0.0	7.0	13.7	0.0	13.8			
Prop In Lane	0.02		0.00	0.00		0.21	0.02		0.06			
Lane Grp Cap(c), veh/h	214	0	0	0	0	191	1377	0	1363			
V/C Ratio(X)	0.23	0.00	0.00	0.00	0.00	0.71	0.54	0.00	0.54			
Avail Cap(c_a), veh/h	442	0	0	0	0	407	1377	0	1363			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.00	0.00	0.00	0.00	0.74	1.00	0.00	1.00			
Uniform Delay (d), s/veh	36.3	0.0	0.0	0.0	0.0	38.5	3.3	0.0	3.3			
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	2.7	1.5	0.0	1.5			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	3.0	3.4	0.0	3.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.7	0.0	0.0	0.0	0.0	41.2	4.8	0.0	4.8			
LnGrp LOS	D					D	A		A			
Approach Vol, veh/h		49			135			1476				
Approach Delay, s/veh		36.7			41.2			4.8				
Approach LOS		D			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				14.3		75.7		14.3				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				21.0		59.0		21.0				
Max Q Clear Time (g_c+I1), s				9.0		15.8		9.1				
Green Ext Time (p_c), s				0.4		19.6		0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			8.7									
HCM 7th LOS			A									

# HCM Signalized Intersection Capacity Analysis

## 10: Broadway St & Market St NE

05/29/2024

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	10	73	14	103	126	68	6	406	96	106	628	11	
Future Volume (vph)	10	73	14	103	126	68	6	406	96	106	628	11	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00		
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.98	1.00	1.00		
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00		
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1698	1656		1669	1626		1462	1748	1421	1582	1724		
Flt Permitted	0.53	1.00		0.50	1.00		0.25	1.00	1.00	0.36	1.00		
Satd. Flow (perm)	954	1656		871	1626		386	1748	1421	593	1724		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	12	85	16	120	147	79	7	472	112	123	730	13	
RTOR Reduction (vph)	0	6	0	0	16	0	0	0	33	0	0	0	
Lane Group Flow (vph)	12	95	0	120	210	0	7	472	79	123	743	0	
Confl. Peds. (#/hr)	8		5	5		8	7		3	3		3	
Confl. Bikes (#/hr)						1						1	
Heavy Vehicles (%)	0%	4%	14%	2%	2%	6%	17%	3%	5%	8%	4%	9%	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		
Protected Phases	3	8		7	4		1	6	7	5	2		
Permitted Phases	8			4			6		6	2			
Actuated Green, G (s)	19.7	16.5		32.0	23.8		66.2	64.6	75.1	78.0	71.4		
Effective Green, g (s)	21.7	17.5		33.0	24.8		68.2	65.6	77.1	79.0	72.4		
Actuated g/C Ratio	0.18	0.15		0.28	0.21		0.57	0.55	0.64	0.66	0.60		
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0		
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5		
Lane Grp Cap (vph)	198	241		316	336		242	955	960	467	1040		
v/s Ratio Prot	0.00	0.06		c0.04	c0.13		0.00	0.27	0.01	c0.02	c0.43		
v/s Ratio Perm	0.01			0.07			0.02		0.05	0.15			
v/c Ratio	0.06	0.39		0.38	0.63		0.03	0.49	0.08	0.26	0.71		
Uniform Delay, d1	40.6	46.4		34.2	43.4		13.4	16.9	8.1	9.4	16.6		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	0.8		0.6	3.1		0.0	1.8	0.0	0.2	4.2		
Delay (s)	40.7	47.2		34.7	46.5		13.4	18.7	8.1	9.6	20.8		
Level of Service	D	D		C	D		B	B	A	A	C		
Approach Delay (s/veh)		46.5			42.4			16.7			19.2		
Approach LOS		D			D			B			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			24.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.68										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			66.9%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

# HCM 7th Signalized Intersection Summary

## 10: Broadway St & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	73	14	103	126	68	6	406	96	106	628	11
Future Volume (veh/h)	10	73	14	103	126	68	6	406	96	106	628	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1744	1603	1772	1772	1716	1561	1758	1730	1688	1744	1674
Adj Flow Rate, veh/h	12	85	9	120	147	60	7	472	65	123	730	13
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	4	14	2	2	6	17	3	5	8	4	9
Cap, veh/h	151	169	18	260	182	74	349	1069	996	562	1126	20
Arrive On Green	0.03	0.11	0.10	0.08	0.15	0.15	0.02	0.61	0.61	0.07	0.66	0.65
Sat Flow, veh/h	1714	1543	163	1688	1176	480	1487	1758	1457	1607	1707	30
Grp Volume(v), veh/h	12	0	94	120	0	207	7	472	65	123	0	743
Grp Sat Flow(s),veh/h/ln	1714	0	1707	1688	0	1656	1487	1758	1457	1607	0	1738
Q Serve(g_s), s	0.7	0.0	6.2	7.3	0.0	14.5	0.2	17.3	1.8	3.0	0.0	30.5
Cycle Q Clear(g_c), s	0.7	0.0	6.2	7.3	0.0	14.5	0.2	17.3	1.8	3.0	0.0	30.5
Prop In Lane	1.00		0.10	1.00		0.29	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	151	0	187	260	0	256	349	1069	996	562	0	1146
V/C Ratio(X)	0.08	0.00	0.50	0.46	0.00	0.81	0.02	0.44	0.07	0.22	0.00	0.65
Avail Cap(c_a), veh/h	228	0	299	260	0	290	428	1069	996	564	0	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.99	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	50.4	41.5	0.0	49.2	10.7	12.6	6.3	7.7	0.0	12.1
Incr Delay (d2), s/veh	0.2	0.0	1.5	0.9	0.0	13.4	0.0	1.3	0.1	0.1	0.0	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.8	3.2	0.0	7.0	0.1	7.0	0.6	1.0	0.0	11.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.2	0.0	51.9	42.4	0.0	62.6	10.8	13.9	6.4	7.9	0.0	15.0
LnGrp LOS	D		D	D		E	B	B	A	A		B
Approach Vol, veh/h	106			327			544			866		
Approach Delay, s/veh	51.1			55.2			13.0			14.0		
Approach LOS	D			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	83.2	7.6	22.5	12.9	77.0	13.0	17.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	64.0	8.0	20.0	8.0	64.0	8.0	20.0				
Max Q Clear Time (g_c+I1), s	2.2	32.5	2.7	16.5	5.0	19.3	9.3	8.2				
Green Ext Time (p_c), s	0.0	7.8	0.0	0.3	0.1	4.4	0.0	0.2				

### Intersection Summary

HCM 7th Control Delay, s/veh	23.1
HCM 7th LOS	C

### Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	0	0	0	330	433	0
Future Vol, veh/h	0	0	0	330	433	0
Conflicting Peds, #/hr	0	0	3	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	3	1	0
Mvmt Flow	0	0	0	388	509	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	901	512	512	0	0
Stage 1	512	-	-	-	-
Stage 2	388	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	311	566	1063	-	-
Stage 1	606	-	-	-	-
Stage 2	690	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	310	564	1060	-	-
Mov Cap-2 Maneuver	310	-	-	-	-
Stage 1	604	-	-	-	-
Stage 2	688	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1060	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘		↘
Traffic Vol, veh/h	364	1169	213	4	0	401
Future Vol, veh/h	364	1169	213	4	0	401
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	6	6	0	0	1
Mvmt Flow	409	1313	239	4	0	451

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	252	0	-	0	- 247
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	4.13	-	-	-	- 6.215
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	2.219	-	-	-	- 3.3095
Pot Cap-1 Maneuver	1312	-	-	-	0 793
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1302	-	-	-	- 787
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.14	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1302	-	-	-	787
HCM Lane V/C Ratio	0.314	-	-	-	0.572
HCM Control Delay (s/veh)	9	-	-	-	15.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	1.4	-	-	-	3.7

# HCM Signalized Intersection Capacity Analysis

## 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



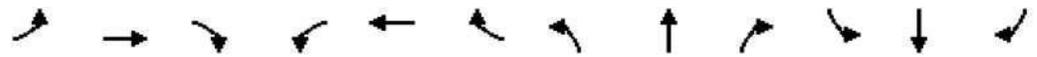
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↖
Traffic Volume (vph)	2	2	3	4	2	18	7	1513	7	45	565	3
Future Volume (vph)	2	2	3	4	2	18	7	1513	7	45	565	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.94			0.90		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1447			1523		1710	3255		1629	1765	1497
Flt Permitted		0.91			0.95		0.40	1.00		0.08	1.00	1.00
Satd. Flow (perm)		1330			1455		711	3255		143	1765	1497
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2	2	3	4	2	20	8	1700	8	51	635	3
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	7	0	0	8	0	8	1708	0	51	635	2
Confl. Peds. (#/hr)	4		3	3		4	1		2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	50%	0%	0%	0%	50%	0%	0%	5%	0%	5%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		5.3			5.3		51.3	50.8		57.9	54.1	54.1
Effective Green, g (s)		6.3			6.3		53.3	51.8		59.9	55.1	55.1
Actuated g/C Ratio		0.08			0.08		0.71	0.69		0.80	0.74	0.74
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)		111			122		525	2251		209	1298	1101
v/s Ratio Prot							0.00	c0.52		c0.02	0.36	
v/s Ratio Perm		0.01			c0.01		0.01			0.18		0.00
v/c Ratio		0.06			0.06		0.02	0.76		0.24	0.49	0.00
Uniform Delay, d1		31.6			31.6		3.2	7.5		5.8	4.1	2.6
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			0.2		0.0	1.4		0.4	0.2	0.0
Delay (s)		31.8			31.7		3.2	8.9		6.2	4.3	2.6
Level of Service		C			C		A	A		A	A	A
Approach Delay (s/veh)		31.8			31.7			8.9			4.4	
Approach LOS		C			C			A			A	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	74.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 7th Signalized Intersection Summary  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↖
Traffic Volume (veh/h)	2	2	3	4	2	18	7	1513	7	45	565	3
Future Volume (veh/h)	2	2	3	4	2	18	7	1513	7	45	565	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.97		0.98	0.95		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1098	1800	1800	1800	1098	1800	1800	1730	1800	1730	1772	1800
Adj Flow Rate, veh/h	2	2	3	4	2	1	8	1700	8	51	635	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	50	0	0	0	50	0	0	5	0	5	2	0
Cap, veh/h	97	23	34	117	13	7	626	2358	11	315	1298	1117
Arrive On Green	0.03	0.05	0.03	0.03	0.05	0.03	0.02	0.70	0.69	0.05	0.73	0.00
Sat Flow, veh/h	452	453	679	524	262	131	1714	3354	16	1647	1772	1525
Grp Volume(v), veh/h	7	0	0	7	0	0	8	832	876	51	635	0
Grp Sat Flow(s),veh/h/ln	1584	0	0	917	0	0	1714	1643	1727	1647	1772	1525
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	0.1	19.0	19.0	0.5	9.3	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	0.4	0.0	0.0	0.1	19.0	19.0	0.5	9.3	0.0
Prop In Lane	0.29		0.43	0.57		0.14	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	129	0	0	123	0	0	626	1155	1214	315	1298	1117
V/C Ratio(X)	0.05	0.00	0.00	0.06	0.00	0.00	0.01	0.72	0.72	0.16	0.49	0.00
Avail Cap(c_a), veh/h	274	0	0	207	0	0	722	1584	1664	465	1821	1568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.5	0.0	0.0	28.6	0.0	0.0	2.8	5.6	5.6	5.5	3.5	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.8	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.1	0.0	0.0	0.0	3.7	3.9	0.2	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.6	0.0	0.0	28.7	0.0	0.0	2.8	6.4	6.4	5.6	3.7	0.0
LnGrp LOS	C			C			A	A	A	A	A	
Approach Vol, veh/h		7			7			1716			686	
Approach Delay, s/veh		28.6			28.7			6.3			3.8	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	49.6		7.1	7.3	47.8		7.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	63.0		8.0	8.0	59.0		8.0				
Max Q Clear Time (g_c+I1), s	2.1	11.3		2.4	2.5	21.0		2.2				
Green Ext Time (p_c), s	0.0	6.6		0.0	0.0	21.7		0.0				

Intersection Summary

HCM 7th Control Delay, s/veh	5.8
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	6	1	72	5	13	3	377	75	12	333	0
Future Vol, veh/h	0	6	1	72	5	13	3	377	75	12	333	0
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	1	3	8	1	0
Mvmt Flow	0	7	1	79	5	14	3	414	82	13	366	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	817	898	367	859	856	456	367	0	0	498	0	0
Stage 1	393	393	-	463	463	-	-	-	-	-	-	-
Stage 2	424	504	-	396	393	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.272	-	-
Pot Cap-1 Maneuver	298	281	683	279	297	608	1203	-	-	1036	-	-
Stage 1	636	609	-	583	567	-	-	-	-	-	-	-
Stage 2	612	544	-	634	609	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	279	275	682	266	291	608	1202	-	-	1035	-	-
Mov Cap-2 Maneuver	279	275	-	266	291	-	-	-	-	-	-	-
Stage 1	625	599	-	580	565	-	-	-	-	-	-	-
Stage 2	590	541	-	616	599	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v17.28		23.58	0.05	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	11	-	-	301	291	63	-	-
HCM Lane V/C Ratio	0.003	-	-	0.026	0.34	0.013	-	-
HCM Control Delay (s/veh)	8	0	-	17.3	23.6	8.5	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.5	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (vph)	0	95	9	139	62	0	0	0	0	34	1592	52
Future Volume (vph)	0	95	9	139	62	0	0	0	0	34	1592	52
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frbp, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1730		1673	1800						4792	
Flt Permitted		1.00		0.66	1.00						1.00	
Satd. Flow (perm)		1730		1157	1800						4792	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	100	9	146	65	0	0	0	0	36	1676	55
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	105	0	146	65	0	0	0	0	0	1764	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	0%	3%	0%	2%	0%	0%	0%	0%	0%	0%	2%	0%
Turn Type		NA		Perm	NA						Perm	NA
Protected Phases		8			4							2
Permitted Phases				4						2		
Actuated Green, G (s)		15.7		15.7	15.7						64.3	
Effective Green, g (s)		16.7		16.7	16.7						65.3	
Actuated g/C Ratio		0.19		0.19	0.19						0.73	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.5		2.5	2.5						2.5	
Lane Grp Cap (vph)		321		214	334						3476	
v/s Ratio Prot		0.06			0.04							
v/s Ratio Perm				0.13							0.37	
v/c Ratio		0.33		0.68	0.19						0.51	
Uniform Delay, d1		31.8		34.2	31.0						5.4	
Progression Factor		1.00		0.27	0.19						1.00	
Incremental Delay, d2		0.4		7.4	0.2						0.5	
Delay (s)		32.2		16.8	6.1						5.9	
Level of Service		C		B	A						A	
Approach Delay (s/veh)		32.2			13.5			0.0			5.9	
Approach LOS		C			B			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			8.0								A	
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			90.0							8.0		
Intersection Capacity Utilization			59.9%								B	
ICU Level of Service												
Analysis Period (min)			15									

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (veh/h)	0	95	9	139	62	0	0	0	0	34	1592	52
Future Volume (veh/h)	0	95	9	139	62	0	0	0	0	34	1592	52
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	1758	1800	1772	1800	0				1800	1772	1800
Adj Flow Rate, veh/h	0	100	6	146	65	0				36	1676	52
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	3	0	2	0	0				0	2	0
Cap, veh/h	0	327	20	269	358	0				74	3466	108
Arrive On Green	0.00	0.20	0.19	0.33	0.33	0.00				0.70	0.71	0.70
Sat Flow, veh/h	0	1641	98	1285	1800	0				105	4868	151
Grp Volume(v), veh/h	0	0	106	146	65	0				608	555	601
Grp Sat Flow(s),veh/h/ln	0	0	1740	1285	1800	0				1767	1612	1745
Q Serve(g_s), s	0.0	0.0	4.7	9.5	2.3	0.0				13.6	13.6	13.6
Cycle Q Clear(g_c), s	0.0	0.0	4.7	14.2	2.3	0.0				13.6	13.6	13.6
Prop In Lane	0.00		0.06	1.00		0.00				0.06		0.09
Lane Grp Cap(c), veh/h	0	0	346	269	358	0				1258	1148	1242
V/C Ratio(X)	0.00	0.00	0.31	0.54	0.18	0.00				0.48	0.48	0.48
Avail Cap(c_a), veh/h	0	0	522	399	540	0				1258	1148	1242
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	0.00	1.00	0.68	0.68	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.8	31.0	24.8	0.0				5.7	5.7	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.9	0.1	0.0				1.3	1.5	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.0	2.6	1.0	0.0				4.5	4.1	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	31.1	31.8	25.0	0.0				7.0	7.1	7.1
LnGrp LOS			C	C	C					A	A	A
Approach Vol, veh/h		106			211						1764	
Approach Delay, s/veh		31.1			29.7						7.1	
Approach LOS		C			C						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		68.1		21.9				21.9				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		54.0		26.0				26.0				
Max Q Clear Time (g_c+I1), s		15.6		16.2				6.7				
Green Ext Time (p_c), s		21.3		0.6				0.3				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			10.6									
HCM 7th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 3: Liberty St NE & Pine St NE

05/29/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	97	0	0	188	31	13	1375	103	0	0	0
Future Volume (vph)	40	97	0	0	188	31	13	1375	103	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.98			0.99				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1583	1800			1719			4752				
Flt Permitted	0.38	1.00			1.00			1.00				
Satd. Flow (perm)	629	1800			1719			4752				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	43	103	0	0	200	33	14	1463	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	7	0	0	0	0
Lane Group Flow (vph)	43	103	0	0	225	0	0	1580	0	0	0	0
Confl. Peds. (#/hr)			1	1					2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	8%	0%	0%	0%	2%	7%	0%	2%	4%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)	16.6	16.6			16.6			63.4				
Effective Green, g (s)	17.6	17.6			17.6			64.4				
Actuated g/C Ratio	0.20	0.20			0.20			0.72				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.5	2.5			2.5			2.5				
Lane Grp Cap (vph)	123	352			336			3400				
v/s Ratio Prot		0.06			0.13							
v/s Ratio Perm	0.07							0.33				
v/c Ratio	0.35	0.29			0.67			0.46				
Uniform Delay, d1	31.3	30.9			33.5			5.5				
Progression Factor	0.55	0.55			1.00			1.00				
Incremental Delay, d2	1.2	0.3			4.5			0.5				
Delay (s)	18.3	17.3			38.0			5.9				
Level of Service	B	B			D			A				
Approach Delay (s/veh)		17.6			38.0			5.9			0.0	
Approach LOS		B			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			10.6					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)			8.0	
Intersection Capacity Utilization			59.9%					ICU Level of Service			B	
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↘			↗	↗			
Traffic Volume (veh/h)	40	97	0	0	188	31	13	1375	103	0	0	0
Future Volume (veh/h)	40	97	0	0	188	31	13	1375	103	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		0.98			
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	1688	1800	0	0	1772	1702	1800	1772	1744			
Adj Flow Rate, veh/h	43	103	0	0	200	27	14	1463	101			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	8	0	0	0	2	7	0	2	4			
Cap, veh/h	161	351	0	0	298	40	32	3377	233			
Arrive On Green	0.39	0.39	0.00	0.00	0.20	0.18	0.70	0.72	0.70			
Sat Flow, veh/h	1099	1800	0	0	1528	206	45	4716	326			
Grp Volume(v), veh/h	43	103	0	0	0	227	549	500	529			
Grp Sat Flow(s),veh/h/ln	1099	1800	0	0	0	1735	1770	1612	1705			
Q Serve(g_s), s	3.3	3.5	0.0	0.0	0.0	10.9	11.5	11.5	11.6			
Cycle Q Clear(g_c), s	14.2	3.5	0.0	0.0	0.0	10.9	11.5	11.5	11.6			
Prop In Lane	1.00		0.00	0.00		0.12	0.03		0.19			
Lane Grp Cap(c), veh/h	161	351	0	0	0	338	1267	1155	1221			
V/C Ratio(X)	0.27	0.29	0.00	0.00	0.00	0.67	0.43	0.43	0.43			
Avail Cap(c_a), veh/h	301	580	0	0	0	559	1267	1155	1221			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	31.5	23.2	0.0	0.0	0.0	33.6	5.3	5.3	5.3			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	0.0	1.7	1.1	1.2	1.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	1.4	0.0	0.0	0.0	4.7	3.6	3.3	3.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.1	23.5	0.0	0.0	0.0	35.3	6.3	6.4	6.4			
LnGrp LOS	C	C				D	A	A	A			
Approach Vol, veh/h		146			227			1578				
Approach Delay, s/veh		26.0			35.3			6.4				
Approach LOS		C			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				21.6		68.4		21.6				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				28.0		52.0		28.0				
Max Q Clear Time (g_c+I1), s				12.9		13.6		16.2				
Green Ext Time (p_c), s				0.7		17.1		0.4				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			11.2									
HCM 7th LOS			B									

HCM 7th TWSC  
4: Front St NE & Shipping St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	5	4	1	0	7	502	2	2	462	1
Future Vol, veh/h	4	1	5	4	1	0	7	502	2	2	462	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	100	0	14	3	0	50	1	0
Mvmt Flow	4	1	5	4	1	0	8	546	2	2	502	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1070	1074	505	1071	1074	549	505	0	0	550	0	0
Stage 1	509	509	-	564	564	-	-	-	-	-	-	-
Stage 2	561	565	-	507	510	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	7.5	6.2	4.24	-	-	4.6	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.9	3.3	2.326	-	-	2.65	-	-
Pot Cap-1 Maneuver	200	222	571	200	149	540	1000	-	-	818	-	-
Stage 1	550	541	-	514	380	-	-	-	-	-	-	-
Stage 2	516	511	-	552	406	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	196	218	570	194	147	539	999	-	-	817	-	-
Mov Cap-2 Maneuver	196	218	-	194	147	-	-	-	-	-	-	-
Stage 1	547	538	-	507	375	-	-	-	-	-	-	-
Stage 2	508	505	-	543	404	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	17.63		25.36		0.12		0.04	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	25	-	-	296	182	8	-	-
HCM Lane V/C Ratio	0.008	-	-	0.037	0.03	0.003	-	-
HCM Control Delay (s/veh)	8.6	0	-	17.6	25.4	9.4	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

HCM 7th TWSC  
5: Front St NE & Hood St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	12	0	2	0	510	5	2	471	0
Future Vol, veh/h	0	0	0	12	0	2	0	510	5	2	471	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	3	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	20	0	1	0
Mvmt Flow	0	0	0	13	0	2	0	560	5	2	518	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1085	1094	521	1088	1091	566	521	0	0	569	0	0
Stage 1	525	525	-	566	566	-	-	-	-	-	-	-
Stage 2	560	569	-	522	525	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	196	216	560	195	217	527	1056	-	-	1013	-	-
Stage 1	540	533	-	512	511	-	-	-	-	-	-	-
Stage 2	516	509	-	542	533	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	194	214	558	194	215	526	1053	-	-	1011	-	-
Mov Cap-2 Maneuver	194	214	-	194	215	-	-	-	-	-	-	-
Stage 1	536	530	-	511	509	-	-	-	-	-	-	-
Stage 2	514	508	-	540	530	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	23.21	0	0.04
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1053	-	-	-	213	8	-	-
HCM Lane V/C Ratio	-	-	-	-	0.072	0.002	-	-
HCM Control Delay (s/veh)	0	-	-	0	23.2	8.6	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

HCM 7th TWSC  
6: Front St NE & North Access/Gaines St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	4	0	1	0	512	1	3	484	0
Future Vol, veh/h	0	0	0	4	0	1	0	512	1	3	484	0
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	33	1	0
Mvmt Flow	0	0	0	4	0	1	0	563	1	3	532	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1103	1106	534	1104	1106	565	534	0	0	566	0	0
Stage 1	540	540	-	565	565	-	-	-	-	-	-	-
Stage 2	563	566	-	538	540	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.43	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.497	-	-
Pot Cap-1 Maneuver	190	212	550	190	212	528	1044	-	-	869	-	-
Stage 1	529	524	-	513	511	-	-	-	-	-	-	-
Stage 2	515	511	-	531	524	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	189	210	549	189	210	527	1042	-	-	867	-	-
Mov Cap-2 Maneuver	189	210	-	189	210	-	-	-	-	-	-	-
Stage 1	525	520	-	512	510	-	-	-	-	-	-	-
Stage 2	514	510	-	528	520	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	22.05	0	0.06
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1042	-	-	-	217	11	-	-
HCM Lane V/C Ratio	-	-	-	-	0.025	0.004	-	-
HCM Control Delay (s/veh)	0	-	-	0	22	9.2	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	19	0	31	0	485	26	28	457	0
Future Vol, veh/h	0	0	0	19	0	31	0	485	26	28	457	0
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	11	0	17	0	3	0	0	1	0
Mvmt Flow	0	0	0	21	0	34	0	533	29	31	502	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1102	1135	508	1117	1121	552	507	0	0	567	0	0
Stage 1	569	569	-	552	552	-	-	-	-	-	-	-
Stage 2	533	567	-	565	569	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.21	6.5	6.37	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.599	4	3.453	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	191	204	569	177	208	505	1068	-	-	1015	-	-
Stage 1	511	509	-	502	518	-	-	-	-	-	-	-
Stage 2	534	510	-	494	509	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	170	193	565	169	197	503	1063	-	-	1011	-	-
Mov Cap-2 Maneuver	170	193	-	169	197	-	-	-	-	-	-	-
Stage 1	487	485	-	500	515	-	-	-	-	-	-	-
Stage 2	498	508	-	473	485	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	20.48	0	0.5
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1063	-	-	-	287	104	-	-
HCM Lane V/C Ratio	-	-	-	-	0.191	0.03	-	-
HCM Control Delay (s/veh)	0	-	-	0	20.5	8.7	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.7	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	56	16	98	42	0	0	0	0	53	1592	3
Future Volume (vph)	0	56	16	98	42	0	0	0	0	53	1592	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frb, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.97			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1720			1633						3315	
Flt Permitted		1.00			0.74						1.00	
Satd. Flow (perm)		1720			1256						3315	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	60	17	105	45	0	0	0	0	57	1712	3
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	65	0	0	150	0	0	0	0	0	1772	0
Confl. Peds. (#/hr)	6					6	8		2	2		2
Heavy Vehicles (%)	0%	2%	0%	2%	17%	0%	0%	0%	0%	2%	3%	0%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.8			14.8						65.2	
Effective Green, g (s)		15.8			15.8						66.2	
Actuated g/C Ratio		0.18			0.18						0.74	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.5			2.5						2.5	
Lane Grp Cap (vph)		301			220						2438	
v/s Ratio Prot		0.04										
v/s Ratio Perm					0.12						0.53	
v/c Ratio		0.21			0.68						0.73	
Uniform Delay, d1		31.8			34.7						6.8	
Progression Factor		1.00			0.44						1.00	
Incremental Delay, d2		0.3			6.5						1.9	
Delay (s)		32.0			21.9						8.7	
Level of Service		C			C						A	
Approach Delay (s/veh)		32.0			21.9			0.0			8.7	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			10.6									B
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			90.0								8.0	
Intersection Capacity Utilization			72.9%									C
Analysis Period (min)			15									

c Critical Lane Group

HCM 7th Signalized Intersection Summary  
 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (veh/h)	0	56	16	98	42	0	0	0	0	53	1592	3
Future Volume (veh/h)	0	56	16	98	42	0	0	0	0	53	1592	3
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	1772	1800	1772	1561	0				1772	1758	1800
Adj Flow Rate, veh/h	0	60	5	105	45	0				57	1712	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	0	2	17	0				2	3	0
Cap, veh/h	0	275	23	189	68	0				84	2511	4
Arrive On Green	0.00	0.17	0.16	0.16	0.17	0.00				0.73	0.74	0.73
Sat Flow, veh/h	0	1613	134	711	398	0				113	3390	6
Grp Volume(v), veh/h	0	0	65	150	0	0				886	0	886
Grp Sat Flow(s),veh/h/ln	0	0	1748	1109	0	0				1752	0	1757
Q Serve(g_s), s	0.0	0.0	2.9	9.3	0.0	0.0				23.9	0.0	23.8
Cycle Q Clear(g_c), s	0.0	0.0	2.9	12.2	0.0	0.0				23.9	0.0	23.8
Prop In Lane	0.00		0.08	0.70		0.00				0.06		0.00
Lane Grp Cap(c), veh/h	0	0	298	245	0	0				1298	0	1301
V/C Ratio(X)	0.00	0.00	0.22	0.61	0.00	0.00				0.68	0.00	0.68
Avail Cap(c_a), veh/h	0	0	388	311	0	0				1298	0	1301
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.64	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	32.2	37.1	0.0	0.0				6.1	0.0	6.1
Incr Delay (d2), s/veh	0.0	0.0	0.3	1.2	0.0	0.0				2.9	0.0	2.9
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	0.0	1.2	3.3	0.0	0.0				7.5	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	32.5	38.3	0.0	0.0				9.1	0.0	9.0
LnGrp LOS			C	D						A		A
Approach Vol, veh/h		65			150						1772	
Approach Delay, s/veh		32.5			38.3						9.0	
Approach LOS		C			D						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		70.7		19.3				19.3				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		61.0		19.0				19.0				
Max Q Clear Time (g_c+I1), s		25.9		14.2				4.9				
Green Ext Time (p_c), s		23.0		0.2				0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			12.0									
HCM 7th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	7	84	0	0	145	56	2	1481	54	0	0	0
Future Volume (vph)	7	84	0	0	145	56	2	1481	54	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.99				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1793			1615			3301				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1744			1615			3301				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	91	0	0	158	61	2	1610	59	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	99	0	0	203	0	0	1669	0	0	0	0
Confl. Peds. (#/hr)	1		1	1		1	4		3	3		3
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	6%	9%	0%	3%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		15.4			15.4			64.6				
Effective Green, g (s)		16.4			16.4			65.6				
Actuated g/C Ratio		0.18			0.18			0.73				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.5			2.5			2.5				
Lane Grp Cap (vph)		317			294			2406				
v/s Ratio Prot					0.13							
v/s Ratio Perm		0.06						0.51				
v/c Ratio		0.31			0.69			0.69				
Uniform Delay, d1		31.9			34.4			6.7				
Progression Factor		0.69			1.00			1.00				
Incremental Delay, d2		0.4			6.0			1.7				
Delay (s)		22.5			40.5			8.4				
Level of Service		C			D			A				
Approach Delay (s/veh)		22.5			40.5			8.4			0.0	
Approach LOS		C			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			12.6				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			65.0%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (veh/h)	7	84	0	0	145	56	2	1481	54	0	0	0
Future Volume (veh/h)	7	84	0	0	145	56	2	1481	54	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		0.98			
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	1800	1800	0	0	1716	1674	1800	1758	1772			
Adj Flow Rate, veh/h	8	91	0	0	158	46	2	1610	56			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	6	9	0	3	2			
Cap, veh/h	48	218	0	0	204	59	3	2533	88			
Arrive On Green	0.30	0.32	0.00	0.00	0.16	0.15	0.74	0.75	0.74			
Sat Flow, veh/h	28	1365	0	0	1276	372	4	3370	117			
Grp Volume(v), veh/h	99	0	0	0	0	204	837	0	831			
Grp Sat Flow(s),veh/h/ln	1393	0	0	0	0	1648	1758	0	1734			
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	10.7	20.3	0.0	20.6			
Cycle Q Clear(g_c), s	11.1	0.0	0.0	0.0	0.0	10.7	20.3	0.0	20.6			
Prop In Lane	0.08		0.00	0.00		0.23	0.00		0.07			
Lane Grp Cap(c), veh/h	250	0	0	0	0	263	1321	0	1303			
V/C Ratio(X)	0.40	0.00	0.00	0.00	0.00	0.78	0.63	0.00	0.64			
Avail Cap(c_a), veh/h	378	0	0	0	0	385	1321	0	1303			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.00	0.00	0.00	0.00	0.58	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.2	0.0	0.0	0.0	0.0	36.4	5.3	0.0	5.4			
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.8	2.3	0.0	2.4			
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	0.0	0.0	0.0	0.0	4.5	6.2	0.0	6.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.0	0.0	0.0	0.0	0.0	39.2	7.6	0.0	7.8			
LnGrp LOS	C					D	A		A			
Approach Vol, veh/h		99			204			1668				
Approach Delay, s/veh		28.0			39.2			7.7				
Approach LOS		C			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				18.4		71.6		18.4				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				20.0		60.0		20.0				
Max Q Clear Time (g_c+I1), s				12.7		22.6		13.1				
Green Ext Time (p_c), s				0.4		22.0		0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			12.0									
HCM 7th LOS			B									

# HCM Signalized Intersection Capacity Analysis

## 10: Broadway St & Market St NE

05/29/2024

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	16	126	19	169	162	145	18	614	141	123	645	22	
Future Volume (vph)	16	126	19	169	162	145	18	614	141	123	645	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00		
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.91	1.00	1.00		
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00	1.00	1.00	1.00		
Frt	1.00	0.98		1.00	0.93		1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1700	1740		1684	1559		1710	1765	1395	1660	1748		
Flt Permitted	0.38	1.00		0.41	1.00		0.22	1.00	1.00	0.19	1.00		
Satd. Flow (perm)	685	1740		723	1559		388	1765	1395	336	1748		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	17	135	20	182	174	156	19	660	152	132	694	24	
RTOR Reduction (vph)	0	5	0	0	26	0	0	0	32	0	1	0	
Lane Group Flow (vph)	17	150	0	182	304	0	19	660	120	132	717	0	
Confl. Peds. (#/hr)	13		9	9		13	16		30	30		30	
Confl. Bikes (#/hr)			1						1			1	
Heavy Vehicles (%)	0%	1%	0%	1%	8%	1%	0%	2%	0%	3%	2%	5%	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt		NA	
Protected Phases	3	8		7	4		1	6	7	5		2	
Permitted Phases	8			4			6		6	2			
Actuated Green, G (s)	22.8	19.6		37.4	29.2		62.6	59.4	72.2	72.6		64.4	
Effective Green, g (s)	24.8	20.6		38.4	30.2		64.6	60.4	74.2	73.6		65.4	
Actuated g/C Ratio	0.21	0.17		0.32	0.25		0.54	0.50	0.62	0.61		0.55	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	177	298		341	392		255	888	909	307		952	
v/s Ratio Prot	0.00	0.09		c0.06	c0.19		0.00	0.37	0.02	c0.03		c0.41	
v/s Ratio Perm	0.02			0.11			0.04		0.07	0.23			
v/c Ratio	0.10	0.50		0.53	0.78		0.07	0.74	0.13	0.43		0.75	
Uniform Delay, d1	38.3	45.1		31.5	41.7		16.1	23.6	9.5	15.8		21.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.2	1.0		1.2	8.9		0.1	5.6	0.0	0.7		5.5	
Delay (s)	38.5	46.0		32.8	50.6		16.2	29.2	9.6	16.5		26.6	
Level of Service	D	D		C	D		B	C	A	B		C	
Approach Delay (s/veh)		45.3			44.3			25.3				25.0	
Approach LOS		D			D			C				C	
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			30.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			83.6%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

# HCM 7th Signalized Intersection Summary

## 10: Broadway St & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	126	19	169	162	145	18	614	141	123	645	22
Future Volume (veh/h)	16	126	19	169	162	145	18	614	141	123	645	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1786	1688	1786	1800	1772	1800	1758	1772	1730
Adj Flow Rate, veh/h	17	135	16	182	174	128	19	660	108	132	694	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	1	8	1	0	2	0	3	2	5
Cap, veh/h	153	228	27	324	194	143	335	953	946	367	974	32
Arrive On Green	0.04	0.15	0.14	0.11	0.22	0.21	0.04	0.54	0.54	0.07	0.57	0.56
Sat Flow, veh/h	1714	1553	184	1701	890	655	1714	1772	1452	1674	1702	56
Grp Volume(v), veh/h	17	0	151	182	0	302	19	660	108	132	0	717
Grp Sat Flow(s),veh/h/ln	1714	0	1737	1701	0	1545	1714	1772	1452	1674	0	1759
Q Serve(g_s), s	1.0	0.0	9.8	10.5	0.0	22.8	0.6	32.9	3.4	3.8	0.0	35.4
Cycle Q Clear(g_c), s	1.0	0.0	9.8	10.5	0.0	22.8	0.6	32.9	3.4	3.8	0.0	35.4
Prop In Lane	1.00		0.11	1.00		0.42	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	153	0	254	324	0	336	335	953	946	367	0	1006
V/C Ratio(X)	0.11	0.00	0.59	0.56	0.00	0.90	0.06	0.69	0.11	0.36	0.00	0.71
Avail Cap(c_a), veh/h	218	0	347	324	0	361	396	953	946	368	0	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.00	0.96	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.2	0.0	47.9	36.3	0.0	45.9	15.0	20.4	8.1	15.3	0.0	18.6
Incr Delay (d2), s/veh	0.2	0.0	1.6	1.9	0.0	22.9	0.1	4.1	0.2	0.4	0.0	4.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	4.4	4.6	0.0	10.9	0.2	14.3	1.1	1.4	0.0	15.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.5	0.0	49.5	38.2	0.0	68.7	15.1	24.6	8.4	15.7	0.0	22.8
LnGrp LOS	D		D	D		E	B	C	A	B		C
Approach Vol, veh/h		168			484			787			849	
Approach Delay, s/veh		48.7			57.2			22.1			21.7	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	72.7	8.5	30.1	12.9	68.5	17.0	21.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	57.0	8.0	27.0	8.0	57.0	12.0	23.0				
Max Q Clear Time (g_c+I1), s	2.6	37.4	3.0	24.8	5.8	34.9	12.5	11.8				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.3	0.1	6.0	0.0	0.4				

### Intersection Summary

HCM 7th Control Delay, s/veh	31.4
HCM 7th LOS	C

### Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	511	476	0
Future Vol, veh/h	0	0	0	511	476	0
Conflicting Peds, #/hr	0	1	0	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	3	1	0
Mvmt Flow	0	0	0	562	523	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1090	529	528	0	0
Stage 1	528	-	-	-	-
Stage 2	562	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	240	554	1049	-	-
Stage 1	596	-	-	-	-
Stage 2	575	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	238	550	1044	-	-
Mov Cap-2 Maneuver	238	-	-	-	-
Stage 1	593	-	-	-	-
Stage 2	572	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1044	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗↗	↗	↗		↗
Traffic Vol, veh/h	477	1167	183	3	0	478
Future Vol, veh/h	477	1167	183	3	0	478
Conflicting Peds, #/hr	6	0	0	6	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	2	0	0	1
Mvmt Flow	497	1216	191	3	0	498

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	200	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.145	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2285	-	-
Pot Cap-1 Maneuver	1365	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1357	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.66	0	15.38
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1357	-	-	-	838
HCM Lane V/C Ratio	0.366	-	-	-	0.594
HCM Control Delay (s/veh)	9.2	-	-	-	15.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	1.7	-	-	-	4

HCM Signalized Intersection Capacity Analysis  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024

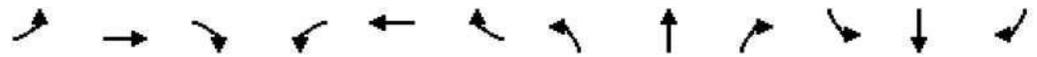


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↗
Traffic Volume (vph)	20	22	19	7	8	31	14	1593	32	111	541	9
Future Volume (vph)	20	22	19	7	8	31	14	1593	32	111	541	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1666			1590		1707	3311		1710	1765	1493
Flt Permitted		0.89			0.95		0.45	1.00		0.07	1.00	1.00
Satd. Flow (perm)		1503			1519		813	3311		131	1765	1493
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	23	20	7	8	32	15	1659	33	116	564	9
RTOR Reduction (vph)	0	0	0	0	29	0	0	1	0	0	0	2
Lane Group Flow (vph)	0	64	0	0	18	0	15	1691	0	116	564	7
Confl. Peds. (#/hr)	15		11	11		15	4		4	4		4
Confl. Bikes (#/hr)			4			2			2			3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		7.5			7.5		51.6	51.1		62.6	57.1	57.1
Effective Green, g (s)		8.5			8.5		53.6	52.1		63.6	58.1	58.1
Actuated g/C Ratio		0.11			0.11		0.67	0.65		0.79	0.73	0.73
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)		159			161		560	2153		251	1280	1082
v/s Ratio Prot							0.00	c0.51		c0.04	0.32	
v/s Ratio Perm		c0.04			0.01		0.02			0.32		0.00
v/c Ratio		0.40			0.11		0.03	0.79		0.46	0.44	0.01
Uniform Delay, d1		33.4			32.4		4.4	10.0		10.4	4.4	3.0
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		1.2			0.2		0.0	1.9		1.0	0.2	0.0
Delay (s)		34.6			32.6		4.4	11.9		11.4	4.6	3.0
Level of Service		C			C		A	B		B	A	A
Approach Delay (s/veh)		34.6			32.6			11.8			5.7	
Approach LOS		C			C			B			A	

Intersection Summary		
HCM 2000 Control Delay (s/veh)	11.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.70	B
Actuated Cycle Length (s)	80.1	Sum of lost time (s)
Intersection Capacity Utilization	77.7%	12.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

HCM 7th Signalized Intersection Summary  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↖
Traffic Volume (veh/h)	20	22	19	7	8	31	14	1593	32	111	541	9
Future Volume (veh/h)	20	22	19	7	8	31	14	1593	32	111	541	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.96		0.90	0.94		0.94	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800	1800	1758	1800	1800	1772	1800
Adj Flow Rate, veh/h	21	23	20	7	8	3	15	1659	32	116	564	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	3	0	0	2	0
Cap, veh/h	105	84	55	113	109	30	616	2183	42	304	1219	1049
Arrive On Green	0.10	0.11	0.10	0.10	0.11	0.10	0.03	0.65	0.64	0.06	0.69	0.00
Sat Flow, veh/h	331	733	483	373	953	265	1714	3350	64	1714	1772	1525
Grp Volume(v), veh/h	64	0	0	18	0	0	15	825	866	116	564	0
Grp Sat Flow(s),veh/h/ln	1546	0	0	1591	0	0	1714	1670	1744	1714	1772	1525
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.2	24.1	24.3	1.4	10.3	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.7	0.0	0.0	0.2	24.1	24.3	1.4	10.3	0.0
Prop In Lane	0.33		0.31	0.39		0.17	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	222	0	0	230	0	0	616	1088	1137	304	1219	1049
V/C Ratio(X)	0.29	0.00	0.00	0.08	0.00	0.00	0.02	0.76	0.76	0.38	0.46	0.00
Avail Cap(c_a), veh/h	263	0	0	271	0	0	688	1367	1428	435	1576	1357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.2	0.0	0.0	28.3	0.0	0.0	4.1	8.5	8.5	10.1	5.1	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.0	0.0	1.7	1.7	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.3	0.0	0.0	0.0	6.6	7.0	0.8	2.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.8	0.0	0.0	28.4	0.0	0.0	4.1	10.2	10.2	10.7	5.3	0.0
LnGrp LOS	C			C			A	B	B	B	A	
Approach Vol, veh/h		64			18			1706			680	
Approach Delay, s/veh		29.8			28.4			10.2			6.2	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	52.7		12.1	8.6	50.2		12.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	62.0		9.0	9.0	57.0		9.0				
Max Q Clear Time (g_c+I1), s	2.2	12.3		2.7	3.4	26.3		4.6				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.2	18.8		0.1				

Intersection Summary

HCM 7th Control Delay, s/veh	9.7
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 7th TWSC  
1: Front St NE & Pine St NE

05/31/2024

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	1	50	1	11	4	222	40	5	365	2
Future Vol, veh/h	1	3	1	50	1	11	4	222	40	5	365	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	9	0	18	0	1	9	80	1	0
Mvmt Flow	1	4	1	67	1	15	5	296	53	7	487	3

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	809	861	488	835	836	323	489	0	0	349	0	0
Stage 1	501	501	-	333	333	-	-	-	-	-	-	-
Stage 2	307	360	-	502	503	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.38	4.1	-	-	4.9	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.462	2.2	-	-	2.92	-	-
Pot Cap-1 Maneuver	301	295	584	279	305	683	1084	-	-	880	-	-
Stage 1	556	546	-	666	647	-	-	-	-	-	-	-
Stage 2	707	630	-	539	545	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	289	290	584	270	300	683	1084	-	-	880	-	-
Mov Cap-2 Maneuver	289	290	-	270	300	-	-	-	-	-	-	-
Stage 1	550	540	-	662	643	-	-	-	-	-	-	-
Stage 2	686	626	-	528	539	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	16.4		21.27		0.13		0.12	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	26	-	-	322	303	24	-	-
HCM Lane V/C Ratio	0.005	-	-	0.021	0.273	0.008	-	-
HCM Control Delay (s/veh)	8.3	0	-	16.4	21.3	9.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.1	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 2: Commercial St NE (99E) & Pine St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (vph)	0	64	6	85	48	0	0	0	0	28	1612	39
Future Volume (vph)	0	64	6	85	48	0	0	0	0	28	1612	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frbp, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1389		1447	1714						4530	
Flt Permitted		1.00		0.70	1.00						1.00	
Satd. Flow (perm)		1389		1071	1714						4530	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	76	7	101	57	0	0	0	0	33	1919	46
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	79	0	101	57	0	0	0	0	0	1996	0
Confl. Peds. (#/hr)	2		1	1		2	1		4	4		4
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	29%	17%	18%	5%	0%	0%	0%	0%	7%	8%	5%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		12.0		12.0	12.0						68.0	
Effective Green, g (s)		13.0		13.0	13.0						69.0	
Actuated g/C Ratio		0.14		0.14	0.14						0.77	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.5		2.5	2.5						2.5	
Lane Grp Cap (vph)		200		154	247						3473	
v/s Ratio Prot		0.06			0.03							
v/s Ratio Perm				0.09							0.44	
v/c Ratio		0.39		0.66	0.23						0.57	
Uniform Delay, d1		34.9		36.4	34.1						4.4	
Progression Factor		1.00		0.45	0.37						1.00	
Incremental Delay, d2		0.9		8.3	0.3						0.7	
Delay (s)		35.9		24.7	12.9						5.1	
Level of Service		D		C	B						A	
Approach Delay (s/veh)		35.9			20.4			0.0			5.1	
Approach LOS		D			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			7.3			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			58.1%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 2: Commercial St NE (99E) & Pine St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗		↖	↖						↖↗↘	
Traffic Volume (veh/h)	0	64	6	85	48	0	0	0	0	28	1612	39
Future Volume (veh/h)	0	64	6	85	48	0	0	0	0	28	1612	39
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		0.98
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	1393	1561	1547	1730	0				1702	1688	1730
Adj Flow Rate, veh/h	0	76	2	101	57	0				33	1919	42
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	29	17	18	5	0				7	8	5
Cap, veh/h	0	235	6	223	300	0				60	3468	76
Arrive On Green	0.00	0.17	0.16	0.17	0.17	0.00				0.73	0.74	0.73
Sat Flow, veh/h	0	1351	36	1152	1730	0				81	4702	103
Grp Volume(v), veh/h	0	0	78	101	57	0				687	626	681
Grp Sat Flow(s),veh/h/ln	0	0	1386	1152	1730	0				1684	1536	1666
Q Serve(g_s), s	0.0	0.0	4.4	7.6	2.5	0.0				16.3	16.3	16.4
Cycle Q Clear(g_c), s	0.0	0.0	4.4	12.0	2.5	0.0				16.3	16.3	16.4
Prop In Lane	0.00		0.03	1.00		0.00				0.05		0.06
Lane Grp Cap(c), veh/h	0	0	241	223	300	0				1242	1133	1229
V/C Ratio(X)	0.00	0.00	0.32	0.45	0.19	0.00				0.55	0.55	0.55
Avail Cap(c_a), veh/h	0	0	447	394	557	0				1242	1133	1229
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.72	0.72	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	32.6	37.8	31.8	0.0				5.3	5.2	5.3
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.8	0.2	0.0				1.8	1.9	1.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.5	2.2	1.1	0.0				4.9	4.5	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	33.1	38.6	31.9	0.0				7.0	7.2	7.1
LnGrp LOS			C	D	C					A	A	A
Approach Vol, veh/h		78			158						1994	
Approach Delay, s/veh		33.1			36.2						7.1	
Approach LOS		C			D						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		70.4		19.6				19.6				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		52.0		28.0				28.0				
Max Q Clear Time (g_c+I1), s		18.4		14.0				6.4				
Green Ext Time (p_c), s		23.0		0.5				0.2				

### Intersection Summary

HCM 7th Control Delay, s/veh	10.1
HCM 7th LOS	B

### Notes

User approved pedestrian interval to be less than phase max green.

# HCM Signalized Intersection Capacity Analysis

## 3: Liberty St NE (99E) & Pine St NE

05/31/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	48	0	0	134	31	4	1214	92	0	0	0
Future Volume (vph)	18	48	0	0	134	31	4	1214	92	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frbp, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.99				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1525	1579			1478			4573				
Flt Permitted	0.48	1.00			1.00			1.00				
Satd. Flow (perm)	774	1579			1478			4573				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	51	0	0	143	33	4	1291	98	0	0	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	6	0	0	0	0
Lane Group Flow (vph)	19	51	0	0	164	0	0	1387	0	0	0	0
Confl. Peds. (#/hr)	1					1			2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	12%	14%	0%	0%	21%	7%	0%	6%	8%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)	14.9	14.9			14.9			65.1				
Effective Green, g (s)	15.9	15.9			15.9			66.1				
Actuated g/C Ratio	0.18	0.18			0.18			0.73				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.5	2.5			2.5			2.5				
Lane Grp Cap (vph)	136	278			261			3358				
v/s Ratio Prot		0.03			0.11							
v/s Ratio Perm	0.02							0.30				
v/c Ratio	0.14	0.18			0.63			0.41				
Uniform Delay, d1	31.3	31.5			34.3			4.6				
Progression Factor	1.68	1.68			1.00			1.00				
Incremental Delay, d2	0.3	0.2			4.3			0.4				
Delay (s)	52.9	53.2			38.6			4.9				
Level of Service	D	D			D			A				
Approach Delay (s/veh)		53.1			38.6			4.9			0.0	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			10.6					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		8.0		
Intersection Capacity Utilization			58.1%					ICU Level of Service		B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 3: Liberty St NE (99E) & Pine St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	48	0	0	134	31	4	1214	92	0	0	0
Future Volume (veh/h)	18	48	0	0	134	31	4	1214	92	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		0.98			
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	1632	1603	0	0	1505	1702	1800	1716	1688			
Adj Flow Rate, veh/h	19	51	0	0	143	27	4	1291	88			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	12	14	0	0	21	7	0	6	8			
Cap, veh/h	139	261	0	0	200	38	11	3442	235			
Arrive On Green	0.16	0.16	0.00	0.00	0.16	0.15	0.74	0.75	0.74			
Sat Flow, veh/h	1118	1603	0	0	1230	232	14	4600	314			
Grp Volume(v), veh/h	19	51	0	0	0	170	481	438	463			
Grp Sat Flow(s),veh/h/ln	1118	1603	0	0	0	1463	1715	1561	1651			
Q Serve(g_s), s	1.5	2.5	0.0	0.0	0.0	9.9	8.8	8.8	8.9			
Cycle Q Clear(g_c), s	11.4	2.5	0.0	0.0	0.0	9.9	8.8	8.8	8.9			
Prop In Lane	1.00		0.00	0.00		0.16	0.01		0.19			
Lane Grp Cap(c), veh/h	139	261	0	0	0	238	1283	1168	1235			
V/C Ratio(X)	0.14	0.20	0.00	0.00	0.00	0.71	0.38	0.38	0.38			
Avail Cap(c_a), veh/h	329	534	0	0	0	488	1283	1168	1235			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.94	0.94	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.1	32.6	0.0	0.0	0.0	35.8	4.0	4.0	4.0			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.0	2.9	0.8	0.9	0.9			
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	0.4	1.0	0.0	0.0	0.0	3.7	2.4	2.2	2.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.4	32.8	0.0	0.0	0.0	38.7	4.8	4.9	4.9			
LnGrp LOS	D	C				D	A	A	A			
Approach Vol, veh/h		70			170			1383				
Approach Delay, s/veh		35.1			38.7			4.9				
Approach LOS		D			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				18.7		71.3		18.7				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				29.0		51.0		29.0				
Max Q Clear Time (g_c+I1), s				11.9		10.9		13.4				
Green Ext Time (p_c), s				0.6		14.3		0.2				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			9.7									
HCM 7th LOS			A									

HCM 7th TWSC  
4: Front St NE & Shipping St NE

05/31/2024

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	3	2	0	1	7	368	9	1	432	3
Future Vol, veh/h	0	0	3	2	0	1	7	368	9	1	432	3
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	33	0	0	0	14	5	0	0	3	33
Mvmt Flow	0	0	4	2	0	1	9	449	11	1	527	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1001	1012	533	1001	1008	454	534	0	0	460	0	0
Stage 1	535	535	-	471	471	-	-	-	-	-	-	-
Stage 2	466	477	-	529	537	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.1	6.5	6.2	4.24	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.5	4	3.3	2.326	-	-	2.2	-	-
Pot Cap-1 Maneuver	223	241	491	224	242	610	975	-	-	1112	-	-
Stage 1	533	527	-	577	563	-	-	-	-	-	-	-
Stage 2	581	560	-	537	526	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	219	237	489	219	238	610	972	-	-	1112	-	-
Mov Cap-2 Maneuver	219	237	-	219	238	-	-	-	-	-	-	-
Stage 1	530	524	-	570	556	-	-	-	-	-	-	-
Stage 2	573	553	-	532	523	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	12.41		18.1		0.16		0.02	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	33	-	-	489	278	4	-	-
HCM Lane V/C Ratio	0.009	-	-	0.007	0.013	0.001	-	-
HCM Control Delay (s/veh)	8.7	0	-	12.4	18.1	8.2	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

HCM 7th TWSC  
5: Front St NE & Hood St NE

05/31/2024

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	15	1	6	0	377	17	1	433	0
Future Vol, veh/h	0	0	1	15	1	6	0	377	17	1	433	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	13	0	67	0	4	17	0	3	0
Mvmt Flow	0	0	1	18	1	7	0	449	20	1	515	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	970	990	518	977	980	459	518	0	0	469	0	0
Stage 1	521	521	-	459	459	-	-	-	-	-	-	-
Stage 2	449	469	-	518	521	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.23	6.5	6.87	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.23	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.23	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.617	4	3.903	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	234	248	561	220	252	488	1058	-	-	1103	-	-
Stage 1	542	535	-	561	570	-	-	-	-	-	-	-
Stage 2	593	564	-	521	535	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	229	247	560	219	251	488	1055	-	-	1103	-	-
Mov Cap-2 Maneuver	229	247	-	219	251	-	-	-	-	-	-	-
Stage 1	540	533	-	561	570	-	-	-	-	-	-	-
Stage 2	583	564	-	519	533	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.45	20.43	0	0.02
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1055	-	-	560	259	4	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.101	0.001	-	-
HCM Control Delay (s/veh)	0	-	-	11.4	20.4	8.3	0	-
HCM Lane LOS	A	-	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

HCM 7th TWSC  
6: Front St NE & North Access/Gaines St NE

05/31/2024

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	29	15	23	2	10	10	25	355	3	1	432	19
Future Vol, veh/h	29	15	23	2	10	10	25	355	3	1	432	19
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	60	0	3	33	100	3	0
Mvmt Flow	34	18	27	2	12	12	29	418	4	1	508	22

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1007	1005	522	998	1014	419	534	0	0	421	0	0
Stage 1	525	525	-	478	478	-	-	-	-	-	-	-
Stage 2	482	480	-	519	536	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.8	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.84	2.2	-	-	3.1	-	-
Pot Cap-1 Maneuver	221	243	558	225	240	527	1044	-	-	762	-	-
Stage 1	540	533	-	572	559	-	-	-	-	-	-	-
Stage 2	569	558	-	543	527	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	197	233	557	190	230	527	1041	-	-	762	-	-
Mov Cap-2 Maneuver	197	233	-	190	230	-	-	-	-	-	-	-
Stage 1	537	530	-	551	538	-	-	-	-	-	-	-
Stage 2	524	537	-	499	524	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v24.22		18.05	0.56	0.02
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	117	-	-	265	302	4	-	-
HCM Lane V/C Ratio	0.028	-	-	0.297	0.086	0.002	-	-
HCM Control Delay (s/veh)	8.6	0	-	24.2	18	9.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.3	0	-	-

HCM 7th TWSC  
7: Front St NE & Center Access/Market St NE

05/31/2024

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	40	13	18	36	38	20	332	22	39	425	3
Future Vol, veh/h	4	40	13	18	36	38	20	332	22	39	425	3
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	6	0	6	0	3	0	23	1	0
Mvmt Flow	5	47	15	21	42	45	24	391	26	46	500	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1055	1060	505	1066	1049	404	507	0	0	416	0	0
Stage 1	597	597	-	451	451	-	-	-	-	-	-	-
Stage 2	459	464	-	615	598	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.16	6.5	6.26	4.1	-	-	4.33	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.554	4	3.354	2.2	-	-	2.407	-	-
Pot Cap-1 Maneuver	205	226	571	197	229	638	1069	-	-	1038	-	-
Stage 1	493	495	-	580	575	-	-	-	-	-	-	-
Stage 2	586	567	-	472	494	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	141	205	570	137	208	638	1066	-	-	1038	-	-
Mov Cap-2 Maneuver	141	205	-	137	208	-	-	-	-	-	-	-
Stage 1	462	463	-	564	558	-	-	-	-	-	-	-
Stage 2	489	551	-	387	462	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v26.75		29.43	0.45	0.72
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	95	-	-	232	253	150	-	-
HCM Lane V/C Ratio	0.022	-	-	0.289	0.428	0.044	-	-
HCM Control Delay (s/veh)	8.5	0	-	26.7	29.4	8.6	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	2	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 8: Commercial St NE (99E) & Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	77	26	48	81	0	0	0	0	34	1552	13
Future Volume (vph)	0	77	26	48	81	0	0	0	0	34	1552	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.97			1.00						1.00	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1480			1646						3213	
Flt Permitted		1.00			0.79						1.00	
Satd. Flow (perm)		1480			1332						3213	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	89	30	55	93	0	0	0	0	39	1784	15
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	105	0	0	148	0	0	0	0	0	1838	0
Confl. Peds. (#/hr)	2					2	1		2	2		2
Heavy Vehicles (%)	0%	15%	25%	13%	4%	0%	0%	0%	0%	9%	6%	20%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		13.3			13.3						66.7	
Effective Green, g (s)		14.3			14.3						67.7	
Actuated g/C Ratio		0.16			0.16						0.75	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.5			2.5						2.5	
Lane Grp Cap (vph)		235			211						2416	
v/s Ratio Prot		0.07										
v/s Ratio Perm					0.11						0.57	
v/c Ratio		0.45			0.70						0.76	
Uniform Delay, d1		34.3			35.8						6.5	
Progression Factor		1.00			0.41						1.00	
Incremental Delay, d2		1.0			8.4						2.3	
Delay (s)		35.2			23.1						8.8	
Level of Service		D			C						A	
Approach Delay (s/veh)		35.2			23.1			0.0			8.8	
Approach LOS		D			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			11.3									B
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			90.0								8.0	
Intersection Capacity Utilization			70.8%									C
Analysis Period (min)			15									

c Critical Lane Group

HCM 7th Signalized Intersection Summary  
 8: Commercial St NE (99E) & Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	77	26	48	81	0	0	0	0	34	1552	13
Future Volume (veh/h)	0	77	26	48	81	0	0	0	0	34	1552	13
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	1589	1449	1617	1744	0				1674	1716	1519
Adj Flow Rate, veh/h	0	89	16	55	93	0				39	1784	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %	0	15	25	13	4	0				9	6	20
Cap, veh/h	0	204	37	106	139	0				55	2509	21
Arrive On Green	0.00	0.16	0.14	0.29	0.31	0.00				0.74	0.76	0.74
Sat Flow, veh/h	0	1311	236	327	895	0				73	3322	28
Grp Volume(v), veh/h	0	0	105	148	0	0				919	0	919
Grp Sat Flow(s),veh/h/ln	0	0	1547	1222	0	0				1712	0	1711
Q Serve(g_s), s	0.0	0.0	5.5	5.4	0.0	0.0				25.6	0.0	25.6
Cycle Q Clear(g_c), s	0.0	0.0	5.5	10.9	0.0	0.0				25.6	0.0	25.6
Prop In Lane	0.00		0.15	0.37		0.00				0.04		0.02
Lane Grp Cap(c), veh/h	0	0	241	232	0	0				1293	0	1292
V/C Ratio(X)	0.00	0.00	0.44	0.64	0.00	0.00				0.71	0.00	0.71
Avail Cap(c_a), veh/h	0	0	292	282	0	0				1293	0	1292
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	0.00	1.00	0.73	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	34.5	30.6	0.0	0.0				5.8	0.0	5.8
Incr Delay (d2), s/veh	0.0	0.0	0.9	2.0	0.0	0.0				3.3	0.0	3.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.1	2.7	0.0	0.0				7.7	0.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	35.4	32.6	0.0	0.0				9.2	0.0	9.2
LnGrp LOS			D	C						A		A
Approach Vol, veh/h		105			148						1838	
Approach Delay, s/veh		35.4			32.6						9.2	
Approach LOS		D			C						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		72.0		18.0				18.0				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		64.0		16.0				16.0				
Max Q Clear Time (g_c+I1), s		27.6		12.9				7.5				
Green Ext Time (p_c), s		24.8		0.1				0.2				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			12.1									
HCM 7th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 9: Liberty St NE (99E) & Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	16	84	0	0	123	43	15	1280	39	0	0	0
Future Volume (vph)	16	84	0	0	123	43	15	1280	39	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			1.00				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1515			1675			3228				
Flt Permitted		0.90			1.00			1.00				
Satd. Flow (perm)		1381			1675			3228				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	93	0	0	137	48	17	1422	43	0	0	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	111	0	0	170	0	0	1480	0	0	0	0
Confl. Peds. (#/hr)			1	1			1					
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	100%	2%	0%	0%	5%	0%	36%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		13.8			13.8			66.2				
Effective Green, g (s)		14.8			14.8			67.2				
Actuated g/C Ratio		0.16			0.16			0.75				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.5			2.5			2.5				
Lane Grp Cap (vph)		227			275			2410				
v/s Ratio Prot					0.10							
v/s Ratio Perm		0.08						0.46				
v/c Ratio		0.49			0.62			0.61				
Uniform Delay, d1		34.2			35.0			5.3				
Progression Factor		1.51			1.00			1.00				
Incremental Delay, d2		1.1			3.5			1.2				
Delay (s)		52.7			38.5			6.5				
Level of Service		D			D			A				
Approach Delay (s/veh)		52.7			38.5			6.5			0.0	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			12.7				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			64.9%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 9: Liberty St NE (99E) & Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (veh/h)	16	84	0	0	123	43	15	1280	39	0	0	0
Future Volume (veh/h)	16	84	0	0	123	43	15	1280	39	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		0.98			
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	396	1772	0	0	1730	1800	1295	1730	1730			
Adj Flow Rate, veh/h	18	93	0	0	137	32	17	1422	40			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	100	2	0	0	5	0	36	5	5			
Cap, veh/h	56	152	0	0	189	44	31	2551	72			
Arrive On Green	0.26	0.28	0.00	0.00	0.14	0.13	0.76	0.77	0.76			
Sat Flow, veh/h	66	1087	0	0	1356	317	40	3306	93			
Grp Volume(v), veh/h	111	0	0	0	0	169	742	0	737			
Grp Sat Flow(s),veh/h/ln	1153	0	0	0	0	1673	1728	0	1711			
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	8.7	15.5	0.0	15.6			
Cycle Q Clear(g_c), s	9.4	0.0	0.0	0.0	0.0	8.7	15.5	0.0	15.6			
Prop In Lane	0.16		0.00	0.00		0.19	0.02		0.05			
Lane Grp Cap(c), veh/h	195	0	0	0	0	233	1333	0	1320			
V/C Ratio(X)	0.57	0.00	0.00	0.00	0.00	0.72	0.56	0.00	0.56			
Avail Cap(c_a), veh/h	349	0	0	0	0	390	1333	0	1320			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.87	0.00	0.00	0.00	0.00	0.73	1.00	0.00	1.00			
Uniform Delay (d), s/veh	30.0	0.0	0.0	0.0	0.0	37.2	4.1	0.0	4.1			
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.0	0.0	2.3	1.7	0.0	1.7			
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	2.0	0.0	0.0	0.0	0.0	3.7	4.3	0.0	4.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.7	0.0	0.0	0.0	0.0	39.5	5.8	0.0	5.8			
LnGrp LOS	C					D	A		A			
Approach Vol, veh/h		111			169			1479				
Approach Delay, s/veh		31.7			39.5			5.8				
Approach LOS		C			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				16.6		73.4		16.6				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				20.0		60.0		20.0				
Max Q Clear Time (g_c+I1), s				10.7		17.6		11.4				
Green Ext Time (p_c), s				0.4		19.5		0.2				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			10.7									
HCM 7th LOS			B									

# HCM Signalized Intersection Capacity Analysis

## 10: Broadway St & Market St NE

05/31/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	114	14	103	154	68	6	406	96	106	628	11
Future Volume (vph)	10	114	14	103	154	68	6	406	96	106	628	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1700	1680		1671	1643		1462	1748	1422	1583	1724	
Flt Permitted	0.51	1.00		0.41	1.00		0.23	1.00	1.00	0.34	1.00	
Satd. Flow (perm)	905	1680		713	1643		357	1748	1422	569	1724	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	12	133	16	120	179	79	7	472	112	123	730	13
RTOR Reduction (vph)	0	3	0	0	13	0	0	0	36	0	0	0
Lane Group Flow (vph)	12	146	0	120	245	0	7	472	76	123	743	0
Confl. Peds. (#/hr)	8		5	5		8	7		3	3		3
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	4%	14%	2%	2%	6%	17%	3%	5%	8%	4%	9%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt		NA
Protected Phases	3	8		7	4		1	6	7	5		2
Permitted Phases	8			4			6		6	2		
Actuated Green, G (s)	21.6	18.4		35.0	26.8		63.1	61.5	73.1	75.0		68.4
Effective Green, g (s)	23.6	19.4		36.0	27.8		65.1	62.5	75.1	76.0		69.4
Actuated g/C Ratio	0.20	0.16		0.30	0.23		0.54	0.52	0.63	0.63		0.58
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0		5.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	205	271		314	380		217	910	937	440		997
v/s Ratio Prot	0.00	0.09		c0.04	c0.15		0.00	0.27	0.01	c0.02		c0.43
v/s Ratio Perm	0.01			0.07			0.02		0.05	0.15		
v/c Ratio	0.06	0.54		0.38	0.64		0.03	0.52	0.08	0.28		0.74
Uniform Delay, d1	39.0	46.2		32.1	41.6		15.2	18.9	8.9	10.8		18.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.1	1.6		0.6	3.3		0.0	2.1	0.0	0.3		5.0
Delay (s)	39.1	47.8		32.6	44.9		15.2	21.0	8.9	11.0		23.8
Level of Service	D	D		C	D		B	C	A	B		C
Approach Delay (s/veh)		47.1			41.0			18.6				22.0
Approach LOS		D			D			B				C
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			26.6			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			77.2%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 10: Broadway St & Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	114	14	103	154	68	6	406	96	106	628	11
Future Volume (veh/h)	10	114	14	103	154	68	6	406	96	106	628	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1744	1603	1772	1772	1716	1561	1758	1730	1688	1744	1674
Adj Flow Rate, veh/h	12	133	11	120	179	49	7	472	62	123	730	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	4	14	2	2	6	17	3	5	8	4	9
Cap, veh/h	166	193	16	253	233	64	326	1031	978	539	1091	18
Arrive On Green	0.03	0.12	0.11	0.08	0.18	0.17	0.02	0.59	0.59	0.07	0.64	0.63
Sat Flow, veh/h	1714	1584	131	1688	1324	362	1487	1758	1457	1607	1710	28
Grp Volume(v), veh/h	12	0	144	120	0	228	7	472	62	123	0	742
Grp Sat Flow(s),veh/h/ln	1714	0	1715	1688	0	1686	1487	1758	1457	1607	0	1738
Q Serve(g_s), s	0.7	0.0	9.7	7.1	0.0	15.5	0.2	18.2	1.8	3.2	0.0	32.3
Cycle Q Clear(g_c), s	0.7	0.0	9.7	7.1	0.0	15.5	0.2	18.2	1.8	3.2	0.0	32.3
Prop In Lane	1.00		0.08	1.00		0.21	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	166	0	209	253	0	297	326	1031	978	539	0	1109
V/C Ratio(X)	0.07	0.00	0.69	0.47	0.00	0.77	0.02	0.46	0.06	0.23	0.00	0.67
Avail Cap(c_a), veh/h	243	0	286	322	0	365	405	1031	978	541	0	1109
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.87	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.8	0.0	50.6	39.6	0.0	47.2	12.1	14.0	6.8	8.8	0.0	13.7
Incr Delay (d2), s/veh	0.1	0.0	2.7	1.0	0.0	7.0	0.0	1.5	0.1	0.2	0.0	3.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.3	3.1	0.0	7.1	0.1	7.5	0.6	1.1	0.0	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.9	0.0	53.3	40.7	0.0	54.2	12.1	15.5	6.9	8.9	0.0	16.9
LnGrp LOS	D		D	D		D	B	B	A	A		B
Approach Vol, veh/h		156			348			541			865	
Approach Delay, s/veh		52.6			49.5			14.5			15.8	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	80.6	7.6	25.1	12.9	74.4	14.1	18.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	59.0	8.0	25.0	8.0	59.0	14.0	19.0				
Max Q Clear Time (g_c+I1), s	2.2	34.3	2.7	17.5	5.2	20.2	9.1	11.7				
Green Ext Time (p_c), s	0.0	7.1	0.0	0.5	0.1	4.4	0.2	0.3				

### Intersection Summary

HCM 7th Control Delay, s/veh	24.6
HCM 7th LOS	C

### Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	24	0	366	456	0
Future Vol, veh/h	10	24	0	366	456	0
Conflicting Peds, #/hr	0	0	3	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	3	1	0
Mvmt Flow	12	28	0	431	536	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	970	539	539	0	-	0
Stage 1	539	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	283	546	1039	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	282	545	1036	-	-	-
Mov Cap-2 Maneuver	282	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1036	-	427	-	-
HCM Lane V/C Ratio	-	-	0.094	-	-
HCM Control Delay (s/veh)	0	-	14.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘		↘
Traffic Vol, veh/h	401	1172	216	4	0	449
Future Vol, veh/h	401	1172	216	4	0	449
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	6	6	0	0	1
Mvmt Flow	451	1317	243	4	0	504

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	255	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.219	-	-
Pot Cap-1 Maneuver	1308	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1298	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

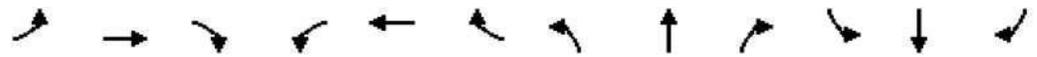
Approach	EB	WB	SB
HCM Control Delay, s/v	2.36	0	17.49
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1298	-	-	-	784
HCM Lane V/C Ratio	0.347	-	-	-	0.643
HCM Control Delay (s/veh)	9.2	-	-	-	17.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	1.6	-	-	-	4.8

# HCM Signalized Intersection Capacity Analysis

## 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/31/2024



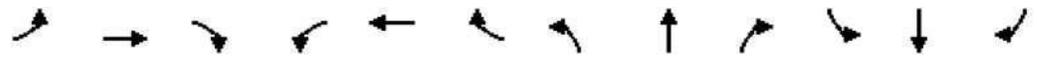
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↖
Traffic Volume (vph)	2	2	3	4	2	18	7	1553	7	63	598	3
Future Volume (vph)	2	2	3	4	2	18	7	1553	7	63	598	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.94			0.90		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1447			1523		1710	3255		1629	1765	1497
Flt Permitted		0.91			0.95		0.39	1.00		0.07	1.00	1.00
Satd. Flow (perm)		1335			1457		699	3255		125	1765	1497
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2	2	3	4	2	20	8	1745	8	71	672	3
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	7	0	0	8	0	8	1753	0	71	672	2
Confl. Peds. (#/hr)	4		3	3		4	1		2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	50%	0%	0%	0%	50%	0%	0%	5%	0%	5%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		5.6			5.6		53.9	53.4		64.1	58.6	58.6
Effective Green, g (s)		6.6			6.6		55.9	54.4		65.1	59.6	59.6
Actuated g/C Ratio		0.08			0.08		0.70	0.68		0.82	0.75	0.75
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)		110			120		509	2221		228	1319	1119
v/s Ratio Prot							0.00	c0.54		c0.03	c0.38	
v/s Ratio Perm		0.01			c0.01		0.01			0.23		0.00
v/c Ratio		0.06			0.06		0.02	0.79		0.31	0.51	0.00
Uniform Delay, d1		33.7			33.7		3.6	8.7		7.8	4.1	2.5
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			0.2		0.0	1.9		0.6	0.2	0.0
Delay (s)		33.9			33.9		3.6	10.6		8.4	4.3	2.5
Level of Service		C			C		A	B		A	A	A
Approach Delay (s/veh)		33.9			33.9			10.5			4.7	
Approach LOS		C			C			B			A	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 7th Signalized Intersection Summary  
 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↗
Traffic Volume (veh/h)	2	2	3	4	2	18	7	1553	7	63	598	3
Future Volume (veh/h)	2	2	3	4	2	18	7	1553	7	63	598	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.73		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1098	1800	1800	1800	1098	1800	1800	1730	1800	1730	1772	1800
Adj Flow Rate, veh/h	2	2	3	4	2	-15	8	1745	7	71	672	-7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	50	0	0	0	50	0	0	5	0	5	2	0
Cap, veh/h	84	8	12	0	46	92	638	2423	10	332	1345	1158
Arrive On Green	0.00	0.02	0.00	0.00	0.02	0.00	0.02	0.72	0.71	0.06	0.76	0.00
Sat Flow, veh/h	399	399	599	-499	-250	1872	1714	3357	13	1647	1772	1525
Grp Volume(v), veh/h	7	0	0	0	0	0	8	854	898	71	672	-7
Grp Sat Flow(s),veh/h/ln	1398	0	0	0	0	0	1714	1643	1727	1647	1772	1525
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.1	18.5	18.5	0.6	9.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.0	0.0	0.0	0.1	18.5	18.5	0.6	9.0	0.0
Prop In Lane	0.29		0.43	-0.44		1.67	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	82	0	0	0	0	0	638	1186	1246	332	1345	1158
V/C Ratio(X)	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.72	0.72	0.21	0.50	-0.01
Avail Cap(c_a), veh/h	258	0	0	0	0	0	736	1606	1688	471	1847	1590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.9	0.0	0.0	0.0	0.0	0.0	2.4	4.9	5.0	5.4	2.9	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.2	3.3	0.2	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.3	0.0	0.0	0.0	0.0	0.0	2.4	5.8	5.8	5.6	3.1	0.0
LnGrp LOS	C						A	A	A	A	A	
Approach Vol, veh/h		7			0			1760			736	
Approach Delay, s/veh		30.3			0.0			5.7			3.4	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	50.6		5.3	7.8	48.3		5.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	63.0		8.0	8.0	59.0		8.0				
Max Q Clear Time (g_c+I1), s	2.1	11.0		0.0	2.6	20.5		2.3				
Green Ext Time (p_c), s	0.0	7.2		0.0	0.1	22.8		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh				5.1								
HCM 7th LOS				A								

Notes  
 User approved pedestrian interval to be less than phase max green.

HCM 7th TWSC  
1: Front St NE & Pine St NE

05/29/2024

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	6	1	77	5	13	3	385	78	12	346	0
Future Vol, veh/h	0	6	1	77	5	13	3	385	78	12	346	0
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	1	3	8	1	0
Mvmt Flow	0	7	1	85	5	14	3	423	86	13	380	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	840	924	381	883	881	467	381	0	0	510	0	0
Stage 1	408	408	-	474	474	-	-	-	-	-	-	-
Stage 2	432	516	-	410	408	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.272	-	-
Pot Cap-1 Maneuver	287	271	670	268	288	600	1188	-	-	1025	-	-
Stage 1	624	600	-	575	561	-	-	-	-	-	-	-
Stage 2	606	537	-	623	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	269	265	670	256	281	599	1187	-	-	1024	-	-
Mov Cap-2 Maneuver	269	265	-	256	281	-	-	-	-	-	-	-
Stage 1	614	590	-	573	559	-	-	-	-	-	-	-
Stage 2	583	535	-	605	590	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.73	25.4	0.05	0.29
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	11	-	-	291	279	60	-	-
HCM Lane V/C Ratio	0.003	-	-	0.026	0.374	0.013	-	-
HCM Control Delay (s/veh)	8	0	-	17.7	25.4	8.6	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.7	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (vph)	0	98	9	139	67	0	0	0	0	34	1620	52
Future Volume (vph)	0	98	9	139	67	0	0	0	0	34	1620	52
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frbp, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1731		1673	1800						4792	
Flt Permitted		1.00		0.65	1.00						1.00	
Satd. Flow (perm)		1731		1144	1800						4792	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	103	9	146	71	0	0	0	0	36	1705	55
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	108	0	146	71	0	0	0	0	0	1794	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	0%	3%	0%	2%	0%	0%	0%	0%	0%	0%	2%	0%
Turn Type		NA		Perm	NA						Perm	NA
Protected Phases		8			4							2
Permitted Phases				4						2		
Actuated Green, G (s)		15.8		15.8	15.8						64.2	
Effective Green, g (s)		16.8		16.8	16.8						65.2	
Actuated g/C Ratio		0.19		0.19	0.19						0.72	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.5		2.5	2.5						2.5	
Lane Grp Cap (vph)		323		213	336						3471	
v/s Ratio Prot		0.06			0.04							
v/s Ratio Perm				0.13							0.37	
v/c Ratio		0.33		0.69	0.21						0.52	
Uniform Delay, d1		31.7		34.1	31.0						5.5	
Progression Factor		1.00		0.27	0.19						1.00	
Incremental Delay, d2		0.4		7.5	0.2						0.6	
Delay (s)		32.2		16.6	6.0						6.0	
Level of Service		C		B	A						A	
Approach Delay (s/veh)		32.2			13.1			0.0			6.0	
Approach LOS		C			B			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			8.1								A	
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			90.0							8.0		
Intersection Capacity Utilization			60.5%								B	
ICU Level of Service												
Analysis Period (min)			15									

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 2: Commercial St NE (99E) & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔↔↔	
Traffic Volume (veh/h)	0	98	9	139	67	0	0	0	0	34	1620	52
Future Volume (veh/h)	0	98	9	139	67	0	0	0	0	34	1620	52
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	1758	1800	1772	1800	0				1800	1772	1800
Adj Flow Rate, veh/h	0	103	6	146	71	0				36	1705	50
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	3	0	2	0	0				0	2	0
Cap, veh/h	0	331	19	269	362	0				73	3464	102
Arrive On Green	0.00	0.20	0.19	0.34	0.34	0.00				0.70	0.71	0.70
Sat Flow, veh/h	0	1644	96	1282	1800	0				103	4879	143
Grp Volume(v), veh/h	0	0	109	146	71	0				617	563	610
Grp Sat Flow(s),veh/h/ln	0	0	1740	1282	1800	0				1767	1612	1746
Q Serve(g_s), s	0.0	0.0	4.8	9.5	2.5	0.0				14.0	14.0	14.1
Cycle Q Clear(g_c), s	0.0	0.0	4.8	14.3	2.5	0.0				14.0	14.0	14.1
Prop In Lane	0.00		0.06	1.00		0.00				0.06		0.08
Lane Grp Cap(c), veh/h	0	0	350	269	362	0				1254	1145	1240
V/C Ratio(X)	0.00	0.00	0.31	0.54	0.20	0.00				0.49	0.49	0.49
Avail Cap(c_a), veh/h	0	0	541	410	560	0				1254	1145	1240
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	0.00	1.00	0.67	0.67	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.7	30.9	24.7	0.0				5.8	5.8	5.8
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.8	0.1	0.0				1.4	1.5	1.4
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	0.0	2.0	2.6	1.1	0.0				4.7	4.3	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	31.0	31.7	24.8	0.0				7.2	7.3	7.2
LnGrp LOS			C	C	C					A	A	A
Approach Vol, veh/h		109			217						1791	
Approach Delay, s/veh		31.0			29.5						7.3	
Approach LOS		C			C						A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		67.9		22.1				22.1				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		53.0		27.0				27.0				
Max Q Clear Time (g_c+I1), s		16.1		16.3				6.8				
Green Ext Time (p_c), s		21.2		0.6				0.3				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			10.8									
HCM 7th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM Signalized Intersection Capacity Analysis

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑			↘			↑↑↑				
Traffic Volume (vph)	40	100	0	0	193	31	13	1393	103	0	0	0
Future Volume (vph)	40	100	0	0	193	31	13	1393	103	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.98			0.99				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1583	1800			1720			4752				
Flt Permitted	0.37	1.00			1.00			1.00				
Satd. Flow (perm)	621	1800			1720			4752				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	43	106	0	0	205	33	14	1482	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	6	0	0	0	0
Lane Group Flow (vph)	43	106	0	0	230	0	0	1600	0	0	0	0
Confl. Peds. (#/hr)			1	1					2	2		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	8%	0%	0%	0%	2%	7%	0%	2%	4%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)	16.9	16.9			16.9			63.1				
Effective Green, g (s)	17.9	17.9			17.9			64.1				
Actuated g/C Ratio	0.20	0.20			0.20			0.71				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.5	2.5			2.5			2.5				
Lane Grp Cap (vph)	123	358			342			3384				
v/s Ratio Prot		0.06			0.13							
v/s Ratio Perm	0.07							0.34				
v/c Ratio	0.35	0.30			0.67			0.47				
Uniform Delay, d1	31.0	30.7			33.3			5.6				
Progression Factor	0.58	0.58			1.00			1.00				
Incremental Delay, d2	1.2	0.3			4.7			0.5				
Delay (s)	19.1	18.1			38.0			6.1				
Level of Service	B	B			D			A				
Approach Delay (s/veh)		18.4			38.0			6.1			0.0	
Approach LOS		B			D			A			A	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

# HCM 7th Signalized Intersection Summary

## 3: Liberty St NE & Pine St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	100	0	0	193	31	13	1393	103	0	0	0
Future Volume (veh/h)	40	100	0	0	193	31	13	1393	103	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		0.98			
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	1688	1800	0	0	1772	1702	1800	1772	1744			
Adj Flow Rate, veh/h	43	106	0	0	205	27	14	1482	101			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	8	0	0	0	2	7	0	2	4			
Cap, veh/h	161	356	0	0	303	40	32	3367	229			
Arrive On Green	0.40	0.40	0.00	0.00	0.20	0.19	0.70	0.71	0.70			
Sat Flow, veh/h	1094	1800	0	0	1534	202	45	4721	322			
Grp Volume(v), veh/h	43	106	0	0	0	232	555	506	535			
Grp Sat Flow(s),veh/h/ln	1094	1800	0	0	0	1736	1770	1612	1706			
Q Serve(g_s), s	3.3	3.6	0.0	0.0	0.0	11.1	11.8	11.8	11.9			
Cycle Q Clear(g_c), s	14.4	3.6	0.0	0.0	0.0	11.1	11.8	11.8	11.9			
Prop In Lane	1.00		0.00	0.00		0.12	0.03		0.19			
Lane Grp Cap(c), veh/h	161	356	0	0	0	343	1262	1150	1216			
V/C Ratio(X)	0.27	0.30	0.00	0.00	0.00	0.68	0.44	0.44	0.44			
Avail Cap(c_a), veh/h	297	580	0	0	0	559	1262	1150	1216			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	31.3	22.9	0.0	0.0	0.0	33.5	5.4	5.4	5.4			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	0.0	1.7	1.1	1.2	1.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	1.5	0.0	0.0	0.0	4.8	3.7	3.4	3.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.9	23.2	0.0	0.0	0.0	35.2	6.5	6.6	6.6			
LnGrp LOS	C	C				D	A	A	A			
Approach Vol, veh/h		149			232			1597				
Approach Delay, s/veh		25.7			35.2			6.6				
Approach LOS		C			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				21.8		68.2		21.8				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				28.0		52.0		28.0				
Max Q Clear Time (g_c+I1), s				13.1		13.9		16.4				
Green Ext Time (p_c), s				0.7		17.3		0.4				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			11.4									
HCM 7th LOS			B									

HCM 7th TWSC  
4: Front St NE & Shipping St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	5	8	1	0	7	513	3	2	480	1
Future Vol, veh/h	4	1	5	8	1	0	7	513	3	2	480	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	100	0	14	3	0	50	1	0
Mvmt Flow	4	1	5	9	1	0	8	558	3	2	522	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1102	1107	524	1103	1106	561	525	0	0	563	0	0
Stage 1	529	529	-	576	576	-	-	-	-	-	-	-
Stage 2	573	578	-	527	529	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	7.5	6.2	4.24	-	-	4.6	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.9	3.3	2.326	-	-	2.65	-	-
Pot Cap-1 Maneuver	191	212	557	190	142	531	984	-	-	808	-	-
Stage 1	537	531	-	506	374	-	-	-	-	-	-	-
Stage 2	508	504	-	538	396	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	186	208	556	184	139	530	982	-	-	807	-	-
Mov Cap-2 Maneuver	186	208	-	184	139	-	-	-	-	-	-	-
Stage 1	534	528	-	499	370	-	-	-	-	-	-	-
Stage 2	501	498	-	530	394	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	18.21		26.4		0.12		0.04	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	24	-	-	283	178	7	-	-
HCM Lane V/C Ratio	0.008	-	-	0.038	0.055	0.003	-	-
HCM Control Delay (s/veh)	8.7	0	-	18.2	26.4	9.5	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

HCM 7th TWSC  
5: Front St NE & Hood St NE

05/29/2024

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	25	0	2	0	522	13	2	493	0
Future Vol, veh/h	0	0	0	25	0	2	0	522	13	2	493	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	3	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	20	0	1	0
Mvmt Flow	0	0	0	27	0	2	0	574	14	2	542	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1123	1140	545	1130	1133	584	545	0	0	591	0	0
Stage 1	549	549	-	584	584	-	-	-	-	-	-	-
Stage 2	574	591	-	546	549	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	185	203	542	183	205	515	1034	-	-	995	-	-
Stage 1	523	520	-	501	501	-	-	-	-	-	-	-
Stage 2	508	498	-	525	520	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	183	201	541	181	203	514	1032	-	-	992	-	-
Mov Cap-2 Maneuver	183	201	-	181	203	-	-	-	-	-	-	-
Stage 1	520	516	-	500	500	-	-	-	-	-	-	-
Stage 2	506	496	-	524	516	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	27.34	0	0.03
HCM LOS	A	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1032	-	-	-	191	7	-
HCM Lane V/C Ratio	-	-	-	-	0.156	0.002	-
HCM Control Delay (s/veh)	0	-	-	0	27.3	8.6	0
HCM Lane LOS	A	-	-	A	D	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0	-

HCM 7th TWSC  
6: Front St NE & North Access/Gaines St NE

05/29/2024

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	12	18	5	18	1	36	513	1	3	486	33
Future Vol, veh/h	19	12	18	5	18	1	36	513	1	3	486	33
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	33	1	0
Mvmt Flow	21	13	20	5	20	1	40	564	1	3	534	36

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1214	1207	554	1193	1224	566	572	0	0	567	0	0
Stage 1	561	561	-	645	645	-	-	-	-	-	-	-
Stage 2	653	646	-	547	579	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.43	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.497	-	-
Pot Cap-1 Maneuver	160	185	536	165	181	527	1010	-	-	868	-	-
Stage 1	516	513	-	464	470	-	-	-	-	-	-	-
Stage 2	460	470	-	525	504	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	133	173	535	138	169	526	1009	-	-	866	-	-
Mov Cap-2 Maneuver	133	173	-	138	169	-	-	-	-	-	-	-
Stage 1	512	510	-	437	443	-	-	-	-	-	-	-
Stage 2	413	442	-	489	500	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v29.66		30.79	0.57	0.05
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	118	-	-	199	166	10	-	-
HCM Lane V/C Ratio	0.039	-	-	0.27	0.159	0.004	-	-
HCM Control Delay (s/veh)	8.7	0	-	29.7	30.8	9.2	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.6	0	-	-

HCM 7th TWSC  
 7: Front St NE & Center Access/Market St NE

05/29/2024

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	31	10	19	63	36	33	513	32	37	464	5
Future Vol, veh/h	5	31	10	19	63	36	33	513	32	37	464	5
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	11	0	17	0	3	0	0	1	0
Mvmt Flow	5	34	11	21	69	40	36	564	35	41	510	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1270	1275	519	1268	1261	586	520	0	0	604	0	0
Stage 1	599	599	-	659	659	-	-	-	-	-	-	-
Stage 2	671	676	-	609	602	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.21	6.5	6.37	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.599	4	3.453	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	146	168	561	139	172	483	1056	-	-	984	-	-
Stage 1	492	494	-	438	464	-	-	-	-	-	-	-
Stage 2	449	455	-	467	492	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	68	149	558	96	152	481	1051	-	-	979	-	-
Mov Cap-2 Maneuver	68	149	-	96	152	-	-	-	-	-	-	-
Stage 1	461	463	-	414	438	-	-	-	-	-	-	-
Stage 2	329	430	-	399	461	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v39.52			71.86		0.49		0.65	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	102	-	-	154	172	131	-	-
HCM Lane V/C Ratio	0.035	-	-	0.329	0.756	0.042	-	-
HCM Control Delay (s/veh)	8.5	0	-	39.5	71.9	8.8	0	-
HCM Lane LOS	A	A	-	E	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	4.8	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	99	19	98	99	0	0	0	0	53	1592	15
Future Volume (vph)	0	99	19	98	99	0	0	0	0	53	1592	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.98			1.00						1.00	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1732			1603						3311	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1732			1192						3311	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	106	20	105	106	0	0	0	0	57	1712	16
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	118	0	0	211	0	0	0	0	0	1784	0
Confl. Peds. (#/hr)	6					6	8		2	2		2
Heavy Vehicles (%)	0%	2%	0%	2%	17%	0%	0%	0%	0%	2%	3%	0%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		18.4			18.4						61.6	
Effective Green, g (s)		19.4			19.4						62.6	
Actuated g/C Ratio		0.22			0.22						0.70	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.5			2.5						2.5	
Lane Grp Cap (vph)		373			256						2302	
v/s Ratio Prot		0.07										
v/s Ratio Perm					0.18						0.54	
v/c Ratio		0.32			0.82						0.78	
Uniform Delay, d1		29.7			33.7						9.1	
Progression Factor		1.00			0.32						1.00	
Incremental Delay, d2		0.4			15.2						2.6	
Delay (s)		30.1			26.0						11.7	
Level of Service		C			C						B	
Approach Delay (s/veh)		30.1			26.0			0.0			11.7	
Approach LOS		C			C			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			14.2								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			90.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			76.5%								ICU Level of Service	D
Analysis Period (min)			15									

c Critical Lane Group

HCM 7th Signalized Intersection Summary  
 8: Commercial St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (veh/h)	0	99	19	98	99	0	0	0	0	53	1592	15
Future Volume (veh/h)	0	99	19	98	99	0	0	0	0	53	1592	15
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	1772	1800	1772	1561	0				1772	1758	1800
Adj Flow Rate, veh/h	0	106	-9	105	106	0				57	1712	16
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	0	2	17	0				2	3	0
Cap, veh/h	0	503	0	173	137	0				81	2436	23
Arrive On Green	0.00	0.19	0.00	0.35	0.37	0.00				0.71	0.72	0.71
Sat Flow, veh/h	0	1969	-167	605	735	0				112	3361	31
Grp Volume(v), veh/h	0	0	0	211	0	0				893	0	892
Grp Sat Flow(s),veh/h/ln	0	0	0	1341	0	0				1752	0	1752
Q Serve(g_s), s	0.0	0.0	0.0	12.1	0.0	0.0				25.8	0.0	25.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	13.3	0.0	0.0				25.8	0.0	25.7
Prop In Lane	0.00		-0.09	0.50		0.00				0.06		0.02
Lane Grp Cap(c), veh/h	0	0	0	295	0	0				1270	0	1270
V/C Ratio(X)	0.00	0.00	0.00	0.72	0.00	0.00				0.70	0.00	0.70
Avail Cap(c_a), veh/h	0	0	0	386	0	0				1270	0	1270
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	0.00	0.00	0.58	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	27.5	0.0	0.0				7.0	0.0	7.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.1	0.0	0.0				3.3	0.0	3.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.6	0.0	0.0				8.5	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	29.6	0.0	0.0				10.3	0.0	10.2
LnGrp LOS				C						B		B
Approach Vol, veh/h		0			211						1785	
Approach Delay, s/veh		0.0			29.6						10.2	
Approach LOS					C						B	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		69.2		20.8				20.8				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		58.0		22.0				22.0				
Max Q Clear Time (g_c+I1), s		27.8		15.3				0.0				
Green Ext Time (p_c), s		20.9		0.5				0.0				

Intersection Summary		
HCM 7th Control Delay, s/veh		12.3
HCM 7th LOS		B

Notes  
 User approved pedestrian interval to be less than phase max green.

# HCM Signalized Intersection Capacity Analysis

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	20	114	0	0	193	56	11	1477	54	0	0	0
Future Volume (vph)	20	114	0	0	193	56	11	1477	54	0	0	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.97			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1786			1631			3300				
Flt Permitted		0.81			1.00			1.00				
Satd. Flow (perm)		1458			1631			3300				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	124	0	0	210	61	12	1605	59	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	146	0	0	258	0	0	1674	0	0	0	0
Confl. Peds. (#/hr)	1		1	1		1	4		3	3		3
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	6%	9%	0%	3%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		18.2			18.2			61.8				
Effective Green, g (s)		19.2			19.2			62.8				
Actuated g/C Ratio		0.21			0.21			0.70				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.5			2.5			2.5				
Lane Grp Cap (vph)		311			347			2302				
v/s Ratio Prot					c0.16							
v/s Ratio Perm		0.10						0.51				
v/c Ratio		0.47			0.74			0.73				
Uniform Delay, d1		30.9			33.1			8.3				
Progression Factor		0.67			1.00			1.00				
Incremental Delay, d2		0.7			8.0			2.0				
Delay (s)		21.4			41.1			10.4				
Level of Service		C			D			B				
Approach Delay (s/veh)		21.4			41.1			10.4			0.0	
Approach LOS		C			D			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			15.1				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			79.5%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 7th Signalized Intersection Summary

## 9: Liberty St NE (99E) & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (veh/h)	20	114	0	0	193	56	11	1477	54	0	0	0
Future Volume (veh/h)	20	114	0	0	193	56	11	1477	54	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		0.98			
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	1800	1800	0	0	1716	1674	1800	1758	1772			
Adj Flow Rate, veh/h	22	124	0	0	210	49	12	1605	57			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	6	9	0	3	2			
Cap, veh/h	57	217	0	0	268	63	18	2381	84			
Arrive On Green	0.38	0.40	0.00	0.00	0.20	0.19	0.70	0.71	0.70			
Sat Flow, veh/h	53	1086	0	0	1345	314	25	3346	118			
Grp Volume(v), veh/h	146	0	0	0	0	259	840	0	834			
Grp Sat Flow(s),veh/h/ln	1139	0	0	0	0	1659	1757	0	1733			
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	13.3	23.8	0.0	24.1			
Cycle Q Clear(g_c), s	14.7	0.0	0.0	0.0	0.0	13.3	23.8	0.0	24.1			
Prop In Lane	0.15		0.00	0.00		0.19	0.01		0.07			
Lane Grp Cap(c), veh/h	261	0	0	0	0	331	1250	0	1233			
V/C Ratio(X)	0.56	0.00	0.00	0.00	0.00	0.78	0.67	0.00	0.68			
Avail Cap(c_a), veh/h	372	0	0	0	0	442	1250	0	1233			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.00	0.00	0.00	0.00	0.44	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.9	0.0	0.0	0.0	0.0	34.3	7.2	0.0	7.2			
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	2.5	2.9	0.0	3.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	0.0	0.0	5.6	8.0	0.0	8.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.2	0.0	0.0	0.0	0.0	36.8	10.1	0.0	10.2			
LnGrp LOS	C					D	B		B			
Approach Vol, veh/h		146			259			1674				
Approach Delay, s/veh		25.2			36.8			10.2				
Approach LOS		C			D			B				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				22.0		68.0		22.0				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				23.0		57.0		23.0				
Max Q Clear Time (g_c+I1), s				15.3		26.1		16.7				
Green Ext Time (p_c), s				0.6		19.6		0.3				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			14.5									
HCM 7th LOS			B									

# HCM Signalized Intersection Capacity Analysis

## 10: Broadway St & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	156	19	169	210	145	18	614	141	123	645	22
Future Volume (vph)	16	156	19	169	210	145	18	614	141	123	645	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.91	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.94		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1704	1748		1686	1574		1710	1765	1395	1660	1748	
Flt Permitted	0.29	1.00		0.36	1.00		0.20	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	521	1748		640	1574		366	1765	1395	315	1748	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	168	20	182	226	156	19	660	152	132	694	24
RTOR Reduction (vph)	0	4	0	0	21	0	0	0	33	0	1	0
Lane Group Flow (vph)	17	184	0	182	361	0	19	660	119	132	717	0
Confl. Peds. (#/hr)	13		9	9		13	16		30	30		30
Confl. Bikes (#/hr)			1						1			1
Heavy Vehicles (%)	0%	1%	0%	1%	8%	1%	0%	2%	0%	3%	2%	5%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	8			4			6		6	2		
Actuated Green, G (s)	24.4	21.2		39.0	30.8		61.0	57.8	70.6	71.0	62.8	
Effective Green, g (s)	26.4	22.2		40.0	31.8		63.0	58.8	72.6	72.0	63.8	
Actuated g/C Ratio	0.22	0.19		0.33	0.27		0.53	0.49	0.61	0.60	0.53	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	156	323		333	417		239	864	890	292	929	
v/s Ratio Prot	0.00	0.11		c0.06	c0.23		0.00	0.37	0.02	c0.03	c0.41	
v/s Ratio Perm	0.02			0.12			0.04		0.07	0.24		
v/c Ratio	0.11	0.57		0.55	0.87		0.08	0.76	0.13	0.45	0.77	
Uniform Delay, d1	37.3	44.5		30.5	42.1		17.1	24.9	10.2	16.8	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	1.9		1.4	16.8		0.1	6.4	0.1	0.8	6.2	
Delay (s)	37.5	46.4		32.0	58.9		17.2	31.3	10.2	17.6	28.5	
Level of Service	D	D		C	E		B	C	B	B	C	
Approach Delay (s/veh)		45.7			50.2			27.1			26.8	
Approach LOS		D			D			C			C	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

# HCM 7th Signalized Intersection Summary

## 10: Broadway St & Market St NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	156	19	169	210	145	18	614	141	123	645	22
Future Volume (veh/h)	16	156	19	169	210	145	18	614	141	123	645	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.94	0.98		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1786	1688	1786	1800	1772	1800	1758	1772	1730
Adj Flow Rate, veh/h	17	168	17	182	226	133	19	660	107	132	694	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	1	8	1	0	2	0	3	2	5
Cap, veh/h	150	281	28	340	245	144	296	897	900	333	921	31
Arrive On Green	0.04	0.18	0.17	0.11	0.25	0.24	0.04	0.51	0.51	0.07	0.54	0.53
Sat Flow, veh/h	1714	1585	160	1701	985	580	1714	1772	1450	1674	1702	56
Grp Volume(v), veh/h	17	0	185	182	0	359	19	660	107	132	0	717
Grp Sat Flow(s),veh/h/ln	1714	0	1745	1701	0	1564	1714	1772	1450	1674	0	1758
Q Serve(g_s), s	0.9	0.0	11.7	10.0	0.0	26.9	0.6	35.2	3.7	4.1	0.0	37.9
Cycle Q Clear(g_c), s	0.9	0.0	11.7	10.0	0.0	26.9	0.6	35.2	3.7	4.1	0.0	37.9
Prop In Lane	1.00		0.09	1.00		0.37	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	150	0	309	340	0	390	296	897	900	333	0	951
V/C Ratio(X)	0.11	0.00	0.60	0.54	0.00	0.92	0.06	0.74	0.12	0.40	0.00	0.75
Avail Cap(c_a), veh/h	214	0	364	353	0	391	356	897	900	334	0	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.00	0.88	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.8	0.0	45.5	33.6	0.0	44.1	17.4	23.3	9.6	17.7	0.0	21.4
Incr Delay (d2), s/veh	0.2	0.0	1.3	1.1	0.0	26.7	0.1	5.3	0.3	0.6	0.0	5.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	5.2	4.3	0.0	13.3	0.2	15.6	1.2	1.6	0.0	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.0	0.0	46.8	34.7	0.0	70.8	17.5	28.6	9.9	18.2	0.0	26.9
LnGrp LOS	D		D	C		E	B	C	A	B		C
Approach Vol, veh/h		202			541			786			849	
Approach Delay, s/veh		46.1			58.6			25.8			25.5	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	68.9	8.5	33.9	12.9	64.8	17.1	25.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	55.0	8.0	29.0	8.0	55.0	13.0	24.0				
Max Q Clear Time (g_c+I1), s	2.6	39.9	2.9	28.9	6.1	37.2	12.0	13.7				
Green Ext Time (p_c), s	0.0	5.4	0.0	0.0	0.1	5.5	0.1	0.5				

### Intersection Summary

HCM 7th Control Delay, s/veh	34.9
HCM 7th LOS	C

### Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	9	19	0	571	494	0
Future Vol, veh/h	9	19	0	571	494	0
Conflicting Peds, #/hr	0	1	0	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	3	1	0
Mvmt Flow	10	21	0	627	543	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1175	549	548	0	-	0
Stage 1	548	-	-	-	-	-
Stage 2	627	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	214	539	1032	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	212	536	1027	-	-	-
Mov Cap-2 Maneuver	212	-	-	-	-	-
Stage 1	581	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v15.96		0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1027	-	359	-	-
HCM Lane V/C Ratio	-	-	0.086	-	-
HCM Control Delay (s/veh)	0	-	16	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	5.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑	↗		↗
Traffic Vol, veh/h	539	1172	182	3	0	517
Future Vol, veh/h	539	1172	182	3	0	517
Conflicting Peds, #/hr	6	0	0	6	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	2	0	0	1
Mvmt Flow	561	1221	190	3	0	539

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	199	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.145	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2285	-	-
Pot Cap-1 Maneuver	1366	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1358	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.99	0	16.63
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1358	-	-	-	839
HCM Lane V/C Ratio	0.413	-	-	-	0.642
HCM Control Delay (s/veh)	9.5	-	-	-	16.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	2.1	-	-	-	4.8

# HCM Signalized Intersection Capacity Analysis

## 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	↗
Traffic Volume (vph)	20	22	19	7	8	31	14	1660	32	125	565	9
Future Volume (vph)	20	22	19	7	8	31	14	1660	32	125	565	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1666			1590		1707	3311		1710	1765	1493
Flt Permitted		0.90			0.95		0.43	1.00		0.07	1.00	1.00
Satd. Flow (perm)		1518			1526		779	3311		123	1765	1493
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	23	20	7	8	32	15	1729	33	130	589	9
RTOR Reduction (vph)	0	0	0	0	29	0	0	1	0	0	0	2
Lane Group Flow (vph)	0	64	0	0	18	0	15	1761	0	130	589	7
Confl. Peds. (#/hr)	15		11	11		15	4		4	4		4
Confl. Bikes (#/hr)			4			2			2			3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		7.4			7.4		53.9	53.4		64.5	59.0	59.0
Effective Green, g (s)		8.4			8.4		55.9	54.4		65.5	60.0	60.0
Actuated g/C Ratio		0.10			0.10		0.68	0.66		0.80	0.73	0.73
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)		155			156		548	2199		235	1293	1093
v/s Ratio Prot							0.00	c0.53		c0.05	0.33	
v/s Ratio Perm		c0.04			0.01		0.02			0.39		0.00
v/c Ratio		0.41			0.12		0.03	0.80		0.55	0.46	0.01
Uniform Delay, d1		34.4			33.4		4.2	9.9		13.4	4.4	2.9
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		1.3			0.2		0.0	2.1		2.3	0.2	0.0
Delay (s)		35.7			33.6		4.2	12.0		15.6	4.6	2.9
Level of Service		D			C		A	B		B	A	A
Approach Delay (s/veh)		35.7			33.6			11.9			6.5	
Approach LOS		D			C			B			A	

Intersection Summary		
HCM 2000 Control Delay (s/veh)	11.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.73	B
Actuated Cycle Length (s)	81.9	Sum of lost time (s)
Intersection Capacity Utilization	80.5%	12.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

# HCM 7th Signalized Intersection Summary

## 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

05/29/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	↗
Traffic Volume (veh/h)	20	22	19	7	8	31	14	1660	32	125	565	9
Future Volume (veh/h)	20	22	19	7	8	31	14	1660	32	125	565	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.96		0.90	0.94		0.94	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800	1800	1758	1800	1800	1772	1800
Adj Flow Rate, veh/h	21	23	20	7	8	3	15	1729	32	130	589	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	3	0	0	2	0
Cap, veh/h	101	77	52	107	103	28	611	2235	41	293	1245	1072
Arrive On Green	0.09	0.11	0.09	0.09	0.11	0.09	0.03	0.67	0.65	0.06	0.70	0.00
Sat Flow, veh/h	337	723	482	371	959	266	1714	3353	62	1714	1772	1525
Grp Volume(v), veh/h	64	0	0	18	0	0	15	859	902	130	589	0
Grp Sat Flow(s),veh/h/ln	1541	0	0	1596	0	0	1714	1670	1745	1714	1772	1525
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.2	26.1	26.4	1.6	10.9	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.7	0.0	0.0	0.2	26.1	26.4	1.6	10.9	0.0
Prop In Lane	0.33		0.31	0.39		0.17	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	209	0	0	217	0	0	611	1113	1163	293	1245	1072
V/C Ratio(X)	0.31	0.00	0.00	0.08	0.00	0.00	0.02	0.77	0.78	0.44	0.47	0.00
Avail Cap(c_a), veh/h	231	0	0	239	0	0	679	1356	1417	392	1535	1321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.0	0.0	0.0	30.0	0.0	0.0	4.0	8.5	8.5	12.1	4.9	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.0	2.1	2.0	0.8	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.3	0.0	0.0	0.0	7.3	7.7	1.2	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.6	0.0	0.0	30.1	0.0	0.0	4.0	10.5	10.6	12.8	5.1	0.0
LnGrp LOS	C			C			A	B	B	B	A	
Approach Vol, veh/h		64			18			1776			719	
Approach Delay, s/veh		31.6			30.1			10.5			6.5	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	55.9		11.9	8.7	53.2		11.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	63.0		8.0	8.0	59.0		8.0				
Max Q Clear Time (g_c+I1), s	2.2	12.9		2.7	3.6	28.4		4.8				
Green Ext Time (p_c), s	0.0	5.9		0.0	0.2	19.9		0.0				

### Intersection Summary

HCM 7th Control Delay, s/veh	10.0
HCM 7th LOS	B

### Notes

User approved pedestrian interval to be less than phase max green.

Intersection: 1: Front St NE & Pine St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	100	17	48
Average Queue (ft)	5	37	1	3
95th Queue (ft)	22	71	7	27
Link Distance (ft)	149	287	1087	640
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Commercial St NE (99E) & Pine St NE

Movement	EB	WB	WB	SB	SB	SB
Directions Served	TR	L	T	LT	T	TR
Maximum Queue (ft)	156	170	156	308	249	163
Average Queue (ft)	57	60	34	148	104	50
95th Queue (ft)	124	137	113	257	200	123
Link Distance (ft)	287		299	643	643	643
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)		95				
Storage Blk Time (%)		7	2			
Queuing Penalty (veh)		3	2			

Intersection: 3: Liberty St NE & Pine St NE

Movement	EB	EB	WB	NB	NB	NB
Directions Served	L	T	TR	LT	T	TR
Maximum Queue (ft)	70	101	225	230	196	88
Average Queue (ft)	13	32	104	112	68	26
95th Queue (ft)	46	80	186	194	155	65
Link Distance (ft)		299	320	431	431	431
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	95					
Storage Blk Time (%)	0	1				
Queuing Penalty (veh)	0	0				

Intersection: 4: Front St NE & Shipping St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	18	28	6
Average Queue (ft)	4	1	1	0
95th Queue (ft)	24	9	12	4
Link Distance (ft)	251	274	286	587
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Front St NE & Hood St NE

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	18	68
Average Queue (ft)	1	16
95th Queue (ft)	10	52
Link Distance (ft)	221	256
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Front St NE & North Access/Gaines St NE

Movement	WB	NB
Directions Served	LTR	LTR
Maximum Queue (ft)	68	17
Average Queue (ft)	15	1
95th Queue (ft)	51	10
Link Distance (ft)	255	291
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Front St NE & Center Access/Market St NE

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	113	4	82
Average Queue (ft)	35	0	10
95th Queue (ft)	81	3	47
Link Distance (ft)	288	254	291
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Commercial St NE (99E) & Market St NE

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	98	180	338	306
Average Queue (ft)	34	59	150	106
95th Queue (ft)	79	133	263	226
Link Distance (ft)	288	306	619	619
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Liberty St NE (99E) & Market St NE

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	78	215	257	224
Average Queue (ft)	31	93	132	86
95th Queue (ft)	71	176	228	183
Link Distance (ft)	306	596	488	488
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Broadway St & Market St NE

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	35	164	168	246	36	393	200	196	556
Average Queue (ft)	10	74	70	107	5	143	31	62	204
95th Queue (ft)	33	138	135	209	25	287	113	155	403
Link Distance (ft)		596		358		671			612
Upstream Blk Time (%)									0
Queuing Penalty (veh)									0
Storage Bay Dist (ft)	170		180		130		100	115	
Storage Blk Time (%)		1	0	2		15		0	16
Queuing Penalty (veh)		0	0	3		15		3	17

Intersection: 11: Front St NE & South Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 12: Front St NE (99E)

Movement	EB	WB	WB	SB	B18
Directions Served	L	T	R	R	T
Maximum Queue (ft)	128	16	4	145	19
Average Queue (ft)	50	1	0	78	1
95th Queue (ft)	98	9	3	124	9
Link Distance (ft)		378		110	1544
Upstream Blk Time (%)				2	
Queuing Penalty (veh)				8	
Storage Bay Dist (ft)	125		150		
Storage Blk Time (%)	0				
Queuing Penalty (veh)	1				

Intersection: 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	R
Maximum Queue (ft)	50	43	34	433	404	117	267	20
Average Queue (ft)	6	18	4	180	132	27	87	1
95th Queue (ft)	27	44	22	374	316	79	210	11
Link Distance (ft)	188	364		856	856		260	260
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							1	
Storage Bay Dist (ft)			300			125		
Storage Blk Time (%)				3			4	
Queuing Penalty (veh)				0			2	

Network Summary

Network wide Queuing Penalty: 56

Intersection: 1: Front St NE & Pine St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	107	28	30
Average Queue (ft)	6	46	1	4
95th Queue (ft)	26	82	11	21
Link Distance (ft)	149	287	1087	640
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Commercial St NE (99E) & Pine St NE

Movement	EB	WB	WB	SB	SB	SB
Directions Served	TR	L	T	LT	T	TR
Maximum Queue (ft)	136	183	191	322	320	218
Average Queue (ft)	60	86	50	169	131	70
95th Queue (ft)	110	168	140	276	250	163
Link Distance (ft)	287		299	643	643	643
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		95				
Storage Blk Time (%)		14	3			
Queuing Penalty (veh)		9	4			

Intersection: 3: Liberty St NE & Pine St NE

Movement	EB	EB	WB	NB	NB	NB
Directions Served	L	T	TR	LT	T	TR
Maximum Queue (ft)	88	137	249	262	228	127
Average Queue (ft)	34	57	117	145	92	41
95th Queue (ft)	76	116	192	237	190	91
Link Distance (ft)		299	320	431	431	431
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	95					
Storage Blk Time (%)	1	5				
Queuing Penalty (veh)	1	2				

Intersection: 4: Front St NE & Shipping St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	50	54	19
Average Queue (ft)	9	4	4	1
95th Queue (ft)	32	25	29	14
Link Distance (ft)	251	274	286	587
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Front St NE & Hood St NE

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	36	19
Average Queue (ft)	11	1
95th Queue (ft)	35	11
Link Distance (ft)	256	286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Front St NE & North Access/Gaines St NE

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	22
Average Queue (ft)	4	1
95th Queue (ft)	20	12
Link Distance (ft)	255	279
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Front St NE & Center Access/Market St NE

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	117	16	96
Average Queue (ft)	34	1	17
95th Queue (ft)	83	9	62
Link Distance (ft)	288	254	291
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Commercial St NE (99E) & Market St NE

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	106	285	373	335
Average Queue (ft)	46	98	182	136
95th Queue (ft)	91	207	306	272
Link Distance (ft)	288	306	619	619
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Liberty St NE (99E) & Market St NE

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	125	268	304	311
Average Queue (ft)	54	127	168	125
95th Queue (ft)	106	229	281	249
Link Distance (ft)	306	596	488	488
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Broadway St & Market St NE

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	52	236	279	338	75	626	200	214	583
Average Queue (ft)	15	104	109	167	16	304	83	97	261
95th Queue (ft)	44	192	207	288	65	516	222	213	471
Link Distance (ft)		596		358		671			612
Upstream Blk Time (%)				0		0			0
Queuing Penalty (veh)				0		0			0
Storage Bay Dist (ft)	170		180		130		100	115	
Storage Blk Time (%)		4	1	10		33		2	24
Queuing Penalty (veh)		1	4	16		52		16	30

Intersection: 11: Front St NE & South Access

Movement	NB
Directions Served	LT
Maximum Queue (ft)	21
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	1544
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Front St NE (99E)

Movement	EB	EB	EB	WB	SB	B18
Directions Served	L	T	T	T	R	T
Maximum Queue (ft)	182	114	50	32	153	11
Average Queue (ft)	74	6	3	1	90	1
95th Queue (ft)	148	58	25	13	146	7
Link Distance (ft)		260	260	378	110	1544
Upstream Blk Time (%)		0			4	
Queuing Penalty (veh)		0			20	
Storage Bay Dist (ft)	125					
Storage Blk Time (%)	1					
Queuing Penalty (veh)	8					

Intersection: 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	R
Maximum Queue (ft)	97	81	326	669	605	165	253	28
Average Queue (ft)	33	32	27	368	298	66	126	3
95th Queue (ft)	73	68	167	629	548	123	228	16
Link Distance (ft)	188	364		856	856		260	260
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							1	
Storage Bay Dist (ft)			300			125		
Storage Blk Time (%)				17		0	7	
Queuing Penalty (veh)				2		2	7	

Network Summary

Network wide Queuing Penalty: 174

Intersection: 1: Front St NE & Pine St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	74	39	20
Average Queue (ft)	4	34	2	1
95th Queue (ft)	23	67	15	10
Link Distance (ft)	149	287	1087	640
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Commercial St NE (99E) & Pine St NE

Movement	EB	WB	WB	SB	SB	SB
Directions Served	TR	L	T	LT	T	TR
Maximum Queue (ft)	154	178	190	294	281	180
Average Queue (ft)	62	69	35	161	126	61
95th Queue (ft)	125	148	118	267	237	143
Link Distance (ft)	287		299	643	643	643
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)		95				
Storage Blk Time (%)		10	0			
Queuing Penalty (veh)		5	0			

Intersection: 3: Liberty St NE (99E) & Pine St NE

Movement	EB	EB	WB	NB	NB	NB
Directions Served	L	T	TR	LT	T	TR
Maximum Queue (ft)	58	124	203	262	232	120
Average Queue (ft)	15	39	109	124	75	35
95th Queue (ft)	46	97	190	220	166	89
Link Distance (ft)		299	320	431	431	431
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	95					
Storage Blk Time (%)	0	3				
Queuing Penalty (veh)	0	1				

Intersection: 4: Front St NE & Shipping St NE

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	37	30	45
Average Queue (ft)	3	3	3
95th Queue (ft)	22	19	25
Link Distance (ft)	251	274	286
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Front St NE & Hood St NE

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	18	67
Average Queue (ft)	1	21
95th Queue (ft)	8	57
Link Distance (ft)	221	256
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Front St NE & North Access/Gaines St NE

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	67	61	80
Average Queue (ft)	33	20	11
95th Queue (ft)	56	55	45
Link Distance (ft)	218	255	291
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Front St NE & Center Access/Market St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	132	89	102
Average Queue (ft)	28	59	13	14
95th Queue (ft)	53	117	59	57
Link Distance (ft)	178	288	254	291
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Commercial St NE (99E) & Market St NE

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	187	262	354	329
Average Queue (ft)	73	90	177	136
95th Queue (ft)	140	199	292	266
Link Distance (ft)	288	306	619	619
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Liberty St NE (99E) & Market St NE

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	208	242	289	227
Average Queue (ft)	76	112	146	96
95th Queue (ft)	155	220	245	200
Link Distance (ft)	306	596	488	488
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Broadway St & Market St NE

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	44	228	137	237	82	352	176	214	469
Average Queue (ft)	7	102	60	123	7	147	34	58	202
95th Queue (ft)	29	192	112	208	43	286	122	146	380
Link Distance (ft)		596		358		671			612
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	170		180		130		100	115	
Storage Blk Time (%)		3	0	3		15	0	0	15
Queuing Penalty (veh)		0	0	3		16	0	2	16

Intersection: 11: Front St NE & South Access

Movement	EB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	23
95th Queue (ft)	47
Link Distance (ft)	157
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Front St NE (99E)

Movement	EB	WB	WB	SB	B18
Directions Served	L	T	R	R	T
Maximum Queue (ft)	149	22	4	178	94
Average Queue (ft)	55	1	0	92	6
95th Queue (ft)	108	10	3	151	50
Link Distance (ft)		378		110	1544
Upstream Blk Time (%)				5	
Queuing Penalty (veh)				27	
Storage Bay Dist (ft)	125		150		
Storage Blk Time (%)	0				
Queuing Penalty (veh)	2				

Intersection: 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	R
Maximum Queue (ft)	60	59	30	554	510	153	265	11
Average Queue (ft)	7	17	5	207	161	39	91	1
95th Queue (ft)	33	48	23	443	391	101	229	8
Link Distance (ft)	188	364		856	856		260	260
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							1	
Storage Bay Dist (ft)			300			125		
Storage Blk Time (%)				4		0	5	
Queuing Penalty (veh)				0		0	3	

Network Summary

Network wide Queuing Penalty: 77

Intersection: 1: Front St NE & Pine St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	136	27	46
Average Queue (ft)	6	48	1	5
95th Queue (ft)	27	95	13	26
Link Distance (ft)	149	287	1087	640
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Commercial St NE (99E) & Pine St NE

Movement	EB	WB	WB	SB	SB	SB
Directions Served	TR	L	T	LT	T	TR
Maximum Queue (ft)	153	184	218	328	286	168
Average Queue (ft)	61	87	56	167	121	61
95th Queue (ft)	115	171	159	274	228	135
Link Distance (ft)	287		299	643	643	643
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)		95				
Storage Blk Time (%)		15	3			
Queuing Penalty (veh)		10	5			

Intersection: 3: Liberty St NE & Pine St NE

Movement	EB	EB	WB	NB	NB	NB
Directions Served	L	T	TR	LT	T	TR
Maximum Queue (ft)	116	146	251	287	265	133
Average Queue (ft)	36	59	127	153	106	47
95th Queue (ft)	77	117	218	252	207	98
Link Distance (ft)		299	320	431	431	431
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	95					
Storage Blk Time (%)	1	6				
Queuing Penalty (veh)	1	2				

Intersection: 4: Front St NE & Shipping St NE

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	39	55
Average Queue (ft)	8	7	4
95th Queue (ft)	30	29	27
Link Distance (ft)	251	274	286
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Front St NE & Hood St NE

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	44	16
Average Queue (ft)	19	1
95th Queue (ft)	45	10
Link Distance (ft)	256	286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Front St NE & North Access/Gaines St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	57	44	100	20
Average Queue (ft)	28	17	23	1
95th Queue (ft)	53	44	76	12
Link Distance (ft)	218	255	291	279
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Front St NE & Center Access/Market St NE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	172	120	132
Average Queue (ft)	28	69	20	21
95th Queue (ft)	55	139	77	74
Link Distance (ft)	178	288	254	291
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Commercial St NE (99E) & Market St NE

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	155	294	413	386
Average Queue (ft)	71	136	210	176
95th Queue (ft)	121	266	339	318
Link Distance (ft)	288	306	619	619
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Liberty St NE (99E) & Market St NE

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	156	338	418	362
Average Queue (ft)	73	165	214	167
95th Queue (ft)	137	284	356	310
Link Distance (ft)	306	596	488	488
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Broadway St & Market St NE

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	49	227	280	373	229	659	200	215	620
Average Queue (ft)	14	115	120	213	25	343	102	111	297
95th Queue (ft)	42	196	253	365	121	580	246	234	516
Link Distance (ft)		596		358		671			612
Upstream Blk Time (%)				3		0			1
Queuing Penalty (veh)				0		0			0
Storage Bay Dist (ft)	170		180		130		100	115	
Storage Blk Time (%)		3	1	19		35		3	25
Queuing Penalty (veh)		0	2	33		56		18	31

Intersection: 11: Front St NE & South Access

Movement	EB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	19
95th Queue (ft)	45
Link Distance (ft)	157
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Front St NE (99E)

Movement	EB	EB	EB	WB	WB	SB	B18
Directions Served	L	T	T	T	R	R	T
Maximum Queue (ft)	205	134	100	17	5	165	51
Average Queue (ft)	83	11	6	1	0	103	3
95th Queue (ft)	165	88	61	10	3	158	23
Link Distance (ft)		260	260	378		110	1544
Upstream Blk Time (%)		0	0			8	
Queuing Penalty (veh)		0	0			39	
Storage Bay Dist (ft)	125				150		
Storage Blk Time (%)	2	0					
Queuing Penalty (veh)	13	0					

Intersection: 13: Front Street NE (99E)/Front St NE (99E) & Union Street NE

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	R
Maximum Queue (ft)	86	86	330	827	767	216	266	61
Average Queue (ft)	31	31	24	433	362	83	141	3
95th Queue (ft)	68	66	155	744	689	170	267	35
Link Distance (ft)	188	364		856	856		260	260
Upstream Blk Time (%)				2	1		1	
Queuing Penalty (veh)				0	0		2	
Storage Bay Dist (ft)			300			125		
Storage Blk Time (%)				22		1	9	
Queuing Penalty (veh)				3		4	11	

Network Summary

Network wide Queuing Penalty: 233

Intersection	
Intersection Delay, s/veh	22.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	40	13	18	36	38	20	332	22	39	425	3
Future Vol, veh/h	4	40	13	18	36	38	20	332	22	39	425	3
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	6	0	6	0	3	0	23	1	0
Mvmt Flow	5	47	15	21	42	45	24	391	26	46	500	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.6	11.2	17.4	31
HCM LOS	B	B	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	7%	20%	8%
Vol Thru, %	89%	70%	39%	91%
Vol Right, %	6%	23%	41%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	374	57	92	467
LT Vol	20	4	18	39
Through Vol	332	40	36	425
RT Vol	22	13	38	3
Lane Flow Rate	440	67	108	549
Geometry Grp	1	1	1	1
Degree of Util (X)	0.644	0.123	0.195	0.842
Departure Headway (Hd)	5.272	6.618	6.498	5.515
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	682	538	549	654
Service Time	3.319	4.702	4.575	3.556
HCM Lane V/C Ratio	0.645	0.125	0.197	0.839
HCM Control Delay, s/veh	17.4	10.6	11.2	31
HCM Lane LOS	C	B	B	D
HCM 95th-tile Q	4.7	0.4	0.7	9.3

Intersection	
Intersection Delay, s/veh	35.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	31	10	19	63	36	33	513	32	37	464	5
Future Vol, veh/h	5	31	10	19	63	36	33	513	32	37	464	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	11	0	17	0	3	0	0	1	0
Mvmt Flow	5	34	11	21	69	40	36	564	35	41	510	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.2	12.6	45.1	31.3
HCM LOS	B	B	E	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	11%	16%	7%
Vol Thru, %	89%	67%	53%	92%
Vol Right, %	6%	22%	31%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	578	46	118	506
LT Vol	33	5	19	37
Through Vol	513	31	63	464
RT Vol	32	10	36	5
Lane Flow Rate	635	51	130	556
Geometry Grp	1	1	1	1
Degree of Util (X)	0.942	0.103	0.257	0.844
Departure Headway (Hd)	5.34	7.34	7.129	5.467
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	673	491	507	656
Service Time	3.422	5.349	5.134	3.552
HCM Lane V/C Ratio	0.944	0.104	0.256	0.848
HCM Control Delay, s/veh	45.1	11.2	12.6	31.3
HCM Lane LOS	E	B	B	D
HCM 95th-tile Q	13.1	0.3	1	9.3

# HCM Signalized Intersection Capacity Analysis

## 7: Front St NE & Center Access/Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔			↔			↔		
Traffic Volume (vph)	4	40	13	18	36	38	20	332	22	39	425	3	
Future Volume (vph)	4	40	13	18	36	38	20	332	22	39	425	3	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		4.0			4.0			4.0			4.0		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		1.00			1.00			1.00			1.00		
Flpb, ped/bikes		1.00			1.00			1.00			1.00		
Frt		0.97			0.94			0.99			1.00		
Flt Protected		1.00			0.99			1.00			1.00		
Satd. Flow (prot)		1739			1623			1735			1741		
Flt Permitted		0.97			0.92			0.97			0.95		
Satd. Flow (perm)		1688			1500			1680			1657		
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	
Adj. Flow (vph)	5	47	15	21	42	45	24	391	26	46	500	4	
RTOR Reduction (vph)	0	13	0	0	38	0	0	3	0	0	0	0	
Lane Group Flow (vph)	0	54	0	0	70	0	0	438	0	0	550	0	
Confl. Peds. (#/hr)							3						
Confl. Bikes (#/hr)												3	
Heavy Vehicles (%)	0%	0%	0%	6%	0%	6%	0%	3%	0%	23%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		8			4			6			2		
Permitted Phases	8			4			6			2			
Actuated Green, G (s)		5.5			5.5			21.8			21.8		
Effective Green, g (s)		5.5			5.5			21.8			21.8		
Actuated g/C Ratio		0.16			0.16			0.62			0.62		
Clearance Time (s)		4.0			4.0			4.0			4.0		
Vehicle Extension (s)		2.5			2.5			2.5			2.5		
Lane Grp Cap (vph)		263			233			1037			1023		
v/s Ratio Prot													
v/s Ratio Perm		0.03			0.05			0.26			0.33		
v/c Ratio		0.21			0.30			0.42			0.54		
Uniform Delay, d1		13.0			13.2			3.5			3.9		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		0.3			0.5			0.2			0.4		
Delay (s)		13.3			13.7			3.7			4.3		
Level of Service		B			B			A			A		
Approach Delay (s/veh)		13.3			13.7			3.7			4.3		
Approach LOS		B			B			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			5.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.49										
Actuated Cycle Length (s)			35.3									Sum of lost time (s)	8.0
Intersection Capacity Utilization			55.0%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM 7th Signalized Intersection Summary  
 7: Front St NE & Center Access/Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	4	40	13	18	36	38	20	332	22	39	425	3
Future Volume (veh/h)	4	40	13	18	36	38	20	332	22	39	425	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1716	1800	1716	1800	1758	1800	1477	1786	1800
Adj Flow Rate, veh/h	5	47	15	21	42	45	24	391	26	46	500	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	6	0	6	0	3	0	23	1	0
Cap, veh/h	204	152	48	250	79	84	205	756	49	226	793	6
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	114	1230	388	318	638	683	38	1564	100	71	1640	13
Grp Volume(v), veh/h	67	0	0	108	0	0	441	0	0	550	0	0
Grp Sat Flow(s),veh/h/ln	1731	0	0	1638	0	0	1702	0	0	1724	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	1.2	0.0	0.0	3.6	0.0	0.0	4.7	0.0	0.0
Prop In Lane	0.07		0.22	0.19		0.42	0.05		0.06	0.08		0.01
Lane Grp Cap(c), veh/h	404	0	0	413	0	0	1010	0	0	1025	0	0
V/C Ratio(X)	0.17	0.00	0.00	0.26	0.00	0.00	0.44	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	1688	0	0	1617	0	0	2970	0	0	3004	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.1	0.0	0.0	8.3	0.0	0.0	3.6	0.0	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	0.0	0.0	8.6	0.0	0.0	3.9	0.0	0.0	4.3	0.0	0.0
LnGrp LOS	A			A			A			A		
Approach Vol, veh/h		67			108			441			550	
Approach Delay, s/veh		8.3			8.6			3.9			4.3	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.8		6.5		13.8		6.5				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		34.0		18.0		34.0		18.0				
Max Q Clear Time (g_c+I1), s		6.7		3.2		5.6		2.7				
Green Ext Time (p_c), s		3.1		0.4		2.3		0.2				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh				4.7								
HCM 7th LOS				A								

# HCM Signalized Intersection Capacity Analysis

## 7: Front St NE & Center Access/Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔			↔			↔		
Traffic Volume (vph)	5	31	10	19	63	36	33	513	32	37	464	5	
Future Volume (vph)	5	31	10	19	63	36	33	513	32	37	464	5	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		5.0			5.0			5.0			5.0		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		1.00			1.00			1.00			1.00		
Flpb, ped/bikes		1.00			1.00			1.00			1.00		
Frt		0.97			0.96			0.99			1.00		
Flt Protected		1.00			0.99			1.00			1.00		
Satd. Flow (prot)		1730			1599			1733			1774		
Flt Permitted		0.96			0.94			0.96			0.93		
Satd. Flow (perm)		1665			1509			1660			1662		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	5	34	11	21	69	40	36	564	35	41	510	5	
RTOR Reduction (vph)	0	9	0	0	33	0	0	3	0	0	0	0	
Lane Group Flow (vph)	0	41	0	0	97	0	0	632	0	0	556	0	
Confl. Peds. (#/hr)			1	1					5	5		5	
Confl. Bikes (#/hr)									2			1	
Heavy Vehicles (%)	0%	0%	0%	11%	0%	17%	0%	3%	0%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		8			4			6			2		
Permitted Phases	8			4			6			2			
Actuated Green, G (s)		7.8			7.8			24.5			24.5		
Effective Green, g (s)		7.8			7.8			24.5			24.5		
Actuated g/C Ratio		0.18			0.18			0.58			0.58		
Clearance Time (s)		5.0			5.0			5.0			5.0		
Vehicle Extension (s)		2.5			2.5			2.5			2.5		
Lane Grp Cap (vph)		307			278			961			962		
v/s Ratio Prot													
v/s Ratio Perm		0.02			0.06			0.38			0.33		
v/c Ratio		0.13			0.35			0.66			0.58		
Uniform Delay, d1		14.4			15.0			6.0			5.6		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		0.1			0.6			1.5			0.7		
Delay (s)		14.6			15.6			7.5			6.3		
Level of Service		B			B			A			A		
Approach Delay (s/veh)		14.6			15.6			7.5			6.3		
Approach LOS		B			B			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			8.1									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			42.3									Sum of lost time (s)	10.0
Intersection Capacity Utilization			58.8%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM 7th Signalized Intersection Summary  
 7: Front St NE & Center Access/Market St NE

05/31/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	5	31	10	19	63	36	33	513	32	37	464	5
Future Volume (veh/h)	5	31	10	19	63	36	33	513	32	37	464	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1646	1800	1561	1800	1758	1800	1800	1786	1800
Adj Flow Rate, veh/h	5	34	11	21	69	40	36	564	35	41	510	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	11	0	17	0	3	0	0	1	0
Cap, veh/h	158	173	53	179	132	71	159	776	46	169	821	8
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	105	1228	376	198	942	507	43	1558	93	59	1649	16
Grp Volume(v), veh/h	50	0	0	130	0	0	635	0	0	556	0	0
Grp Sat Flow(s),veh/h/ln	1709	0	0	1647	0	0	1695	0	0	1724	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	2.0	0.0	0.0	8.1	0.0	0.0	6.3	0.0	0.0
Prop In Lane	0.10		0.22	0.16		0.31	0.06		0.06	0.07		0.01
Lane Grp Cap(c), veh/h	383	0	0	383	0	0	981	0	0	998	0	0
V/C Ratio(X)	0.13	0.00	0.00	0.34	0.00	0.00	0.65	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	1476	0	0	1449	0	0	1828	0	0	1843	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.5	0.0	0.0	11.1	0.0	0.0	5.5	0.0	0.0	5.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.6	0.0	0.0	0.9	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.6	0.0	0.0	11.5	0.0	0.0	6.0	0.0	0.0	5.4	0.0	0.0
LnGrp LOS	B			B			A			A		
Approach Vol, veh/h		50			130			635			556	
Approach Delay, s/veh		10.6			11.5			6.0			5.4	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.8		8.9		18.8		8.9				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		28.0		22.0		28.0		22.0				
Max Q Clear Time (g_c+I1), s		8.3		4.0		10.1		2.7				
Green Ext Time (p_c), s		3.0		0.5		3.4		0.1				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh				6.5								
HCM 7th LOS				A								

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	40	13	18	36	38	20	332	22	39	425	3
Future Vol, veh/h	4	40	13	18	36	38	20	332	22	39	425	3
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	6	0	6	0	3	0	23	1	0
Mvmt Flow	4	40	13	18	36	38	20	332	22	39	425	3

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	898	902	430	906	892	343	431	0	0	354	0	0
Stage 1	508	508	-	383	383	-	-	-	-	-	-	-
Stage 2	390	394	-	523	509	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.16	6.5	6.26	4.1	-	-	4.33	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.554	4	3.354	2.2	-	-	2.407	-	-
Pot Cap-1 Maneuver	263	280	630	253	283	691	1139	-	-	1097	-	-
Stage 1	551	542	-	632	616	-	-	-	-	-	-	-
Stage 2	638	609	-	530	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	201	260	628	197	263	691	1136	-	-	1097	-	-
Mov Cap-2 Maneuver	201	260	-	197	263	-	-	-	-	-	-	-
Stage 1	524	516	-	618	602	-	-	-	-	-	-	-
Stage 2	555	595	-	456	515	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v20.21		20.37	0.44	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	95	-	-	293	325	150	-	-
HCM Lane V/C Ratio	0.018	-	-	0.194	0.283	0.036	-	-
HCM Control Delay (s/veh)	8.2	0	-	20.2	20.4	8.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	1.1	0.1	-	-

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	31	10	19	63	36	33	513	32	37	464	5
Future Vol, veh/h	5	31	10	19	63	36	33	513	32	37	464	5
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	11	0	17	0	3	0	0	1	0
Mvmt Flow	5	31	10	19	63	36	33	513	32	37	464	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1156	1162	473	1155	1148	534	474	0	0	550	0	0
Stage 1	546	546	-	600	600	-	-	-	-	-	-	-
Stage 2	611	616	-	555	548	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.21	6.5	6.37	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.21	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.599	4	3.453	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	175	197	596	167	200	518	1099	-	-	1030	-	-
Stage 1	526	522	-	472	493	-	-	-	-	-	-	-
Stage 2	485	485	-	501	520	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	99	177	592	125	181	515	1093	-	-	1025	-	-
Mov Cap-2 Maneuver	99	177	-	125	181	-	-	-	-	-	-	-
Stage 1	498	494	-	450	469	-	-	-	-	-	-	-
Stage 2	373	462	-	438	492	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	29.9	43.37	0.48	0.63
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	102	-	-	190	207	131	-	-
HCM Lane V/C Ratio	0.03	-	-	0.242	0.571	0.036	-	-
HCM Control Delay (s/veh)	8.4	0	-	29.9	43.4	8.6	0	-
HCM Lane LOS	A	A	-	D	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	3.1	0.1	-	-

7: Front St NE & Center Access/Market St NE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.2	14.1	1.2	1.2	2.9

7: Front St NE & Center Access/Market St NE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.9	17.5	1.8	1.5	3.7

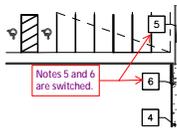
## **Attachment M: Engineer Responses**

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# Pages from DS Comments\_Civil Plans\_1105 Front Street NE\_24-106451-PLN.pdf Markup Summary

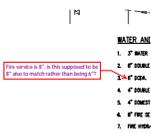
## Callout (17)



**Subject:** Callout  
**Page Label:** [12] P12 PRELIMINARY COMPOSITE UTILITY PLAN  
**Author:** Kyle Cochran  
**Date:** 3/26/2024 6:16:05 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:10:03 AM  
**Color:** ■  
**Layer:**  
**Space:**

Notes 5 and 6 are switched.

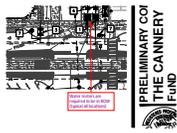
**AKS: PLANS UPDATED ACCORDINGLY**



**Subject:** Callout  
**Page Label:** [12] P12 PRELIMINARY COMPOSITE UTILITY PLAN  
**Author:** Kyle Cochran  
**Date:** 4/12/2024 10:03:28 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:10:06 AM  
**Color:** ■  
**Layer:**  
**Space:**

Fire service is 8", is this supposed to be 8" also to match rather than being 6"?

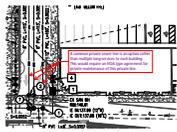
**AKS: PLANS UPDATED ACCORDINGLY**



**Subject:** Callout  
**Page Label:** [12] P12 PRELIMINARY COMPOSITE UTILITY PLAN  
**Author:** Kyle Cochran  
**Date:** 3/26/2024 6:22:59 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:10:10 AM  
**Color:** ■  
**Layer:**  
**Space:**

Water meters are required to be in ROW (typical all locations)

**AKS: PLANS UPDATED BASED ON FOLLOW UP MEETINGS WITH CITY STAFF. EASEMENT IDENTIFIED FOR METERS THAT CANNOT FIT WITHIN ROW.**



**Subject:** Callout  
**Page Label:** [12] P12 PRELIMINARY COMPOSITE UTILITY PLAN  
**Author:** Kyle Cochran  
**Date:** 4/12/2024 10:08:23 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:10:15 AM  
**Color:** ■  
**Layer:**  
**Space:**

A common private sewer line is an option rather than multiple long services to each building. This would require an HOA type agreement for private maintenance of this private line.

**AKS: PLANS UPDATED ACCORDINGLY**



**Subject:** Callout  
**Page Label:** [8] P8 PRELIMINARY SITE PLAN  
**Author:** khottmann  
**Date:** 4/19/2024 10:11:35 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:37 AM  
**Color:** ■  
**Layer:**  
**Space:**

driveways needs to be a standard plan 302

**AKS: THIS DRIVEWAY IS IN CITY STANDARDS AND FITS BEST WITH THE ANTICIPATED USE OF THESE ACCESS POINTS. PLAN 302 UTILIZED FOR BELLMONT ALLEY.**



**Subject:** Callout  
**Page Label:** [13] P13 PRELIMINARY FRONT ST IMPROVEMENTS  
**Author:** khottmann  
**Date:** 3/28/2024 4:32:50 PM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:59 AM  
**Color:** ■  
**Layer:**  
**Space:**

Will need ADA ramp for parking space access

**AKS: TO BE ADDRESSED WITH FINAL FRONT STREET DESIGN. COORDINATION WITH RAILROAD, WISER RAIL, CITY, ETC. NEEDED.**



**Subject:** Callout  
**Page Label:** [10] P10 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN  
**Author:** roseh  
**Date:** 4/5/2024 10:49:29 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:20 AM  
**Color:** ■  
**Layer:**  
**Space:**

RIM and IE different from that reported on P11. Confirm all facility elevations consistent between plan and sections.

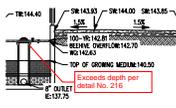
**AKS: PLANS UPDATED ACCORDINGLY**

Structural evaluation of these tall facility walls will be necessary.

**Subject:** Callout  
**Page Label:** [11] P11 PRELIMINARY GRADING AND DRAINAGE SECTIONS  
**Author:** roseh  
**Date:** 4/5/2024 10:25:34 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:25 AM  
**Color:** ■  
**Layer:**  
**Space:**

Structural evaluation of these tall facility walls will be necessary.

**AKS: STRUCTURAL IS AWARE AND PLANS TO PROVIDE DETAILS WITH FINAL DESIGN.**

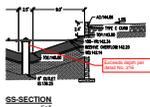


ANTER CROSS-SECTION

**Subject:** Callout  
**Page Label:** [11] P11 PRELIMINARY GRADING AND DRAINAGE SECTIONS  
**Author:** roseh  
**Date:** 4/5/2024 10:33:01 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:37 AM  
**Color:** ■  
**Layer:**  
**Space:**

Exceeds depth per detail No. 216

**AKS: DESIGN STANDARDS DONT EXPLICITLY LIST 18" MAX PONDING DEPTH. FACILITY IS PRIVATELY OWNED / MAINTAINED. WE RESPECTFULLY REQUEST APPROVAL OF PONDING DEPTHS SHOWN. FALL PROTECTION IS PROPOSED WHERE BUILDING CODE WOULD TRIGGER THE NEED FOR HANDRAILS.**

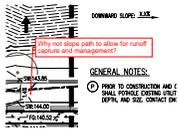


SS-SECTION

**Subject:** Callout  
**Page Label:** [11] P11 PRELIMINARY GRADING AND DRAINAGE SECTIONS  
**Author:** roseh  
**Date:** 4/5/2024 10:33:24 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:37 AM  
**Color:** ■  
**Layer:**  
**Space:**

Exceeds depth per detail No. 216

**AKS: DESIGN STANDARDS DONT EXPLICITLY LIST 18" MAX PONDING DEPTH. FACILITY IS PRIVATELY OWNED / MAINTAINED. WE RESPECTFULLY REQUEST APPROVAL OF PONDING DEPTHS SHOWN. FALL PROTECTION IS PROPOSED WHERE BUILDING CODE WOULD TRIGGER THE NEED FOR HANDRAILS.**



**Subject:** Callout  
**Page Label:** [9] P9 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN  
**Author:** roseh  
**Date:** 4/5/2024 10:36:59 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:37 AM  
**Color:** ■  
**Layer:**  
**Space:**

Why not slope path to allow for runoff capture and management?

**AKS: PLANS REVISED ACCORDINGLY.**



**Subject:** Callout  
**Page Label:** [10] P10 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN  
**Author:** roseh  
**Date:** 4/5/2024 10:45:29 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:37 AM  
**Color:** ■  
**Layer:**  
**Space:**

Clarify pipe size. Outfall shown as 24" pipe

**AKS: PLANS REVISED ACCORDINGLY.**



**Subject:** Callout  
**Page Label:** [10] P10 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN  
**Author:** roseh  
**Date:** 4/5/2024 10:47:43 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:37 AM  
**Color:** ■  
**Layer:**  
**Space:**

Confirm adequate structure size for connecting pipes.

**AKS: CAN BE ADDRESSED WITH FINAL DESIGN**



**Subject:** Callout  
**Page Label:** [8] P8 PRELIMINARY SITE PLAN  
**Author:** tmartin  
**Date:** 4/11/2024 11:59:14 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:13:02 AM  
**Color:** ■  
**Layer:**  
**Space:**

Where to the ends of the multi-use path reconnect to Front Street?

Where are the easements?

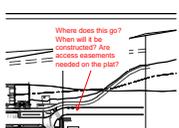
**AKS: CAN BE ADDRESSED WITH FINAL DESIGN**



**Subject:** Callout  
**Page Label:** [8] P8 PRELIMINARY SITE PLAN  
**Author:** tmartin  
**Date:** 4/19/2024 10:13:20 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:13:23 AM  
**Color:** ■  
**Layer:**  
**Space:**

Need double arrows for width adjustment. Stop Bar? No entrance signs?

**AKS: THIS WILL BE A PRIMARY PHASE 2 ENTRANCE SO UPDATED ACCORDINGLY NOW.**



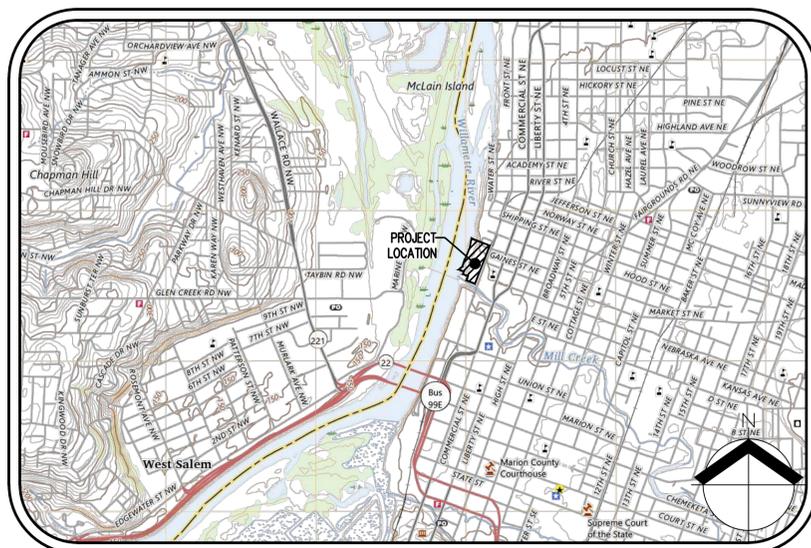
**Subject:** Callout  
**Page Label:** [1] P1 COVER SHEET  
**Author:** LChristian  
**Date:** 4/16/2024 9:14:46 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:14:00 AM  
**Color:** ■  
**Layer:**  
**Space:**

Where does this go? When will it be constructed? Are access easements needed on the plot?

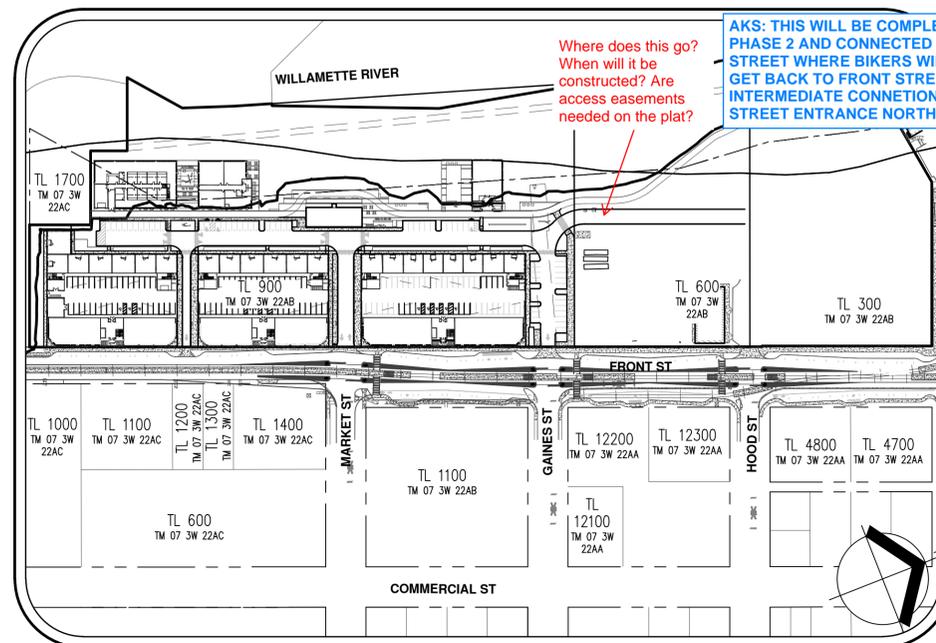
**AKS: THIS WILL BE COMPLETED WITH PHASE 2 AND CONNECTED TO SHIPPING STREET WHERE BIKERS WILL BE ABLE TO GET BACK TO FRONT STREET. INTERMEDIATE CONNECTION IS OUT GAINS STREET ENTRANCE NORTH OF BUILDING 1.**

# THE CANNERY

## PRELIMINARY LAND USE PLANS



**VICINITY MAP**  
NOT TO SCALE



**SITE MAP**  
1" = 150'

**ENGINEERING/  
PLANNING FIRM**

AKS ENGINEERING & FORESTRY, LLC  
ENGINEERING CONTACT: TYLER ROTH, PE  
PLANNING CONTACT: GRACE WOLFF  
3700 RIVER RD N, STE 1  
KEIZER, OR 97303  
PH: 503.400.6028  
WWW.AKS-ENG.COM

**ARCHITECT**

INSIGHT ARCHITECTS  
CONTACT: KRISTINA HELD, AIA, LEED AP BD+C, CPH  
1307 WEST MOREHEAD ST, STE 108  
CHARLOTTE, NC 28208  
PH: 704.344.0445

**LANDSCAPE ARCHITECT**

LANGO HANSEN LANDSCAPE ARCHITECT  
CONTACT: KYLE TRULEN, PLA, LEED AP  
1100 NW GLISAN #3A,  
PORTLAND, OR 97209  
PH: 971.380.3580

**CONTRACT  
PURCHASER/APPLICANT**

FUND  
CONTACT: TRENT MICHELS  
15017 THOMAS RD,  
CHARLOTTE, NC 28278

**GEOTECHNICAL FIRM**

CENTRAL GEOTECHNICAL SERVICES, LLC  
CONTACT: JULIO C. VELA, PHD, PE, GE  
10240 SW NIMBUS AVE, STE L6  
PORTLAND, OR 97223  
PH: 503.994.0755

**LEGEND**

EXISTING	PROPOSED	EXISTING	PROPOSED
DECIDUOUS TREE		STORM DRAIN CLEAN OUT	
CONIFEROUS TREE		STORM DRAIN CATCH BASIN	
FIRE HYDRANT		STORM DRAIN AREA DRAIN	
WATER BLOWOFF		STORM DRAIN MANHOLE	
WATER METER		GAS METER	
WATER VALVE		GAS VALVE	
DOUBLE CHECK VALVE		GUY WIRE ANCHOR	
AIR RELEASE VALVE		UTILITY POLE	
SANITARY SEWER CLEAN OUT		POWER VAULT	
SANITARY SEWER MANHOLE		POWER JUNCTION BOX	
SIGN		POWER PEDESTAL	
STREET LIGHT		COMMUNICATIONS VAULT	
MAILBOX		COMMUNICATIONS JUNCTION BOX	
		COMMUNICATIONS RISER	

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE		
BOUNDARY LINE		
PROPERTY LINE		
CENTERLINE		
DITCH		
CURB		
EDGE OF PAVEMENT		
EASEMENT		
FENCE LINE		
GRAVEL EDGE		
POWER LINE		
OVERHEAD WIRE		
COMMUNICATIONS LINE		
FIBER OPTIC LINE		
GAS LINE		
STORM DRAIN LINE		
SANITARY SEWER LINE		
WATER LINE		
RECLAIMED WATER LINE		

**PROPERTY DESCRIPTION:**

MARION COUNTY TAX MAP 07 3W 22AB,  
TAX LOTS 300, 600, & 900  
CITY OF SALEM, OREGON

**VERTICAL DATUM**

ELEVATIONS ARE BASED ON CITY OF SALEM  
BENCHMARK NO. 1151, LOCATED AT THE SE  
CORNER OF SUMMER AND MARION ST.  
ELEVATION = 161.617 FEET (NGVD 29).

**PROPERTY LOCATION:**

1105 FRONT ST NE,  
SALEM, OREGON 97301

**SHEET INDEX**

- P1 COVER SHEET
- C002 EXISTING CONDITIONS PLAN
- C003 EXISTING CONDITIONS PLAN
- P4 TENTATIVE PLAT
- P5 PRELIMINARY ONSITE DEMOLITION PLAN
- P6 PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN
- P7 PRELIMINARY TREE TABLE
- P8 PRELIMINARY SITE PLAN
- P9 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN
- P10 PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN
- P11 PRELIMINARY GRADING AND DRAINAGE SECTIONS
- P12 PRELIMINARY COMPOSITE UTILITY PLAN
- P13 PRELIMINARY FRONT ST IMPROVEMENTS

**COVER SHEET**  
**THE CANNERY**  
**FUND**  
**SALEM, OREGON**



RENEW: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 03/15/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

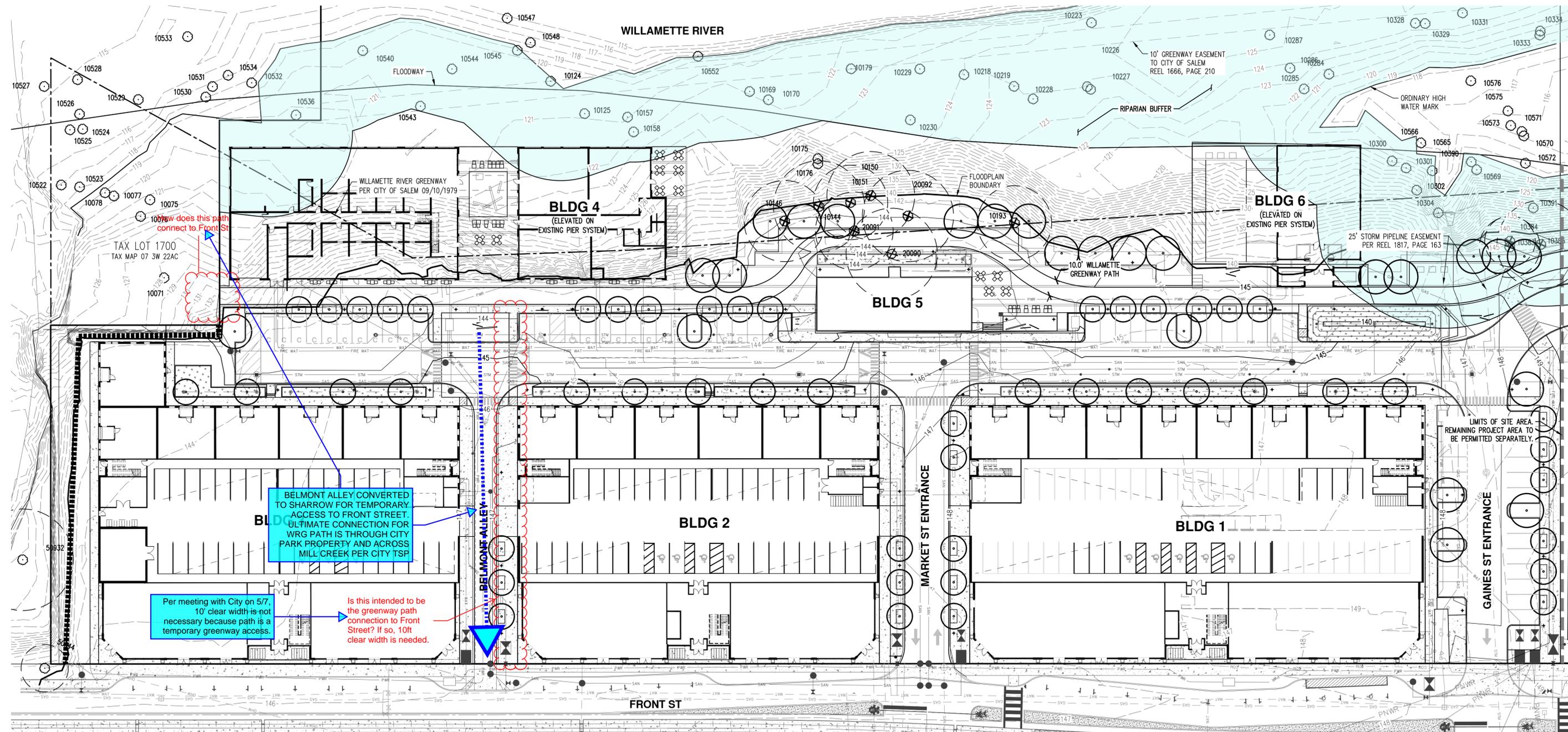


PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN  
**THE CANNERY**  
 FUND  
 SALEM, OREGON



RENEWS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 03/15/2024  
 DESIGNED BY: TDR  
 DRAWN BY: M.M.  
 CHECKED BY: TDR

AKS DRAWING FILE: 5968-01 PRELIM TREE PLANNING LAYOUT: P6



**TREE SUMMARY:**

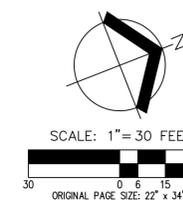
TREES REMOVED FOR GREENWAY TRAIL = 11

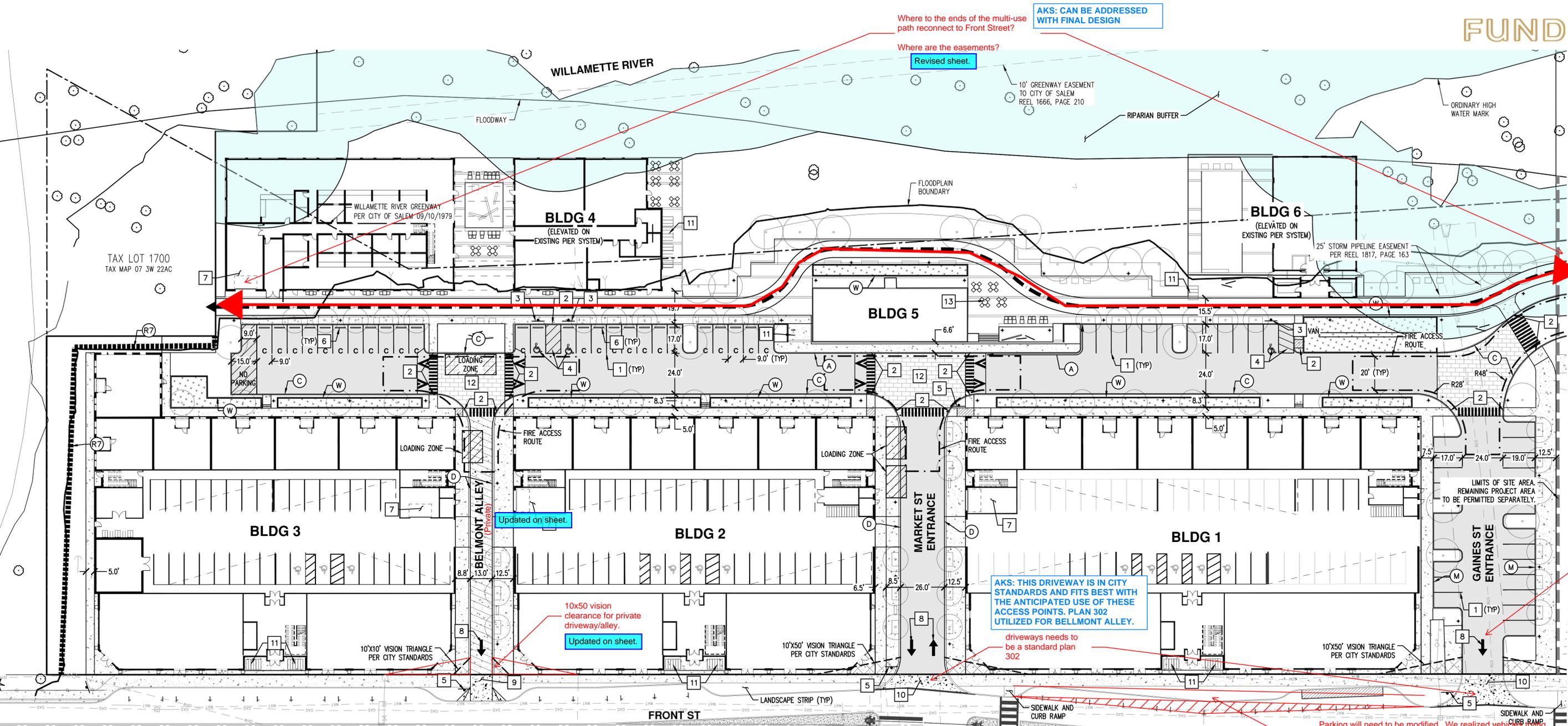
**GENERAL NOTES:**

1. CRITICAL ROOT ZONES SHOWN ARE FOR ANTICIPATED TREE IMPACTS ONLY.
2. TREES BELOW TOP OF BANK ARE NOT ANTICIPATED TO BE IMPACTED.
3. REFER TO ARBORIST LETTER FOR TREE SPECIES AND MORE INFORMATION REGARDING TREE REMOVAL.
4. NO SIGNIFICANT TREES PER CITY OF SALEM REQUIREMENTS ARE PROPOSED TO BE REMOVED.

**LEGEND**

EXISTING GROUND CONTOUR (1 FT)	---
EXISTING GROUND CONTOUR (5 FT)	---
FINISHED GRADE CONTOUR (1 FT)	---
FINISHED GRADE CONTOUR (5 FT)	---
EXISTING TREE TO REMAIN	○
EXISTING TREE TO BE REMOVED	⊗
CRITICAL TREE ROOT ZONE 1" DBH = 1'-0" RADIUS	○
PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)	○





**CURB KEYED NOTES:** (TR)

- (A) TYPE 'A' CURB AND GUTTER
- (C) TYPE 'C' CURB
- (D) TYPE 'D' MOUNTABLE CURB
- (M) MONOLITHIC CURB AND SIDEWALK
- (W) PLANTER WALL
- (R7) EXISTING RETAINING WALL. STRUCTURAL IMPROVEMENTS REQUIRED TO BE DETERMINED AT TIME OF BUILDING PERMIT

**SITE KEYED NOTES:** #

1. PAINT 4-INCH WIDE WHITE STRIPE PER CITY STANDARDS.
2. ACCESSIBLE CURB RAMP AND DETECTABLE WARNING SURFACE.
3. ACCESSIBLE PARKING SIGN. "VAN" INDICATES VAN ACCESSIBLE SIGN.
4. ACCESSIBLE PARKING STALLS AND AISLE STRIPING.
5. INSTALL 30"x30" STOP SIGN AND STOP BAR. (36"x36" WHEN ENTERING PUBLIC ROW)
6. CONCRETE WHEEL STOP.
7. TRASH ENCLOSURE. SEE ARCHITECTURAL PLANS FOR DETAILS.
8. DIRECTIONAL ARROW STRIPE.
9. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.302.
10. COMMERCIAL DRIVEWAY APPROACH PER CITY DETAIL NO.315.
11. BIKE RACK, SEE ARCHITECTURAL PLANS FOR DETAILS.
12. RAISED SPEED TABLE PEDESTRIAN CROSSING.
13. OUTDOOR SEATING. SEE LANDSCAPE PLANS FOR DETAILS.

**SITE PLAN DATA:**

ZONING = MU-R  
 SUBJECT PROPERTY AREA = ±593,899 SF (±13.6 ACRES)  
 SITE AREA = ±333,110 SF (±7.6 ACRES)

**DENSITY:**  
 MULTI-FAMILY = 371 UNITS  
 \*RETAIL = 12,149 SF  
 \*OFFICE = 5,880 SF  
 \*EATING/DRINKING ESTABLISHMENT = 30,859 SF

\*DISTRIBUTION OF RETAIL, OFFICE, AND EATING/DRINKING ESTABLISHMENTS SQUARE FOOTAGE ARE SUBJECT TO CHANGE.

**PARKING SUMMARY:**

**MAXIMUM VEHICLE PARKING:**  
 MULTI-FAMILY = 649 SPACES (1.75/UNIT)  
 RETAIL = 61 SPACES (1/200 SF)  
 OFFICE = 24 SPACES (1/250 SF)  
 EATING/DRINKING ESTABLISHMENT = 176 SPACES (1/175 SF)

**VEHICLE PARKING PROVIDED:**  
 GARAGE PARKING  
 • AUTOMATED = 276 SPACES  
 • SURFACE = 10 SPACES  
 • ACCESSIBLE = 12 SPACES  
 OFF-STREET PARKING  
 • STANDARD = 31 SPACES  
 • COMPACT = 24 SPACES  
 • ACCESSIBLE = 3 SPACES

TOTAL PARKING = 356 SPACES

**BICYCLE PARKING REQUIRED:**  
 MULTI-FAMILY = 371 SPACES (1/UNIT)  
 RETAIL = 4 SPACES (GREATER OF 4 OR 1/10,000 SF)  
 OFFICE = 4 SPACES (GREATER OF 4 OR 1/3,500 SF)  
 EATING/DRINKING ESTABLISHMENT = 31 SPACES (GREATER OF 4 OR 1/1,000 SF)

TOTAL REQUIRED = 410 SPACES

**BICYCLE PARKING PROVIDED:**  
 SHORT-TERM = 59 SPACES  
 LONG-TERM = 423 SPACES

TOTAL = 482 SPACES

**LOADING ZONE REQUIRED/PROVIDED:**  
 MULTI-FAMILY REQUIRED = 3 SPACES (12'WX19'L)  
 RETAIL SALES AND SERVICES REQUIRED = 1 SPACE (12'WX30'L)  
 OFFICE REQUIRED = 1 SPACE (OFF-STREET PARKING AREA USED FOR LOADING PER SRC 806.075(a))

TOTAL REQUIRED = 4 SPACES  
 TOTAL PROVIDED = 3 SPACES (12'WX19'L)  
 1 SPACE (12'WX30'L)

NOTE: SPACES TO BE SCHEDULED AND CONED OFF WITH SITE OPERATOR FOR LOADING AND UNLOADING.

**SETBACKS:**

**ALONG FRONT ST**  
 BUILDINGS = 0 FT OR MAX 10 FT (IF SETBACK AREA IS USED FOR PEDESTRIAN AMENITIES)

VEHICLE USE AREA = 10 FT

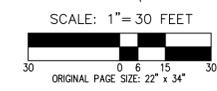
**SIDE/REAR YARD**  
 BUILDINGS = NONE  
 VEHICLE USE AREA = 5 FT (NOT REQUIRED ABUTTING AN ALLEY)

**GENERAL NOTES:**

1. BUILDINGS 1, 2, AND 3 ARE ON SEPARATE PROPERTIES REFER TO SHEET P4 FOR THE PROPOSED PROPERTY LINES.
2. THE FRONT STREET NE IMPROVEMENTS SHOWN ARE PRELIMINARY AND BASED ON CONCEPTUAL DESIGN WORK PROVIDED BY THE CITY'S RETAINED RAIL ENGINEER. REFINED FRONT STREET NE IMPROVEMENTS ARE ANTICIPATED AND WILL BE CONSTRUCTED IN ACCORDANCE WITH FEEDBACK RECEIVED FROM THE FINAL RAIL DIAGNOSTIC AND COORDINATION WITH THE CITY.

**EV READY NOTE:**

40% OF PARKING STALLS ARE REQUIRED TO BE EV READY PER STATE REQUIREMENTS. FINAL EV READY STALL LOCATION AND CONDUIT PLACEMENT WILL BE COORDINATED WITH PROJECT ELECTRICIAN AT THE TIME OF BUILDING PERMIT SUBMITTAL.



Parking will need to be modified. We realized vehicles trying to pull out of the southern spaces will not be able to see oncoming vehicles. The "hourglass" configuration can be maintained with a buffered area with hatching. ADA spaces will need to be modified or relocated to meet standards.

**LEGEND**

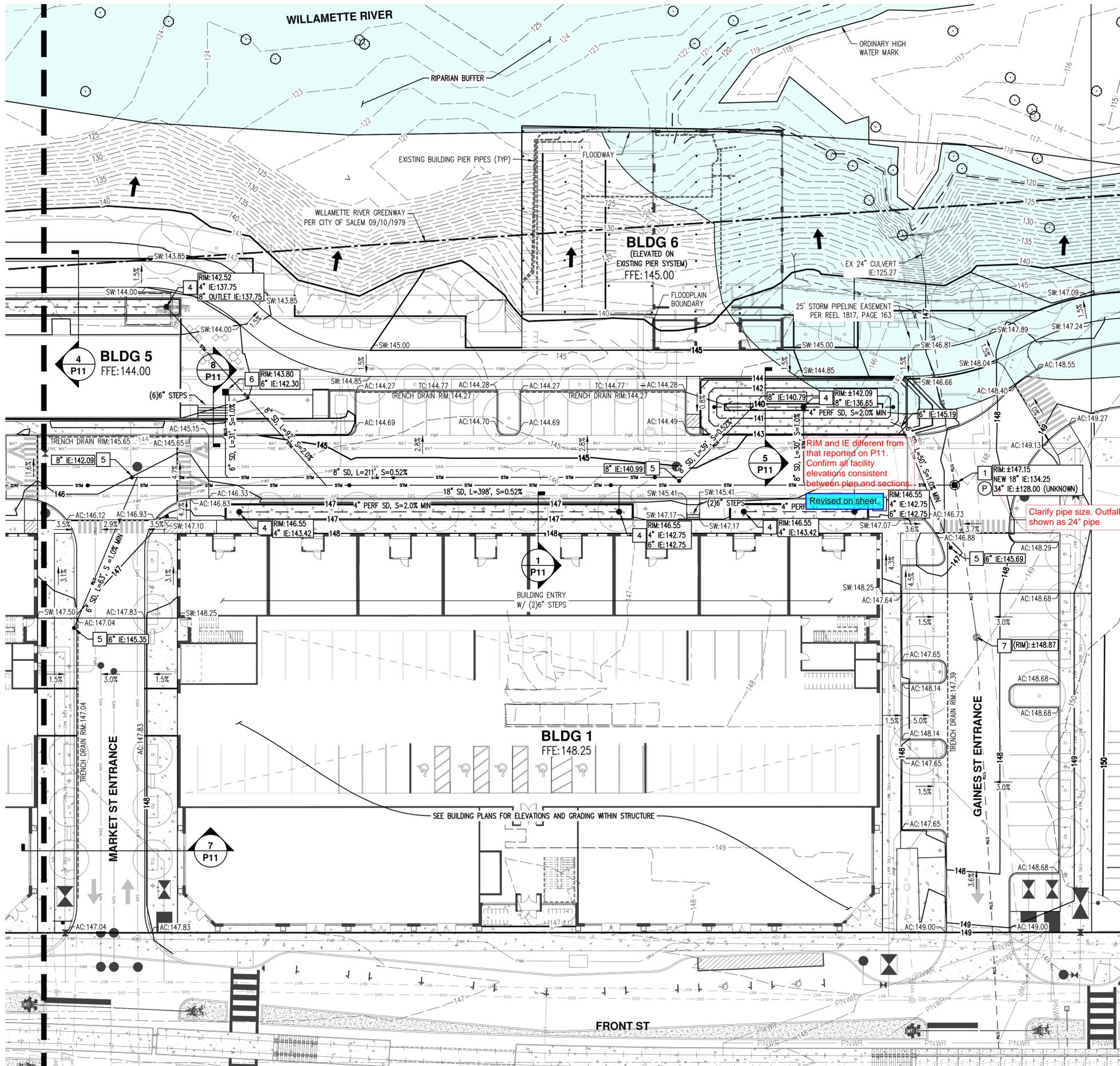
- 10' WILLAMETTE GREENWAY CONCRETE PATH (WITHIN 10' EASEMENT TO CITY OF SALEM)
- ASPHALT PAVEMENT SECTION
- CONCRETE SIDEWALK (4" MIN THICKNESS)
- CONCRETE PAVEMENT SECTION (8" MIN THICKNESS)
- CONCRETE PAVERS (REFER TO PLANS BY OTHERS)
- STORMWATER FACILITY
- PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)

PRELIMINARY SITE PLAN  
THE CANNERY  
FUND  
SALEM, OREGON

REGISTERED PROFESSIONAL ENGINEER  
 NOT FOR CONSTRUCTION  
 COVER D. ROTH  
 RENEWS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 03/15/2024  
 DESIGNED BY: TDR  
 DRAWN BY: MJM  
 CHECKED BY: TDR

AKS DRAWING FILE: 5968-01 PRELIM SITE PLAN LAYOUT LAYOUT LAYOUT 1





ABBREVIATIONS:

EXISTING:  
 (RM): EXISTING RIM ELEVATION

PROPOSED:  
 FFE: FINISHED FLOOR ELEVATION  
 FG: FINISHED GRADE ELEVATION  
 RM: RIM ELEVATION  
 AC: ASPHALT CONCRETE ELEVATION  
 TC: TOP OF CURB ELEVATION  
 BSE: BOTTOM OF STAIR ELEVATION  
 TSE: TOP OF STAIR ELEVATION  
 TW: TOP OF WALL ELEVATION  
 BW: BOTTOM OF WALL ELEVATION  
 SW: SIDEWALK ELEVATION  
 TD: TRENCH DRAIN RIM ELEVATION  
 GUT: GUTTER ELEVATION

DOWNWARD SLOPE: X.X%

GENERAL NOTES:

(P) PRIOR TO CONSTRUCTION AND ORDERING PIPE MATERIALS, CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY EXACT LOCATION, ALIGNMENT, DEPTH, AND SIZE. CONTACT ENGINEER IF ADJUSTMENT IS REQUIRED.

STORM DRAIN (SD) KEYED NOTES: #

- CONNECT TO EXISTING 34" CONCRETE PUBLIC STORM MAIN WITH NEW 48" MANHOLE. RIM AND INVERT ELEVATION (IE) PER PLANS.
- 48" SD MANHOLE. RIM AND IE PER PLAN. Confirm adequate structure size for connecting pipes.
- 24" SD MINI MANHOLE. RIM AND IE PER PLAN. To be confirmed with final design.
- SD BEEHIVE OVERFLOW.
- SD CLEANOUT (CO). IE PER PLAN.
- SD AREA DRAIN. RIM AND IE PER PLAN.
- ADJUST EXISTING MANHOLE RIM TO FINISHED GRADE ELEVATION.

RIM and IE different from that reported on P11. Confirm all facility elevations consistent between plan and sections.

Revised on sheet.

Clarify pipe size. Outfall shown as 24" pipe

Revised on sheet.

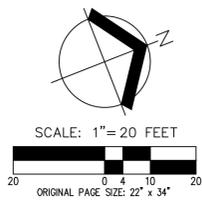
**LEGEND**

EXISTING GROUND CONTOUR (1 FT)	---	149
EXISTING GROUND CONTOUR (5 FT)	---	150
FINISHED GRADE CONTOUR (1 FT)	---	149
FINISHED GRADE CONTOUR (5 FT)	---	150
PROPOSED MANHOLE (MH)	⊙	
PROPOSED CLEANOUT (CO)\DOWNSPOUT (DS)	•	
PROPOSED CATCH BASIN (CB)	■	
BEEHIVE OVERFLOW DRAIN (BH)	⊙	
MINI MANHOLE (MMH)	○	
STORMWATER FACILITY	+	
ADA RAMP LANDING AREA (2% MAX ANY DIRECTION)	▨	
TRENCH DRAIN	---	
EXISTING SLOPE GREATER THAN 15%	→	

**PRELIMINARY ONSITE GRADING AND DRAINAGE PLAN**  
**THE CANNERY**  
**FUND**  
**SALEM, OREGON**

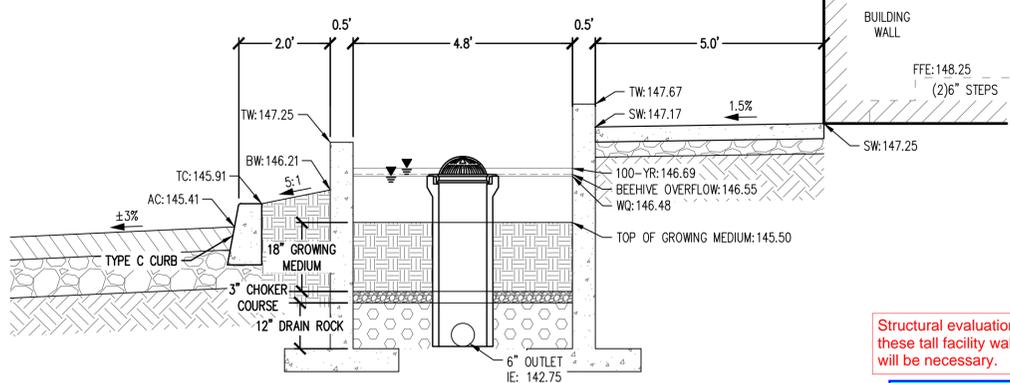


RENEWS: DECEMBER 31, 2024  
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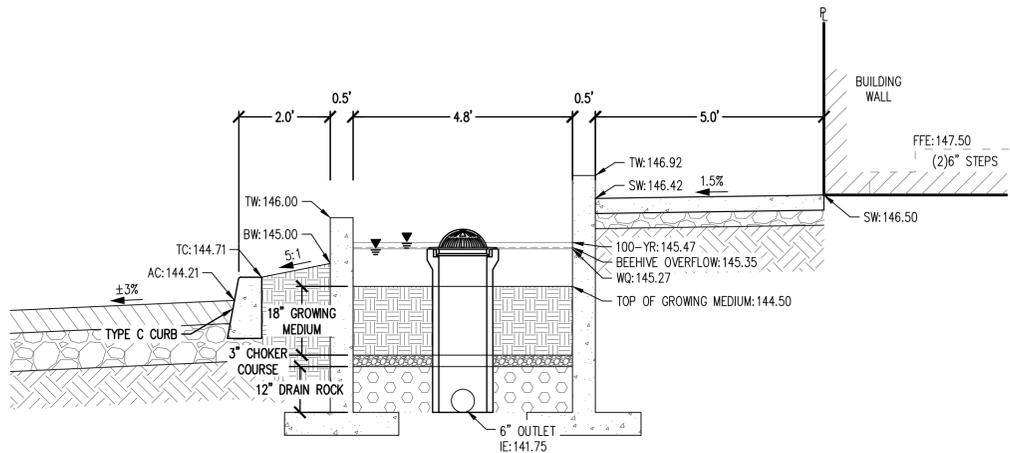
Final design item. Most likely will have liner along building footing.

Infiltrating facilities must be set back at least 10ft from building foundations. Include concrete bottom and/or waterproof liner or increase setback.

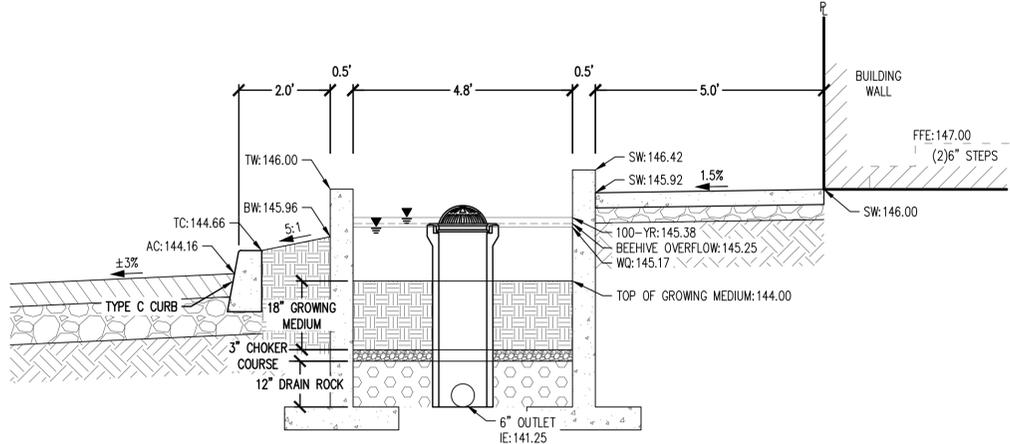


1 BUILDING 1 PLANTER CROSS-SECTION  
 1" = 2'

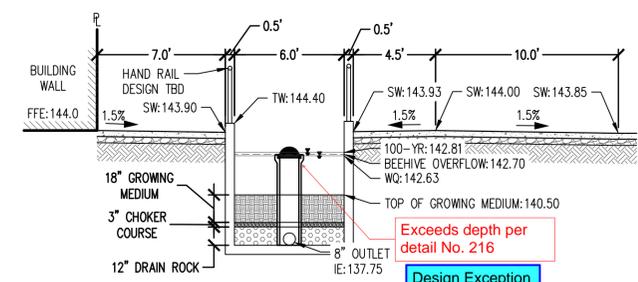
Structural evaluation of these tall facility walls will be necessary.  
 Final design item.



2 BUILDING 2 PLANTER CROSS-SECTION  
 1" = 2'

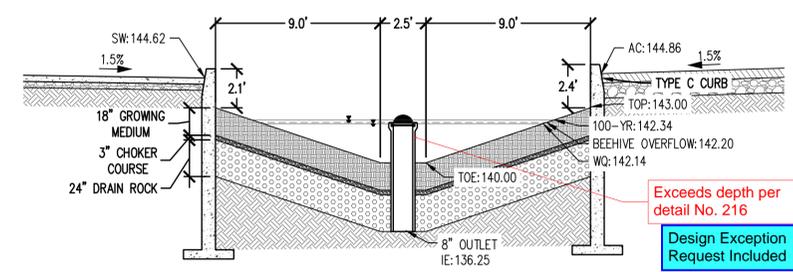


3 BUILDING 3 PLANTER CROSS-SECTION  
 1" = 2'



4 WINERY PLANTER CROSS-SECTION  
 1" = 5'

Exceeds depth per detail No. 216  
 Design Exception Request Included



5 RAIN GARDEN CROSS-SECTION  
 1" = 5'

Exceeds depth per detail No. 216  
 Design Exception Request Included

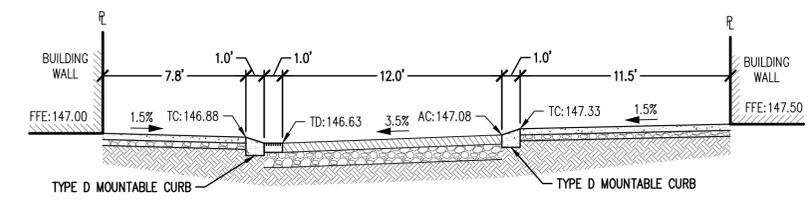
ABBREVIATIONS:

- EXISTING: (RIM): EXISTING RIM ELEVATION
- PROPOSED: FFE: FINISHED FLOOR ELEVATION
- FG: FINISHED GRADE ELEVATION
- RIM: RIM ELEVATION
- AC: ASPHALT CONCRETE ELEVATION
- TC: TOP OF CURB ELEVATION
- BSE: BOTTOM OF STAIR ELEVATION
- TSE: TOP OF STAIR ELEVATION
- TW: TOP OF WALL ELEVATION
- BW: BOTTOM OF WALL ELEVATION
- SW: SIDEWALK ELEVATION
- TD: TRENCH DRAIN RIM ELEVATION
- GUT: GUTTER ELEVATION

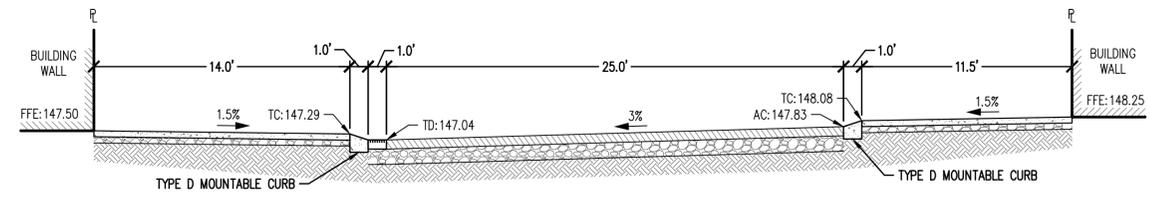
DOWNWARD SLOPE: X.X%

For final design, PWDS 2.12 require profiles of stormwater facilities.

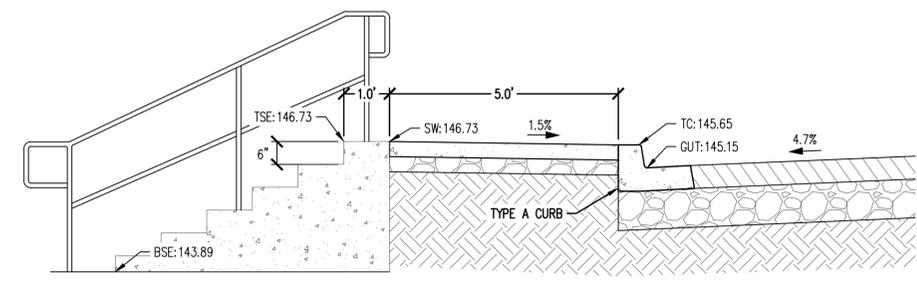
Final design item.



6 BELMONT ALLEY CROSS-SECTION  
 1" = 5'



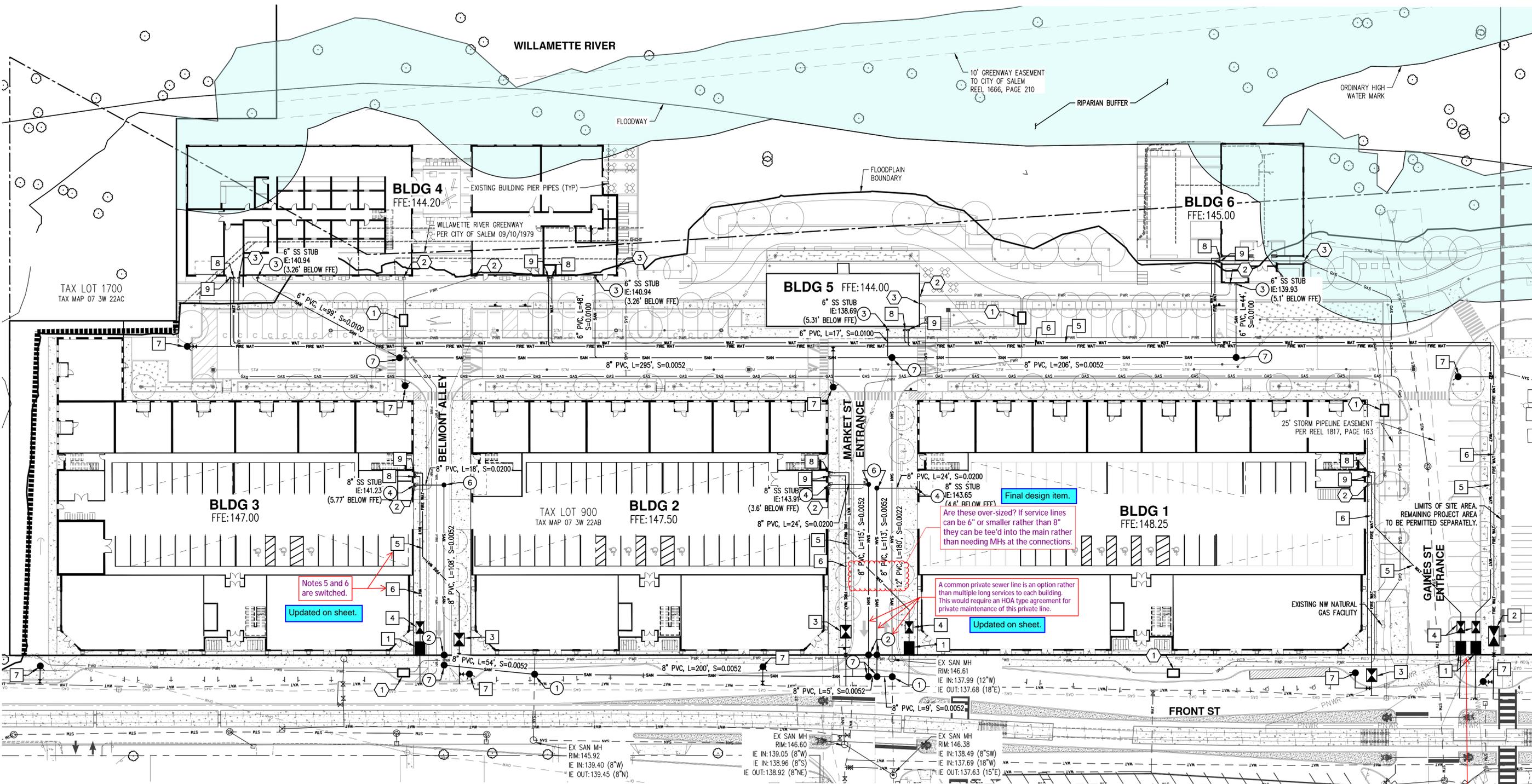
7 MARKET ST ENTRANCE CROSS-SECTION  
 1" = 5'



8 WINERY BUILDING STAIR STEP CONCEPT  
 1" = 2'



JOB NUMBER:	5968-01
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DESIGNED BY:	TDR
DRAWN BY:	MJM
CHECKED BY:	TDR



AKS: PLANS UPDATED ACCORDINGLY. DESIGN EXCEPTION INCLUDED FOR RP WITHIN BUILDINGS.

Updated on sheet. Fire service is 8", is this supposed to be 8" also to match rather than being 6"?

**WATER AND FIRE KEYED NOTES: #**

1. 3" WATER METER PER CITY STANDARDS.
2. 8" DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) WITH FDC.
3. 6" DCDA.
4. 4" DOUBLE CHECK ASSEMBLY.
5. 4" DOMESTIC WATER SERVICE.
6. 8" FIRE SERVICE.
7. FIRE HYDRANT ASSEMBLY.
8. 4" DOMESTIC WATER SERVICE TO BUILDING. REFER TO PLANS BY OTHERS.
9. 6" FIRE SERVICE TO BUILDING WITH FDC MOUNTED ON FACE OF BUILDING. REFER TO PLANS BY OTHERS.

**SANITARY SEWER (SS) KEYED NOTES: #**

1. CONNECT TO EXISTING SS MAIN WITH NEW MANHOLE (MH).
2. 48" SS MONITORING MH.
3. 6" SS LATERAL TO BUILDING. REFER TO PLANS BY OTHERS.
4. 8" SS LATERAL TO BUILDING. REFER TO PLANS BY OTHERS.
5. 24" MONITORING MH.
6. 24" MINI MH.
7. 48" SS STANDARD MH.

**FRANCHISE UTILITY KEYED NOTES: #**

1. CONCEPTUAL TRANSFORMER LOCATION.
2. POWER CONDUIT TO PROPOSED BUILDINGS.
3. GAS SERVICE TO BUILDINGS. COORDINATE WITH NORTHWEST NATURAL FOR FINAL SERVICE PLAN.

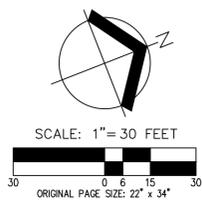
Final design item. Are these over-sized? If service lines can be 6" or smaller rather than 8" they can be tee'd into the main rather than needing MHs at the connections.

A common private sewer line is an option rather than multiple long services to each building. This would require an HOA type agreement for private maintenance of this private line.

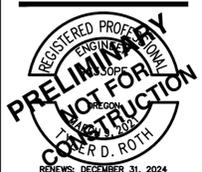
Water meters are required to be in ROW (typical all locations)

Easements added around meters.

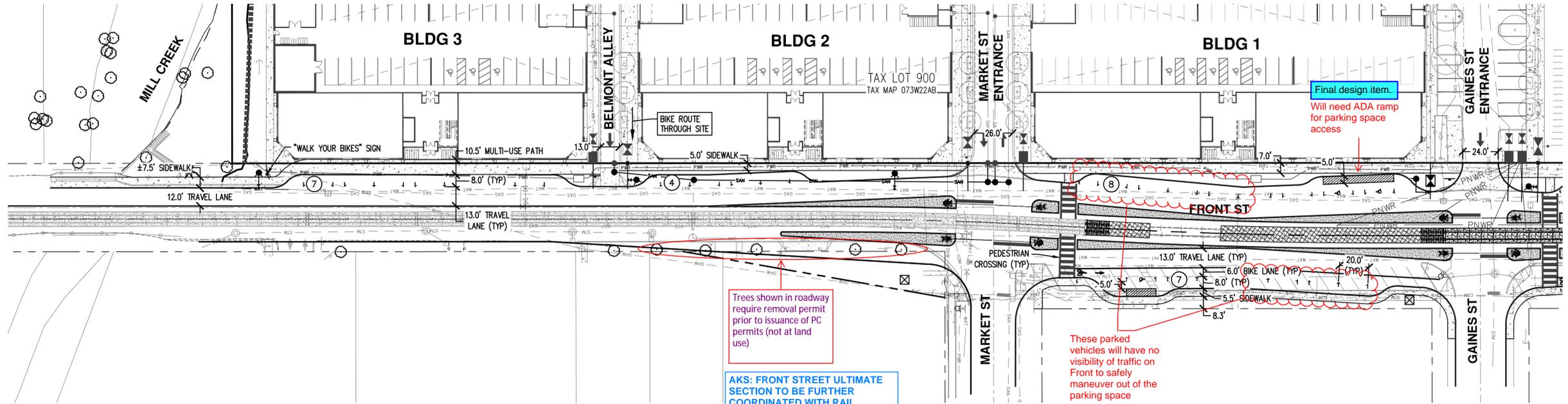
IS THIS KEYNOTE USED? IF NOT, PLEASE REMOVE. Updated on sheet.



**PRELIMINARY COMPOSITE UTILITY PLAN  
 THE CANNERY FUND  
 SALEM, OREGON**



RENEWED: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
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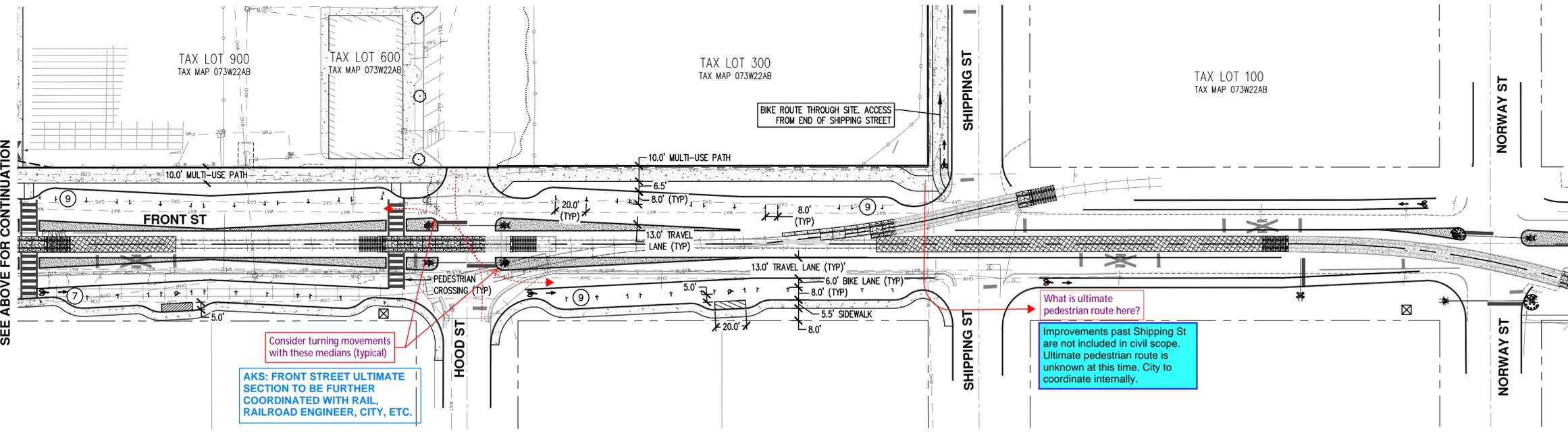
SEE BELOW FOR CONTINUATION

Trees shown in roadway require removal permit prior to issuance of PC permits (not at land use)

AKS: FRONT STREET ULTIMATE SECTION TO BE FURTHER COORDINATED WITH RAIL, RAILROAD ENGINEER, CITY, ETC.

These parked vehicles will have no visibility of traffic on Front to safely maneuver out of the parking space

Updated sheet.



SEE ABOVE FOR CONTINUATION

Consider turning movements with these medians (typical)

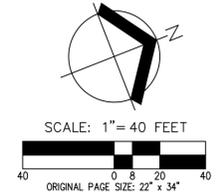
AKS: FRONT STREET ULTIMATE SECTION TO BE FURTHER COORDINATED WITH RAIL, RAILROAD ENGINEER, CITY, ETC.

What is ultimate pedestrian route here?

Improvements past Shipping St are not included in civil scope. Ultimate pedestrian route is unknown at this time. City to coordinate internally.

LEGEND:  
 # NUMBER OF PARKING STALLS IN ROW

GENERAL NOTE:  
 PROPOSED FRONT STREET IMPROVEMENTS ARE SUBJECT TO CHANGE BASED ON RAIL AND CITY FEEDBACK. INFORMATION SHOWN IS BASED ON LATEST COORDINATION EFFORTS WITH THE CITY OF SALEM AND RAILROAD ENGINEER.

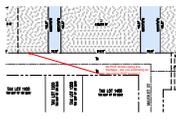


PRELIMINARY FRONT ST IMPROVEMENTS  
 THE CANNERY  
 FUND  
 SALEM, OREGON



RENEW: DECEMBER 31, 2024

JOB NUMBER:	5968-01
DATE:	03/15/2024
DESIGNED BY:	TDR
DRAWN BY:	MJM
CHECKED BY:	TDR

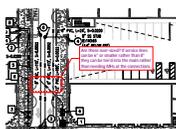


**Subject:** Callout  
**Page Label:** [4] P4 TENTATIVE PLAT  
**Author:** LChristian  
**Date:** 4/24/2024 8:22:28 AM  
**Status:** Accepted set by LChristian on 4/24/2024 at 8:22:38 AM  
**Color:** ■  
**Layer:**  
**Space:**

No PUE shown along the frontage - are you proposing an alternative PUE location?

**AKS: DRY UTILITIES TO BE LOCATED WITHIN STREET ROW PER UTILITY PLAN.**

Cloud+ (4)



**Subject:** Cloud+  
**Page Label:** [12] P12 PRELIMINARY COMPOSITE UTILITY PLAN  
**Author:** Kyle Cochran  
**Date:** 4/12/2024 10:05:14 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:10:26 AM  
**Color:** ■  
**Layer:**  
**Space:**

Are these over-sized? If service lines can be 6" or smaller rather than 8" they can be tee'd into the main rather than needing MHs at the connections.

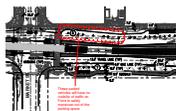
**AKS: FINAL DESIGN ITEM.**



**Subject:** Cloud+  
**Page Label:** [6] P6 PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN  
**Author:** khottmann  
**Date:** 3/28/2024 4:14:04 PM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:24 AM  
**Color:** ■  
**Layer:**  
**Space:**

How does this path connect to Front St

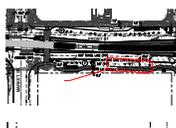
**AKS: OUT BELLMONT ALLEY FOR INTERMEDIATE SOLUTION UNTIL CITY PATHWAY THROUGH CITY PARK IS COMPLETED PER TSP.**



**Subject:** Cloud+  
**Page Label:** [13] P13 PRELIMINARY FRONT ST IMPROVEMENTS  
**Author:** khottmann  
**Date:** 3/28/2024 4:33:15 PM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:55 AM  
**Color:** ■  
**Layer:**  
**Space:**

These parked vehicles will have no visibility of traffic on Front to safely maneuver out of the parking space

**AKS: FRONT STREET ULTIMATE SECTION TO BE FURTHER COORDINATED WITH RAIL, RAILROAD ENGINEER, CITY, ETC.**



**Subject:** Cloud+  
**Page Label:** [13] P13 PRELIMINARY FRONT ST IMPROVEMENTS  
**Author:** khottmann  
**Date:** 3/28/2024 4:31:27 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

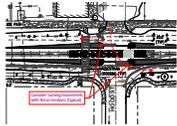
Group (6)



**Subject:** Group  
**Page Label:** [13] P13 PRELIMINARY FRONT ST IMPROVEMENTS  
**Author:** Kyle Cochran  
**Date:** 4/19/2024 10:11:00 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:02 AM  
**Color:** ■  
**Layer:**  
**Space:**

Trees shown in roadway require removal permit prior to issuance of PC permits (not at land use)

**AKS: FRONT STREET ULTIMATE SECTION TO BE FURTHER COORDINATED WITH RAIL, RAILROAD ENGINEER, CITY, ETC.**



**Subject:** Group  
**Page Label:** [13] P13 PRELIMINARY FRONT ST IMPROVEMENTS  
**Author:** Kyle Cochran  
**Date:** 3/26/2024 6:42:01 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:10 AM  
**Color:** ■  
**Layer:**  
**Space:**

Consider turning movements with these medians (typical)

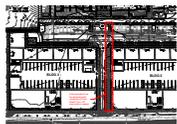
**AKS: FRONT STREET ULTIMATE SECTION TO BE FURTHER COORDINATED WITH RAIL, RAILROAD ENGINEER, CITY, ETC.**



**Subject:** Group  
**Page Label:** [13] P13 PRELIMINARY FRONT ST IMPROVEMENTS  
**Author:** Kyle Cochran  
**Date:** 3/26/2024 6:52:53 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:15 AM  
**Color:** ■  
**Layer:**  
**Space:**

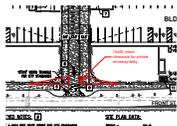
What is ultimate pedestrian route here?

**AKS: FRONT STREET ULTIMATE SECTION TO BE FURTHER COORDINATED WITH RAIL, RAILROAD ENGINEER, CITY, ETC.**



**Subject:** Group  
**Page Label:** [6] P6 PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN  
**Author:** Rob Romanek  
**Date:** 4/19/2024 10:12:07 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:09 AM  
**Color:** ■  
**Layer:**  
**Space:**

**AKS: PER MEETING WITH CITY STAFF 5/7 10' CLEAR NOT REQUIRED IF INTERMEDIATE SOLUTION UNTIL PATHWAY IS CONSTRUCTED THROUGH CITY PARKS PROPERTY PER TSP. BELLMONT ADJUSTED TO BE A SHARROW FOR BIKERS AND THE PATHWAY CAN THEN BE JUST PEDESTRIAN FOOT TRAFFIC ONLY.**



**Subject:** Group  
**Page Label:** [8] P8 PRELIMINARY SITE PLAN  
**Author:** tmartin  
**Date:** 4/19/2024 10:12:50 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:57 AM  
**Color:** ■  
**Layer:**  
**Space:**

10x50 vision clearance for private driveway/alley.

**AKS: PLANS UPDATED ACCORDINGLY**



**Subject:** Group  
**Page Label:** [8] P8 PRELIMINARY SITE PLAN  
**Author:** tmartin  
**Date:** 4/19/2024 10:13:35 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:13:50 AM  
**Color:** ■  
**Layer:**  
**Space:**

Note (1)



**Subject:** Note  
**Page Label:** [12] P12 PRELIMINARY COMPOSITE UTILITY PLAN  
**Author:** sruyle  
**Date:** 3/26/2024 1:19:30 PM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:11:19 AM  
**Color:** ■  
**Layer:**  
**Space:**

Due to the mixed use an RP Backflow assembly will be required on the domestic water

**AKS: PLANS UPDATED ACCORDINGLY. DESIGN EXCEPTION INCLUDED FOR RP WITHIN BUILDINGS.**

PolyLine (1)



**Subject:** PolyLine  
**Page Label:** [8] P8 PRELIMINARY SITE PLAN  
**Author:** tmartin  
**Date:** 4/11/2024 11:57:44 AM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

q (1)

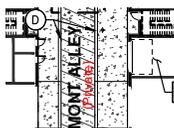


**Subject:** q  
**Page Label:** [12] P12 PRELIMINARY COMPOSITE UTILITY PLAN  
**Author:** Jerry Casteel  
**Date:** 4/12/2024 8:40:41 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:13:55 AM  
**Color:** ■  
**Layer:**  
**Space:**

IS THIS KEYNOTE USED? IF NOT, PLEASE REMOVE.

**AKS: PLANS UPDATED ACCORDINGLY**

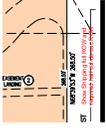
Text Box (4)



**Subject:** Text Box  
**Page Label:** [8] P8 PRELIMINARY SITE PLAN  
**Author:** LChristian  
**Date:** 3/25/2024 1:56:31 PM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:09:24 AM  
**Color:** ■  
**Layer:**  
**Space:**

(Private)

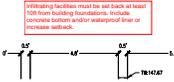
**AKS: PLANS UPDATED ACCORDINGLY**



**Subject:** Text Box  
**Page Label:** [4] P4 TENTATIVE PLAT  
**Author:** LChristian  
**Date:** 4/19/2024 10:09:40 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:09:43 AM  
**Color:** ■  
**Layer:**  
**Space:**

Show Shipping full ROW and required half cul-de-sac ROW

**AKS: PER DISCUSSIONS WITH CITY STAFF SHIPPING STREET ROW DEDICATION AND IMPROVEMENTS TO BE A PART OF PHASE 2.**



**Subject:** Text Box  
**Page Label:** [11] P11 PRELIMINARY GRADING AND DRAINAGE SECTIONS  
**Author:** roseh  
**Date:** 4/5/2024 10:19:37 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:28 AM  
**Color:** ■  
**Layer:**  
**Space:**

Infiltrating facilities must be set back at least 10ft from building foundations. Include concrete bottom and/or waterproof liner or increase setback.

**AKS: FINAL DESIGN ITEM. BUILDING FOUNDATION TO INCLUDE WATERPROOF LINER.**



**Subject:** Text Box  
**Page Label:** [11] P11 PRELIMINARY GRADING AND DRAINAGE SECTIONS  
**Author:** roseh  
**Date:** 4/5/2024 10:23:07 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 10:12:32 AM  
**Color:** ■  
**Layer:**  
**Space:**

For final design, PWDS 2.12 require profiles of stormwater facilities.

**AKS: TO BE INCLUDED WITH FINAL DESIGN**

**AKS: UPDATED STORMWATER REPORT NOT INCLUDED IN RESUBMITTAL DUE TO MINOR COMMENTS. FINAL DESIGN WILL ADDRESS REMAINING COMMENTS.**

**Pages from DS Comments\_Stormwater Report\_1105 Front Street NE\_24-106451-PLN.pdf Markup Summary**

**Callout (5)**

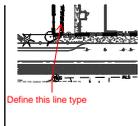


In future submittals please clarify line type. This appears to be basin boundary.

**Subject:** Callout  
**Page Label:** 4  
**Author:** roseh  
**Date:** 4/5/2024 8:46:56 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:57:18 AM  
**Color:** ■  
**Layer:**  
**Space:**

In future submittals please clarify line type. This appears to be basin boundary.

**AKS: WILL BE INCLUDED WITH FINAL DESIGN / NEXT STORMWATER SUBMITTAL.**



Define this line type

**Subject:** Callout  
**Page Label:** 4  
**Author:** roseh  
**Date:** 4/5/2024 8:47:22 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:57:22 AM  
**Color:** ■  
**Layer:**  
**Space:**

Define this line type

**AKS: WILL BE INCLUDED WITH FINAL DESIGN / NEXT STORMWATER SUBMITTAL.**



**Subject:** Callout  
**Page Label:** 3  
**Author:** roseh  
**Date:** 4/5/2024 9:12:30 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:57:41 AM  
**Color:** ■  
**Layer:**  
**Space:**

This discretionary approach only applies to land use review for whether GSI to the MEF is provided. Large projects must provide water quality treatment according to SRC Ch 71 which requires management of runoff from all project impervious areas.

**AKS: WATER QUALITY TREATMENT IS PROVIDED FOR NEW IMPERVIOUS AREA. LOTS 5/6 HAVE 10% AREA SET ASIDE BUT TO BE FUTHER DESIGNED WITH PHASE 2 SITE PLAN REVIEW.**



**Subject:** Callout  
**Page Label:** 4  
**Author:** roseh  
**Date:** 4/5/2024 9:27:06 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:58:01 AM  
**Color:** ■  
**Layer:**  
**Space:**

Is it possible to shed this portion of path towards the site for collection and treatment?

**AKS: PLANS REVISED.**

18" or 24" (Below Ground)	18" or 24" (Above Ground)
18" or 24" (Below Ground)	18" or 24" (Above Ground)
18" or 24" (Below Ground)	18" or 24" (Above Ground)
18" or 24" (Below Ground)	18" or 24" (Above Ground)
18" or 24" (Below Ground)	18" or 24" (Above Ground)
18" or 24" (Below Ground)	18" or 24" (Above Ground)

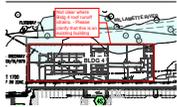
Details No. 216 & 217 limit depth to 18"

**Subject:** Callout  
**Page Label:** 3  
**Author:** roseh  
**Date:** 4/5/2024 10:32:57 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:58:09 AM  
**Color:** ■  
**Layer:**  
**Space:**

Details No. 216 & 217 limit depth to 18"

**AKS: DESIGN STANDARDS DONT EXPLICITLY LIST 18" MAX PONDING DEPTH. FACILITY IS PRIVATELY OWNED / MAINTAINED. WE RESPECTFULLY REQUEST APPROVAL OF PONDING DEPTHS SHOWN. FALL PROTECTION IS PROPOSED WHERE BUILDING CODE WOULD TRIGGER THE NEED FOR HANDRAILS.**

Group (2)



**Subject:** Group  
**Page Label:** 4  
**Author:** roseh  
**Date:** 4/5/2024 9:27:52 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:57:26 AM  
**Color:** ■  
**Layer:**  
**Space:**

Not clear where Bldg 4 roof runoff drains. - Please clarify that this is an existing building

**EXISTING RUNOFF DRAINS TO AN OUTLET BELOW THE STRUCTURE. NO CHANGE PROPOSED TO THIS CONFIGURATION.**



**Subject:** Group  
**Page Label:** 4  
**Author:** roseh  
**Date:** 4/5/2024 9:27:42 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:57:30 AM  
**Color:** ■  
**Layer:**  
**Space:**

Not clear where Bldg 6 roof runoff drains. Please clarify that this is an existing building.

**EXISTING RUNOFF DRAINS TO AN OUTLET BELOW THE STRUCTURE. NO CHANGE PROPOSED TO THIS CONFIGURATION.**

Text Box (2)



**Subject:** Text Box  
**Page Label:** 1  
**Author:** roseh  
**Date:** 4/5/2024 9:22:05 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:57:58 AM  
**Color:** ■  
**Layer:**  
**Space:**

Please add statement about existing buildings intending to remain on-site.

**INCLUDED IN NARRATIVE**



**Subject:** Text Box  
**Page Label:** 2  
**Author:** roseh  
**Date:** 4/5/2024 10:43:51 AM  
**Status:** Accepted set by LChristian on 4/19/2024 at 9:58:05 AM  
**Color:** ■  
**Layer:**  
**Space:**

It is not clear that the entire site area contributes to the existing onsite conveyance system. Please add confirmation of adequate capacity including outfall protection to prevent erosion.

**EXISTING CITY STORM OUTFALL HAS OUTFALL PROTECTION AND THE SITE CONTRIBUTED AREA IS SMALL IN COMPARISON TO THE BASIN AND VOLUME OF RUNOFF DRAINING TO THE PIPE/OUTFALL. THIS CAN BE CLARIFIED WITH FINAL STORMWATER REPORT.**

---

# Preliminary Stormwater Report

## THE CANNERY

### SALEM, OREGON

#### 1.0 Purpose of Report

The purpose of this report is to demonstrate compliance with the City of Salem (City) stormwater criteria for land use and site plan review applications. This report is an analysis of the effects the proposed development will have on the existing stormwater conveyance system; document the criteria, methodology, and informational sources used to design the proposed stormwater system; and present the results of the analysis.

#### 2.0 Project Overview and Description

##### 2.1. Size and Location of Project Site

The project site subject to this stormwater report is ±7.6 acres of the overall site area (±13.6 acres), located at 1105 Front Street NE, Salem, Marion County, Oregon, Tax Lot 900 of Marion County Assessor's Map 7 3W 22AB. The remaining acreage on the property is anticipated to be developed in a similar manner as a separate phase, but no plans have been confirmed at this time.

##### 2.2. Property Scope and Proposed Improvements

The property is zoned MU-R (Mixed Use-Riverfront). The proposed development involves restoring three existing buildings along the Willamette River, and three new mixed-use buildings including associated parking lots, landscaped areas, utilities, and infrastructure.

##### 2.3. Watershed Description

Current site runoff flows into an existing public stormwater system that ultimately discharges to the Willamette River through existing culverts.

Runoff from the proposed development will be conveyed to several Green Stormwater Infrastructure (GSI) facilities that will provide water quality treatment per City standards. After being treated, runoff will discharge to the existing public storm main that is in the Gaines Street project entrance. Due to the site's location adjacent to the Willamette River, **INCLUDED IN NARRATIVE** red based on city feedback and subsequent discussions.

Please add statement about existing buildings intending to remain on-site.

##### 2.4. Existing Site Conditions

The site currently contains a commercial food distribution warehouse and an abandoned industrial cannery with associated buildings and parking areas. The site up to the top of bank is relatively flat with on-site grades averaging 1.0 percent. Below the top of bank, the site is steep with grades up to 50 percent. The site slopes from a high point of ±150.25 feet in the northeast corner to a low point of ±142.86 at the existing storm area drain in the southwest corner of the site.

##### 2.5. Existing Trees and Native Vegetation Impact/Preservation

The portion of the site that is within the riparian buffer and bank slopes includes various trees and vegetation. The remainder of the site is relatively clear of vegetation and is developed. Selected existing trees will be removed as part of the development in accordance with City standards. The majority of the trees and vegetation within the riparian buffer are to remain and will be protected during development.

#### 4.2. Design Assumptions

The design of the stormwater system was analyzed for runoff generated by the City’s water quality and the 100-year 24-hour design storm events. Due to the site’s location adjacent to the Willamette River, flow control/detention is not a project requirement per City feedback and subsequent discussions.

The following 24-hour rainfall intensities were used for the design storm for the recurrence interval:

**Table 4-1: Rainfall Intensities**

Recurrence Interval (Years)	Total Precipitation Depth (inches)
Water Quality	1.38
100-year	4.40

The following runoff curve numbers (CN) were used for this analysis:

- Post-Developed – CN = 98; for the preliminary analysis it was assumed that each full basin area was 100 percent impervious surface.
- Growing Medium Filtration Rate = 2.0 inches/hour

A time of concentration for the pre-developed condition was not determined due to the facilities only providing water quality treatment and conveyance.

A minimum time of concentration (Tc) of 6 minutes was used as a direct entry in the stormwater system model for post-developed hydrograph routing, per the 1986 NRCS *Technical Release 55: Urban Hydrology for Small Watersheds (TR-55)*.

#### 4.3. Hydrology Calculations

Tables 4-2 and 4-3 below summarize areas tributary to each facility and the calculated elevations within each facility for post-developed peak flow rates of the water quality and 100-year design storm events. Supporting HydroCAD calculations are provided in Appendix C.

#### 4.4. Conveyance Capacity Calculations

The proposed drainage conveyance system has been designed to convey the peak flows for the 10-year 24-hour storm event per City of Salem *Public Works Design Standards*. The 100-year design storm was analyzed for each facility to identify the peak elevation and available freeboard with each facility at that elevation.

Updated basin map.

It is not clear that the entire site area contributes to the existing onsite conveyance system. Please add confirmation of adequate capacity including outfall protection to prevent erosion.

#### 4.5. Treatment Sizing

Water quality and peak flow HydroCAD calculations are provided in Appendix C and summarized in Table 4-3 below, which shows the peak elevation summary for the stormwater facilities during water quality and 100-year design storm events. The water quality design storm event peak elevation is below the overflow elevation for each facility. Therefore, the water quality runoff is fully treated by filtering through the growing medium prior to reaching the facility underdrain and discharge point.

Each facility has been sized with an overflow to convey the 100-year design storm event through a beehive structure. Facilities 1P, 2P, and 3P will treat and convey runoff from the new mixed-use buildings, while facilities 4P and 5P will treat and convey proposed runoff from the drive aisles and newly created impervious areas. Refer to Figure 1 for the post-developed stormwater facility layout.

**Table 4-2: Impervious Area Conveyed to Facility**

Subbasin ID	Source (roof, road, other)	Impervious Area (square feet)	Facility Ownership (private/public)	Facility Type	Facility Size (square feet)
1S	Roof drain, hardscapes & landscape	44,539	Private	Storm Planter	1,100
2S	Roof drain, hardscapes, & landscape	35,385	Private	Storm Planter	975
3S	Roof drain, hardscapes, & landscape	43,849	Private	Storm Planter	1,000
4S	Hardscapes & landscape	31,106	Private	Storm Planter	545
5S	Hardscapes & landscape	44,865	Private	Rain Garden	1,600

**Table 4-3: Peak Elevation Summary**

Facility ID	Facility Bottom Elevation (feet)	Peak Elevation, Water Quality (feet)	Beehive Overflow Elevation (feet)	Peak Elevation, 100-Year Event (feet)
1P	145.50 (Above Ground) 142.75 (Rock Bottom)	146.48	146.55	146.69
2P	144.50 (Above Ground) 141.75 (Rock Bottom)	145.27	145.35	145.47
3P	144.00 (Above Ground) 141.25 (Rock Bottom)	145.17	145.25	145.38
4P	140.50 (Above Ground) 137.75 (Rock Bottom)	142.63	142.70	142.81
5P	140.00 (Above Ground) 136.25 (Rock Bottom)	142.14	142.20	142.34

Details No. 216 & 217 limit depth to 18"

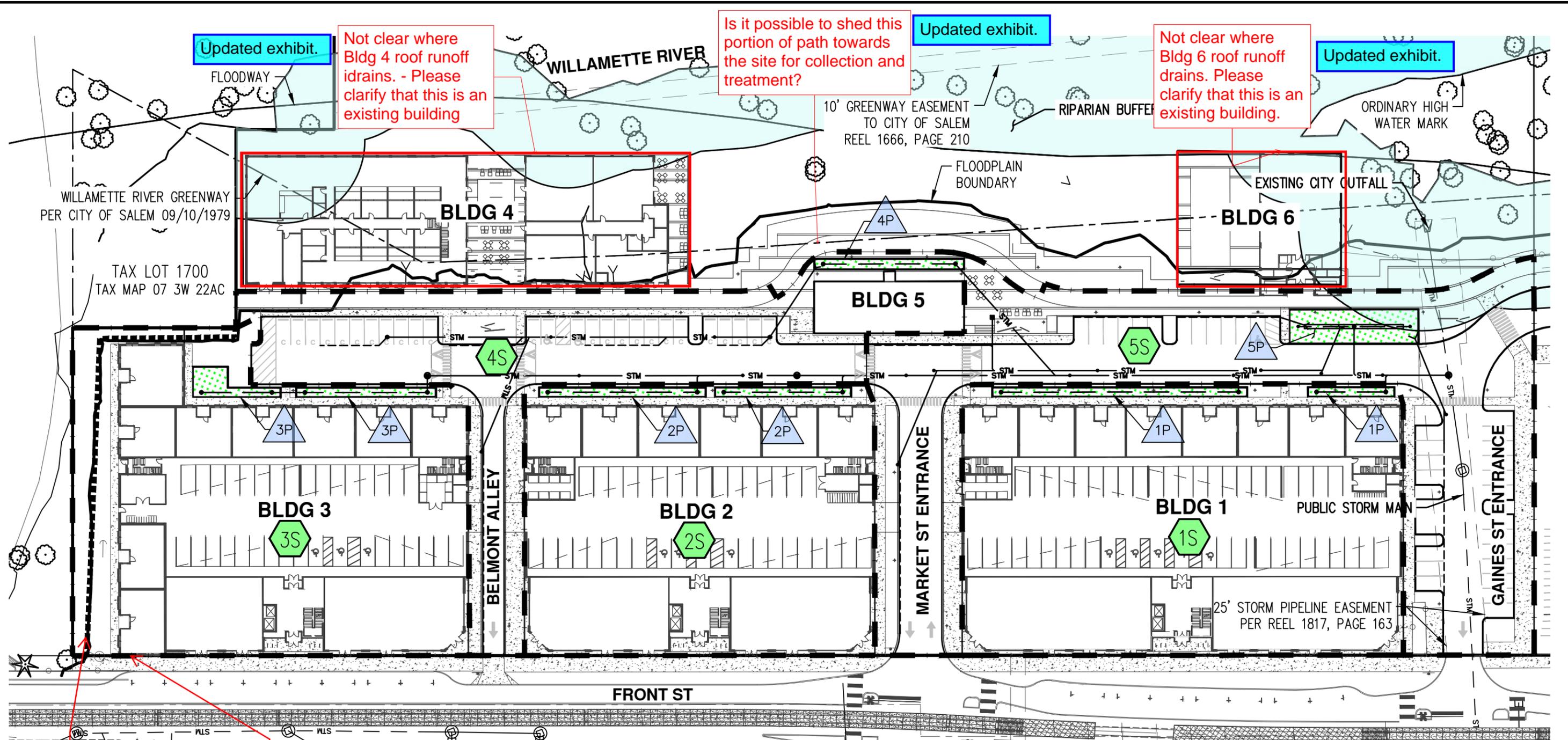
## 5.0 GSI Analysis

This stormwater report describes the engineering and design process that was used for design of the stormwater facilities for this project. The GSI facilities have been designed in compliance with the *Public Works Design Standards*. Supporting HydroCAD calculations are included in Appendix C.

Runoff from the buildings, parking lot, and immediate surrounding areas will be conveyed to the five proposed GSI facilities discussed previously.

The proposed storm system has been designed to treat over 80 percent of the new or replaced impervious surface and therefore meets the GSI/MEF requirement by using the discretionary approach outlined in 4E.7 of the *Public Works Design Standards*.

This discretionary approach only applies to land use review for whether GSI to the MEF is provided. Large projects must provide water quality treatment according to SRC Ch 71 which requires management of runoff from all project impervious areas.



Define this line type

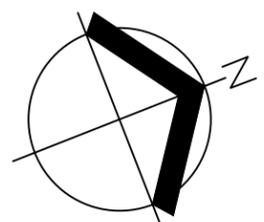
In future submittals please clarify line type. This appears to be basin boundary.

**AKS: WILL BE INCLUDED WITH FINAL DESIGN / NEXT STORMWATER SUBMITTAL.**

**LEGEND**

SUBCATCHMENT

STORMWATER FACILITY



SCALE: 1" = 60 FEET

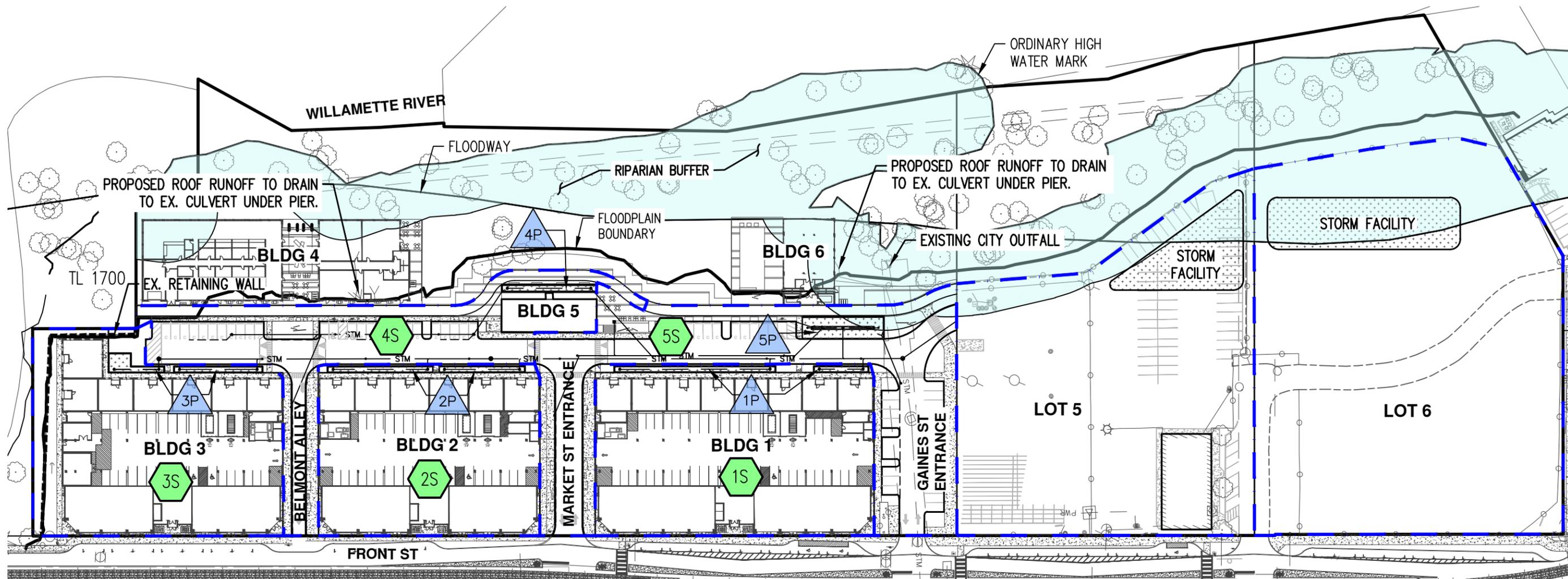
ORIGINAL PAGE SIZE: 11" x 17"

DATE: 01/18/2024

<b>POST-DEVELOPED BASIN MAP</b>		FIGURE
<b>THE CANNERY</b>		<b>1</b>
AKS ENGINEERING & FORESTRY, LLC 3700 RIVER RD N, STE 1 KEIZER, OR 97303 503.400.6028 WWW.AKS-ENG.COM		DRWN: MJM CHKD: TDR AKS JOB: 5968-01

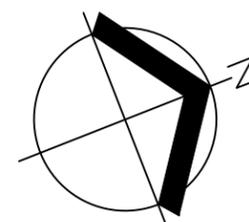
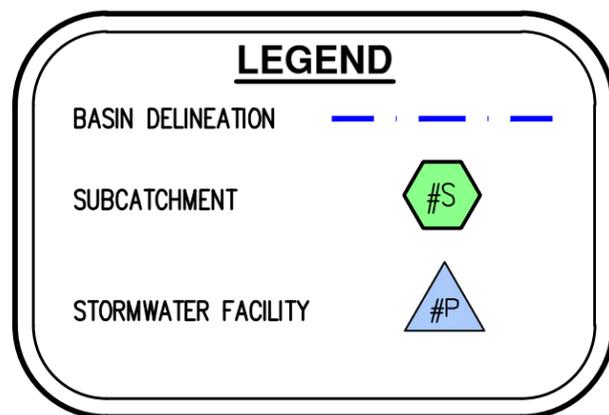


DWG: 5968-01\_20240116\_BASIN\_MAP | 11X17-L

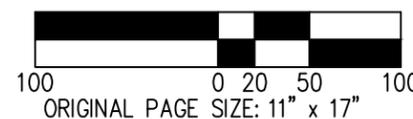


**NOTE**

LOTS 5 AND 6 ARE NOT PART OF THE DEVELOPMENT AT THIS TIME AND WILL BE ADDRESSED IN THE FUTURE. 10% OF THE TOTAL CONSTRUCTIBLE LOT AREA HAS BEEN IDENTIFIED.



SCALE: 1" = 100 FEET



DATE: 05/30/2024

**POST-DEVELOPED BASIN MAP**

**THE CANNERY**  
 AKS ENGINEERING & FORESTRY, LLC  
 3700 RIVER RD N, STE 1  
 KEIZER, OR 97303  
 503.400.6028 WWW.AKS-ENG.COM



FIGURE  
**1**  
 DRWN: MJM  
 CHKD: TDR  
 AKS JOB:  
 5968-01



**BEND, OR**  
2777 NW Lolo Drive  
Suite 150  
Bend, OR 97703  
(541) 317-8429  
www.aks-eng.com

**KEIZER, OR**  
3700 River Road N  
Suite 1  
Keizer, OR 97303  
(503) 400-6028

**THE DALLES, OR**  
3775 Crates Way  
The Dalles, OR 97058  
(541) 296-9177

**TUALATIN, OR**  
12965 SW Herman  
Road, Ste 100  
Tualatin, OR 97062  
(503) 563-6151

**KENNEWICK, WA**  
501 N Quay Street,  
Suite C-102  
Kennewick, WA 99336  
(509) 905-0219

**VANCOUVER, WA**  
9600 NE 126th Avenue  
Ste 2520  
Vancouver, WA 98682  
(360) 882-0419

**WHITE SALMON, WA**  
107 W Jewett, Ste 100  
White Salmon, WA  
98672  
(509) 281-3227

**Date:** 5/31/2024  
**To:** City of Salem  
**From:** Tyler Roth, P.E.  
**Project Name:** The Cannery  
**AKS Job No.:** 5968-01  
**Project Site:** 1105 Front St NE Salem, OR 97301

**Subject:** Design Exception for Reduced Pressure (RP) Backflow Assembly Placement

---

The Cannery project located at 1105 Front Street NE, will consist of three new six-story mixed-use buildings, and the restoration of three existing buildings along the Willamette River. A Reduced Pressure (RP) Backflow assembly will be required for the mixed-use buildings and restored commercial structures along the Willamette River.

Typically, the backflow assembly structure is placed near the street property line behind the meter. In this case, the buildings abut the property line, limiting the amount of available space along the street frontage for the structures. The location of proposed backflow assembly structures was discussed with the City of Salem Engineering and Public Works Departments on May 7<sup>th</sup>, 2024. During the meeting it was determined that the best place for the RP Backflow structures was inside Buildings 2 and 3.

Following the meeting, City Staff requested a formal design exception be submitted to allow the RP Backflow assembly devices to be placed in the building as shown on the site utility plan. This letter serves as that request. The remaining buildings (Building 1 and Buildings 4-6) have sufficient space available onsite to provide an above-ground RP Backflow assembly near the property line behind the meter.

Thank you for considering this request.

Sincerely,

**AKS ENGINEERING & FORESTRY, LLC**

Tyler D. Roth, P.E., Sr. Associate  
3700 River Road, Suite 1, Keizer, OR 97303  
(503) 400-6048 | rotht@aks-eng.com

## **Attachment N: Current Title Report**

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**First American Title™**

**First American Title Insurance Company**

777 Commercial Street SE, Suite 100  
Salem, OR 97301  
Phn - (800)742-2414  
Fax - (866)849-3065

Order No.: 7081-4049908  
April 16, 2024

**FOR QUESTIONS REGARDING YOUR CLOSING, PLEASE CONTACT:**

**JANET KUDNA**, Escrow Officer/Closer  
Phone: (971)273-4157 - Fax: (866)848-1677- Email:jkudna@firstam.com  
First American Title Insurance Company  
777 Commercial Street SE, Suite 100, Salem, OR 97301

**FOR ALL QUESTIONS REGARDING THIS PRELIMINARY REPORT, PLEASE CONTACT:**

**Lauren May**, Title Officer  
Phone: (503)623-5513 - Email: LMay@firstam.com

**5th Amended Preliminary Title Report**

This report is for the exclusive use of the parties herein shown and is preliminary to the issuance of a title insurance policy and shall become void unless a policy is issued, and the full premium paid.

Please be advised that any provision contained in this document, or in a document that is attached, linked or referenced in this document, that under applicable law illegally discriminates against a class of individuals based upon personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or any other legally protected class, is illegal and unenforceable by law.

**County Tax Roll Situs Address:** 0 Front Street, 1105 Front Street, 1375 Front Street, Salem, OR 97301

2021 ALTA Owners Standard Coverage	Liability \$	Premium \$	
2021 ALTA Owners Extended Coverage	Liability \$ 7,000,000.00	Premium \$	17,865.00
2021 ALTA Lenders Standard Coverage	Liability \$	Premium \$	
2021 ALTA Lenders Extended Coverage	Liability \$	Premium \$	
Endorsement 9.10, 22		Premium \$	
Govt Service Charge		Cost \$	75.00
Other ALTA 8.2-06 Commercial Environmental Lien		Cost \$	1,000.00
Other ALTA 9.2-06 Covenants, Conditions and Restrictions		Cost \$	1,500.00
Other ALTA 17.2-06 Utility Access		Cost \$	200.00
Other ALTA 17-06 Access and Entry		Cost \$	125.00
Other ALTA 18.1-06 Multiple Tax Parcel		Cost \$	75.00
Other ALTA 22-06 Location		Cost \$	50.00
Other ALTA 25-06 Same as Survey		Cost \$	100.00
Other ALTA 28-06 Damage or Enforced Removal		Cost \$	100.00
Other ALTA 28.1-06 Encroachments-Boundaries and Easements		Cost \$	555.00
Other ALTA 39-06 Policy Authentication		Cost \$	50.00
Other ALTA 41.1-06 Water-Improvements		Cost \$	555.00
Other OTIRO 85 Modification of Arbitration Endorsement		Cost \$	0.00

We are prepared to issue Title Insurance Policy or Policies of First American Title Insurance Company, a Nebraska Corporation in the form and amount shown above, insuring title to the following described land:

The land referred to in this report is described in Exhibit A attached hereto.

and as of April 05, 2024 at 8:00 a.m., [title to the fee simple estate is vested in:](#)

Front Street Properties, LLC, an Oregon limited liability company, as to Parcel I, II, III and IV and Truitt Properties, LLC, an Oregon limited liability company, as to Parcel V

Subject to the exceptions, exclusions, and stipulations which are ordinarily part of such Policy form and the following:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.
3. Easements, or claims of easement, not shown by the public records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
4. Any encroachment (of existing improvements located on the subject land onto adjoining land or of existing improvements located on adjoining land onto the subject land), encumbrance, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey of the subject land.
5. Any lien, or right to a lien, for services, labor, material, equipment rental or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the public records.

**The exceptions to coverage 1-5 inclusive as set forth above will remain on any subsequently issued Standard Coverage Title Insurance Policy.**

**In order to remove these exceptions to coverage in the issuance of an Extended Coverage Policy the following items are required to be furnished to the Company; additional exceptions to coverage may be added upon review of such information:**

- A. Survey or alternative acceptable to the company
- B. Affidavit regarding possession
- C. Proof that there is no new construction or remodeling of any improvement located on the premises. In the event of new construction or remodeling the following is required:
  - i. Satisfactory evidence that no construction liens will be filed; or
  - ii. Adequate security to protect against actual or potential construction liens;
  - iii. Payment of additional premiums as required by the Industry Rate Filing approved by the Insurance Division of the State of Oregon
6. Water rights, claims to water or title to water, whether or not such rights are a matter of public record.
7. Taxes for the year 2023-2024
 

Tax Amount	\$	28,982.80
Unpaid Balance:	\$	9,660.93 , plus interest and penalties, if any
Code No.:		24010
Map & Tax Lot No.:		073W22AB00900C1

Property ID No.: 349658

(Affects Parcel I, II and III)

8. Taxes for the year 2023-2024

Tax Amount	\$	3,418.59
Unpaid Balance:	\$	1,139.53 , plus interest and penalties, if any
Code No.:		24010
Map & Tax Lot No.:		073W22AB00900C2
Property ID No.:		352874

(Affects Parcel I, II and III)

9. City liens, if any, of the City of Salem.

Note: There are no liens as of April 16, 2024. All outstanding utility and user fees are not liens and therefore are excluded from coverage.

10. Rights of the public and of governmental bodies in and to that portion of the premises herein described lying below the mean high water mark of Willamette River and the ownership of the State of Oregon in that portion lying below the high water mark of Willamette River.

11. Any adverse claim based upon the assertion that some portion of said land has been removed from or brought within the boundaries thereof by an avulsive movement of the Willamette River or has been formed by the process of accretion or reliction or has been created by artificial means or has accreted to such portion so created.

12. Any easements or rights of way for existing utilities or other rights of way over those portions of said land lying within the public right of way vacated by Ordinance No. 1578, including terms and provisions thereof.

Recorded: April 7, 1919

13. Easement and conditions contained therein as reserved by:

Ordinance No.:	3632
Recording Information:	August 02, 1944 as <a href="#">Volume 306, Page 407</a> , Film Records
For:	public right-of-way and utility easement

14. Easement, including terms and provisions contained therein:

Recording Information:	March 05, 1979 as <a href="#">Reel 159, Page 5</a> , Film Records
For:	roadway and utility purposes

15. Easement, including terms and provisions contained therein:

Recording Information:	March 05, 1979 as <a href="#">Reel 159, Page 1</a> , Film Records
For:	roadway and utility purposes

16. Easement, including terms and provisions contained therein:

Recording Information:	April 11, 1979 as <a href="#">Reel 163, Page 886</a> , Film Records
For:	Scenic Easement

17. Easement, including terms and provisions contained therein:  
Recording Information: January 28, 1981 as [Reel 239, Page 1534](#), Film Records  
In Favor of: Portland General Electric Company  
For: electric power line and appurtenances
18. Easement, including terms and provisions contained therein:  
Recording Information: July 09, 1992 as [Reel 967, Page 341](#), Film Records  
For: sanitary sewer line
19. Easement, including terms and provisions contained therein:  
Recording Information: November 07, 1913 as [Volume 131, Page 15](#), Film Records  
In Favor of: Oregon Electric Railway Company  
For: maintenance of slopes
20. Revocable Permit, including terms and provisions thereof.  
Recorded: May 21, 1975 as [Reel 15, Page 789](#), Film Records
21. Easement, including terms and provisions contained therein:  
Recording Information: January 27, 2000 as [Reel 1666, Page 210](#), Film Records  
In Favor of: City of Salem, a municipal corporation  
For: public bikeway, pedestrian Paths, and Public Recreation
22. Pipeline Easement (Storm Drain Only), including terms and provisions thereof.  
Recorded: August 01, 2001 as [Reel 1817, Page 163](#), Film Records
23. Memorandum of Agreement, including terms and provisions thereof.  
Recorded: October 05, 2022 as [Reel 4663, Page 201](#), Film Records
24. Notes, easements, covenants and restrictions as depicted on the face of the following plats: Mill Addition to Salem, recorded March 11, 1889; Town plat of North Salem, recorded May 13, 1871; Willamette Landing, recorded March 08, 1979.
25. Riverfront-Downtown Urban Renewal Plan, including terms and provisions thereof.  
Recorded: September 22, 2023 as Document No. [2023-28878](#), Film Records
26. Any conveyance or encumbrance by Front Street Properties, LLC and Truitt Properties, LLC should be executed pursuant to their Operating Agreement, a copy of which should be submitted to this office for inspection.
27. Unrecorded leases or periodic tenancies, if any.
28. Survey by AKS Engineering & Forestry, LLC, dated May 18, 2023, job no. 5968-01 , discloses the following:  
  
Fence and Building Encroachments, utility lines, and possible setback violations
29. This report has been submitted to our underwriter for review and approval. We will inform you of any further exceptions and/or requirements.

- END OF EXCEPTIONS -

NOTE: We find no matters of public record against The Future of Neighborhood Development, LLC that will take priority over any trust deed, mortgage or other security instrument given to purchase the subject real property as established by ORS 18.165.

NOTE: Taxes for the year 2023-2024 PAID IN FULL

Tax Amount: \$55,923.94  
Map No.: 073W22AB00900C4  
Property ID: 352877  
Tax Code No.: 24010

(Affects Parcel I, II and III)

NOTE: Taxes for the year 2023-2024 PAID IN FULL

Tax Amount: \$10,718.85  
Map No.: 073W22AB00600  
Property ID: 584431  
Tax Code No.: 24010

(Affects Parcel V)

NOTE: Taxes for the year 2023-2024 PAID IN FULL

Tax Amount: \$13,446.55  
Map No.: 073W22AB00300  
Property ID: 596343  
Tax Code No.: 24010

(Affects Parcel IV)

NOTE: Taxes for the year 2023-2024 PAID IN FULL

Tax Amount: \$2,686.31  
Map No.: 073W22AB00900  
Property ID: 582542  
Tax Code No.: 24970

(Affects Parcel I, II and III)

NOTE: This Preliminary Title Report does not include a search for Financing Statements filed in the Office of the Secretary of State, or in a county other than the county wherein the premises are situated, and no liability is assumed if a Financing Statement is filed in the Office of the County Clerk covering Fixtures on the premises wherein the lands are described other than by metes and bounds or under the rectangular survey system or by recorded lot and block.

NOTE: According to the public record, the following deed(s) affecting the property herein described have been recorded within 24 months of the effective date of this report: NONE

NOTE: We find no outstanding voluntary liens of record affecting subject property. An inquiry should be made concerning the existence of any unrecorded lien or other indebtedness which could give rise to any security interest in the subject property.

**THANK YOU FOR CHOOSING FIRST AMERICAN TITLE!  
WE KNOW YOU HAVE A CHOICE!**

**RECORDING INFORMATION**

Filing Address: **First American Title Recorder for Marion County**  
777 Commercial St SE, Ste 100, Salem, OR 97301

Recording Fees: \$ **86.00** per document (most documents) (1st page)  
\$ **5.00** per additional page  
\$ **20.00** non-standard fee  
\$ **5.00** each additional title  
\$ **5.00** each additional reference

cc: The Future of Neighborhood Development, LLC  
cc: Front Street Properties, LLC  
cc: Joshua Kay, First Commercial Real Estate Services  
365 State Street, Salem, OR 97301

**Exhibit "A"**

Real property in the County of Marion, State of Oregon, described as follows:

## Parcel I:

Tract 1: Beginning at the Northeast corner of the South one-half of Lot 7, Block 1, Mill Addition to the City of Salem, Marion County, Oregon. (See Volume 1, Page 90, Record of Town Plats for said County and State.) being that point on the East line of said Lot 7, which is 25 feet Northerly from the Southeast corner of said Lot; thence North 70°35' West along the middle line of said Lot 7, a distance of 200 feet; thence South 19°25' West and parallel to the West line of Front Street, a distance of 60 feet; thence Easterly on a line parallel to the South line of said Lot 7, a distance of 200 feet to said West line of Front Street; thence Northerly along said West line of Front Street, a distance of 60 feet to said Northeasterly corner of said South one-half of Lot 7, Block 1, Mill Addition to the City of Salem, Marion County, Oregon, and the place of beginning.

Tract 2: Beginning at an iron pipe in the West line of Front Street in Salem, Oregon, 25 feet Southerly from the Northeast corner of Lot 7, Block 1, Mill Addition to Salem, Marion County, Oregon; thence North 19°25' East feet along the West line of Front Street, 689.6 feet to the center of Gaines Street; thence North 70°35' West along the center line of Gaines Street, now vacated, 230.33 feet; thence South 19°25' West along the center line of Water Street, now vacated, 298.6 feet; thence North 70°35' West along the Westerly extension of the South line of Block 24, North Salem, 90.57 feet; thence South 19°25' West 216.0 feet; thence North 70°35' West along a Westerly extension of the North line of Lot 4, Block 1, Mill Addition, 85 feet more or less to the low water line of the Willamette River; thence up said River following the low water line of the same to a Westerly extension of the line cutting Lot 7, Block 1, Mill Addition into North and South halves; thence South 70°35' East along said line, 515 feet more or less to the point of beginning.

SAVE AND EXCEPT: Beginning at the Southeast corner of Lot 8, Block 1, Mill Addition to Salem, Marion County, Oregon; thence North 70°35' West along the Southerly line of said Lot 8, a distance of 320.90 feet; thence North 19°25' East parallel with the West line of Front Street, a distance of 136.63 feet to the true point of beginning; thence North 70°35' West parallel with the Southerly line of said Lot 8 and the Westerly extension thereof, a distance of 80.00 feet, more or less, to the low water line of the Willamette River; thence Northerly along said low water line to a point on the Westerly extension of the Southerly line of Lot 3, in said Block 1; thence South 70°35' East along the Westerly extension of the Southerly line of said Lot 3, a distance of 73.00 feet, more or less, to a point which is North 19°25' East 113.72 feet from the true point of beginning; thence South 19°25' West a distance of 113.72 feet to the place of beginning.

Tract 3: Beginning on the Westerly line of Front Street at a point which is 33.00 feet North 19°25' East from the Northeast corner of Block 24, North Salem, Marion County, Oregon; thence North 70°35' West along the center line of Gaines Street (vacated) 230.33 feet; thence South 19°25' West parallel with the Westerly line of said Front Street 250.60 feet to the true point of beginning; thence South 19°25' West, parallel with the Westerly line of said Front Street 48.00 feet; thence North 70°35' West, 90.57 feet; thence North 19°25' East 48.00 feet; thence South 70°35' East 90.57 feet to the true point of beginning.

Tract 4: Beginning at a point which is North 19°25' East 15 feet and North 70°35' West 200 feet from the Southeast corner of Lot 8, Block 1, Mill Addition to Salem, Marion County, Oregon, which point is the true place of beginning; thence North 70°35' West and parallel with Westerly extension of the Southerly line of said Lot 8, 120.9 feet; thence North 19° 25' East 60 feet, more or less, to the Southerly property line of USP Corporation property; thence South 70°35' East and parallel with the Southerly line of the said Lot 8, 120.9 feet; thence South 19°25' West 60 feet, more or less, to the place of beginning.

## Parcel II:

Beginning at a point on the Easterly boundary line of Block 25, North Salem, said point bears South 19°25' West 108.00 feet from the Northeast corner of said Block 25 and running thence North 70°35' West, parallel to the Northerly boundary line of Block 25, to the low water line of the Willamette River; thence Southerly, along said low water line, to the Southerly line of that parcel of land described in the exception to Tract 2, said description being recorded in [Reel 42, page 596](#), Marion County Records; thence South 70°35' East, along said Southerly boundary line, 80.00 feet, more or less, to the Southeasterly corner of said exception; thence North 19°25' East 377.72 feet along the Westerly boundary lines of the aforementioned Tract 2 and Tract 3, said Tract 3 being described in [Reel 42, page 597](#), Marion County Records; thence South 70°35' East 90.57 feet, along the Northerly boundary line of said Tract 3, to the Northeasterly corner of same; thence North 19°25' East 250.60 feet, along the aforementioned Westerly boundary line of Tract 2, said Westerly boundary line being the center-line of vacated Water Street to the Northwesterly corner of said Tract 2; thence South 70°35' East 230.33 feet, along the Northerly boundary line of vacated Gaines Street, to the Northerly corner of said Tract 2; thence North 19°25' East 190.60 feet along said Easterly boundary line of Block 25 and its extension to the point of beginning.

Parcel III:

Beginning at the Southeast corner of Lot 8, Block 1, Mill Addition to Salem, in Marion County, Oregon, and thence South 19°30' West a distance of 85.0 feet to the true point of beginning; thence North 70°30' West a distance of 200.0 feet; thence North 19°30' East a distance of 100.0 feet; thence South 70°30' East a distance of 200.0 feet; thence South 19°30' West a distance of 100.0 feet to the true point of beginning.

Parcel IV:

Lot 1, Willamette Landing, in the City of Salem, County of Marion and State of Oregon.

SAVE AND EXCEPT the land described as follows: Beginning at a point on the Southerly right-of-way line of Shipping Street, which is 197.50 feet North 70°37'00" West from the Northeast corner of Lot 1, of said Willamette Landing; thence North 70°37'00" West a distance of 53.26 feet; thence along the arc of a 140.00 foot radius curve to the right a distance of 25.55 feet, a chord of which bears North 14°17'27" East 25.51 feet to the end of said curve; thence North 19°31'05" East 7.49 feet; thence North 79°15'34" East, along the Southerly line of Lot 3, Willamette Landing, a distance of 25.54 feet to a point at the Easterly Southeast corner of said Lot 3, said point also being on the East line of said Willamette Landing; thence South 19°31'05" West along said East line, a distance of 12.72 feet to an angle in said East line; thence South 70°37'00" East along said East line, a distance of 33.47 feet to an angle in said East line; thence South 19°24'59" West along said East line, a distance of 33.00 feet to the point of beginning.

Lot 2, Willamette Landing, in the City of Salem, County of Marion and State of Oregon.

SAVE AND EXCEPT the land described as follows: Beginning at a point on the Southerly right-of-way line of Shipping Street, which is 269.46 feet North 70°37'00" West from the Northeast corner of Lot 1, of said Willamette Landing; thence North 70°37'00" West a distance of 18.70 feet; thence South 79°25'00" West a distance of 68.61 feet to a property corner between said Lots 2 and 3; thence North 10°43'47" West, along said property line between Lots 2 and 3, a distance of 20.01 feet to an angle in said line; thence North 79°15'34" East, along the Southerly line of said Lot 3, a distance of 99.35 feet; thence South 19°31'05" West 7.49 feet to the beginning of a 140.00 foot radius curve to the right; thence along the arc of said curve a distance of 25.55 feet, a chord of which bears South 14°17'27" West 25.51 feet to the point of beginning.

Parcel V:

Beginning at the Northeast corner of Block 25, North Salem, and running thence South 19°25' West 108.00 feet along the Easterly boundary line of said Block 25; thence North 70°35' West, parallel with the Northerly boundary line of said Block 25, to the low water line of the Willamette River; thence Northerly, along said low water line, to a point on the Westerly extension of the centerline of Hood Street; thence

South 70°35' East, along said Westerly extension, to a point on the Northerly extension of the Westerly boundary line of the aforementioned Block 25; thence South 19°25' West 33.00 feet, along said Northerly extension, to the Northwesterly corner of said Block 25; thence South 70°35' East 197.50 feet, along the Northerly boundary line of said Block 25, to the point of beginning.

ALSO:

Beginning at the Northeast corner of Lot 1, Block 25, North Salem; thence running Westerly along the Northerly lines of Lots 1 and 8 a distance of 197.50 feet to the Northwest corner of Lot 8; thence running Northeasterly and parallel with the Easterly line of said Block 25 a distance of 33.0 feet; thence running Easterly and parallel with the North lines of Lots 8 and 1 a distance of 197.50 feet to the Westerly edge of Front Street, in the City of Salem; thence running Southerly along the edge of Front Street a distance of 33.0 feet to the place of beginning, and being the Southerly one-half of vacated Hood Street.

Together with a perpetual non-exclusive easement for roadway and utility purposes, including the terms and provisions thereof, over and across and under the following described property:

Beginning at the point of intersection of the Westerly right-of-way line of Front Street with the centerline of vacated Hood Street in North Salem Addition in Township 7 South, Range 3 West of the Willamette Meridian in Marion County, Oregon; thence North 19°25' East along the Westerly right-of-way line of said Front Street, 20.00 feet; thence North 70°37' West, parallel with the centerline of vacated Hood Street, 170.00 feet; thence South 19°25' West parallel with the Westerly right-of-way line of Front Street, 20.00 feet to a point on the centerline of vacated Hood Street; thence South 70° 37' East along the centerline of vacated Hood Street, 170.00 feet to the point of beginning, as set forth in instrument recorded March 6, 1979, in [Reel 159, Page 5](#), Film Records for Marion County, Oregon.

NOTE: This legal description was created prior to January 1, 2008.



## First American Title Insurance Company

### SCHEDULE OF EXCLUSIONS FROM COVERAGE

#### ALTA LOAN POLICY (07/01/21)

The following matters are excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
  - i. the occupancy, use, or enjoyment of the Land;
  - ii. the character, dimensions, or location of any improvement erected on the Land;
  - iii. the subdivision of land; or
  - iv. environmental remediation or protection.
- b. any governmental forfeiture, police, regulatory, or national security power.
- c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b.  
Exclusion 1 does not modify or limit the coverage provided under Covered Risk 5 or 6.
2. Any power of eminent domain. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 7.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
  - a. created, suffered, assumed, or agreed to by the Insured Claimant;
  - b. not Known to the Company, not recorded in the Public Records at the Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
  - c. resulting in no loss or damage to the Insured Claimant;
  - d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
  - e. resulting in loss or damage that would not have been sustained if consideration sufficient to qualify the Insured named in Schedule A as a bona fide purchaser or encumbrancer had been given for the Insured Mortgage at the Date of Policy.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business law.
5. Invalidity or unenforceability of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury law or Consumer Protection Law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transaction creating the lien of the Insured Mortgage is a:
  - a. fraudulent conveyance or fraudulent transfer;
  - b. voidable transfer under the Uniform Voidable Transactions Act; or
  - c. preferential transfer:
    - i. to the extent the Insured Mortgage is not a transfer made as a contemporaneous exchange for new value; or
    - ii. for any other reason not stated in Covered Risk 13.b.
7. Any claim of a PACA-PSA Trust. Exclusion 7 does not modify or limit the coverage provided under Covered Risk 8.
8. Any lien on the Title for real estate taxes or assessments imposed by a governmental authority and created or attaching between the Date of Policy and the date of recording of the Insured Mortgage in the Public Records. Exclusion 8 does not modify or limit the coverage provided under Covered Risk 2.b. or 11.b.
9. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

#### ALTA OWNER'S POLICY (07/01/21)

The following matters are excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
  - i. the occupancy, use, or enjoyment of the Land;
  - ii. the character, dimensions, or location of any improvement on the Land;
  - iii. the subdivision of land; or
  - iv. environmental remediation or protection.
- b. any governmental forfeiture, police, regulatory, or national security power.
- c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b.  
Exclusion 1 does not modify or limit the coverage provided under Covered Risk 5 or 6.
2. Any power of eminent domain. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 7.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
  - a. created, suffered, assumed, or agreed to by the Insured Claimant;
  - b. not Known to the Company, not recorded in the Public Records at the Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
  - c. resulting in no loss or damage to the Insured Claimant;
  - d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 9 or 10); or
  - e. resulting in loss or damage that would not have been sustained if consideration sufficient to qualify the Insured named in Schedule A as a bona fide purchaser had been given for the Title at the Date of Policy.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transaction vesting the Title as shown in Schedule A is a:
  - a. fraudulent conveyance or fraudulent transfer;
  - b. voidable transfer under the Uniform Voidable Transactions Act; or
  - c. preferential transfer:
    - i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
    - ii. for any other reason not stated in Covered Risk 9.b.
5. Any claim of a PACA-PSA Trust. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 8.
6. Any lien on the Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 6 does not modify or limit the coverage provided under Covered Risk 2.b.
7. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

**SCHEDULE OF STANDARD EXCEPTIONS**

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.
3. Easements, or claims of easement, not shown by the public records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
4. Any encroachment (of existing improvements located on the subject land onto adjoining land or of existing improvements located on adjoining land onto the subject land), encumbrance, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey of the subject land.
5. Any lien" or right to a lien, for services, labor, material, equipment rental or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the public records.

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NOTE: A SPECIMEN COPY OF THE POLICY FORM (OR FORMS) WILL BE FURNISHED UPON REQUEST

Rev. 07-01-21



## Privacy Notice

**Effective:** October 1, 2019

**Notice Last Updated:** January 1, 2022

This Privacy Notice describes how First American Financial Corporation and its subsidiaries and affiliates (together referred to as "First American," "we," "us," or "our") collect, use, store, and share your information with the exception that a subsidiary or affiliate has their own privacy policy, that policy governs. This Privacy Notice applies to information we receive from you offline only, as well as from third parties, when you interact with us and/or use and access our services and products ("Products"). For more information about our privacy practices, including our online practices, please visit <https://www.firstam.com/privacy-policy/>. The practices described in this Privacy Notice are subject to applicable laws in the places in which we operate.

**What Type Of Information Do We Collect About You?** We collect a variety of categories of information about you. To learn more about the categories of information we collect, please visit <https://www.firstam.com/privacy-policy/>.

**How Do We Collect Your Information?** We collect your information: (1) directly from you; (2) automatically when you interact with us; and (3) from third parties, including business parties and affiliates.

**How Do We Use Your Information?** We may use your information in a variety of ways, including but not limited to providing the services you have requested, fulfilling your transactions, comply with relevant laws and our policies, and handling a claim. To learn more about how we may use your information, please visit <https://www.firstam.com/privacy-policy/>.

**How Do We Share Your Information?** We do not sell your personal information. We only share your information, including to subsidiaries, affiliates, and to unaffiliated third parties: (1) with your consent; (2) in a business transfer; (3) to service providers; and (4) for legal process and protection. To learn more about how we share your information, please visit <https://www.firstam.com/privacy-policy/>.

**How Do We Store and Protect Your Information?** The security of your information is important to us. That is why we take commercially reasonable steps to make sure your information is protected. We use our best efforts to maintain commercially reasonable technical, organizational, and physical safeguards, consistent with applicable law, to protect your information.

**How Long Do We Keep Your Information?** We keep your information for as long as necessary in accordance with the purpose for which it was collected, our business needs, and our legal and regulatory obligations.

**Your Choices** We provide you the ability to exercise certain controls and choices regarding our collection, use, storage, and sharing of your information. You can learn more about your choices by visiting <https://www.firstam.com/privacy-policy/>.

**International Jurisdictions:** Our Products are offered in the United States of America (US), and are subject to US federal, state, and local law. If you are accessing the Products from another country, please be advised that you may be transferring your information to us in the US, and you consent to that transfer and use of your information in accordance with this Privacy Notice. You also agree to abide by the applicable laws of applicable US federal, state, and local laws concerning your use of the Products, and your agreements with us.

We may change this Privacy Notice from time to time. Any and all changes to this Privacy Notice will be reflected on this page, and where appropriate provided in person or by another electronic method. **YOUR CONTINUED USE, ACCESS, OR INTERACTION WITH OUR PRODUCTS OR YOUR CONTINUED COMMUNICATIONS WITH US AFTER THIS NOTICE HAS BEEN PROVIDED TO YOU WILL REPRESENT THAT YOU HAVE READ AND UNDERSTOOD THIS PRIVACY NOTICE.**

**Contact Us** [dataprivacy@firstam.com](mailto:dataprivacy@firstam.com) or toll free at 1-866-718-0097.



## **For California Residents**

If you are a California resident, you may have certain rights under California law, including but not limited to the California Consumer Privacy Act of 2018 ("CCPA"). All phrases used in this section shall have the same meaning as those phrases are used under California law, including the CCPA.

**Right to Know.** You have a right to request that we disclose the following information to you: (1) the categories of personal information we have collected about or from you; (2) the categories of sources from which the personal information was collected; (3) the business or commercial purpose for such collection and/or disclosure; (4) the categories of third parties with whom we have shared your personal information; and (5) the specific pieces of your personal information we have collected. To submit a verified request for this information, go to our online privacy policy at [www.firstam.com/privacy-policy](http://www.firstam.com/privacy-policy) to submit your request or call toll-free at 1-866-718-0097. You may also designate an authorized agent to submit a request on your behalf by going to our online privacy policy at [www.firstam.com/privacy-policy](http://www.firstam.com/privacy-policy) to submit your request or by calling toll-free at 1-866-718-0097

**Right of Deletion.** You also have a right to request that we delete the personal information we have collected from and about you. This right is subject to certain exceptions available under the CCPA and other applicable law. To submit a verified request for deletion, go to our online privacy policy at [www.firstam.com/privacy-policy](http://www.firstam.com/privacy-policy) to submit your request or call toll-free at 1-866-718-0097. You may also designate an authorized agent to submit a request on your behalf by going to our online privacy policy at [www.firstam.com/privacy-policy](http://www.firstam.com/privacy-policy) to submit your request or by calling toll-free at 1-866-718-0097.

**Verification Process.** For either a request to know or delete, we will verify your identity before responding to your request. To verify your identity, we will generally match the identifying information provided in your request with the information we have on file about you. Depending on the sensitivity of the information requested, we may also utilize more stringent verification methods to verify your identity, including but not limited to requesting additional information from you and/or requiring you to sign a declaration under penalty of perjury.

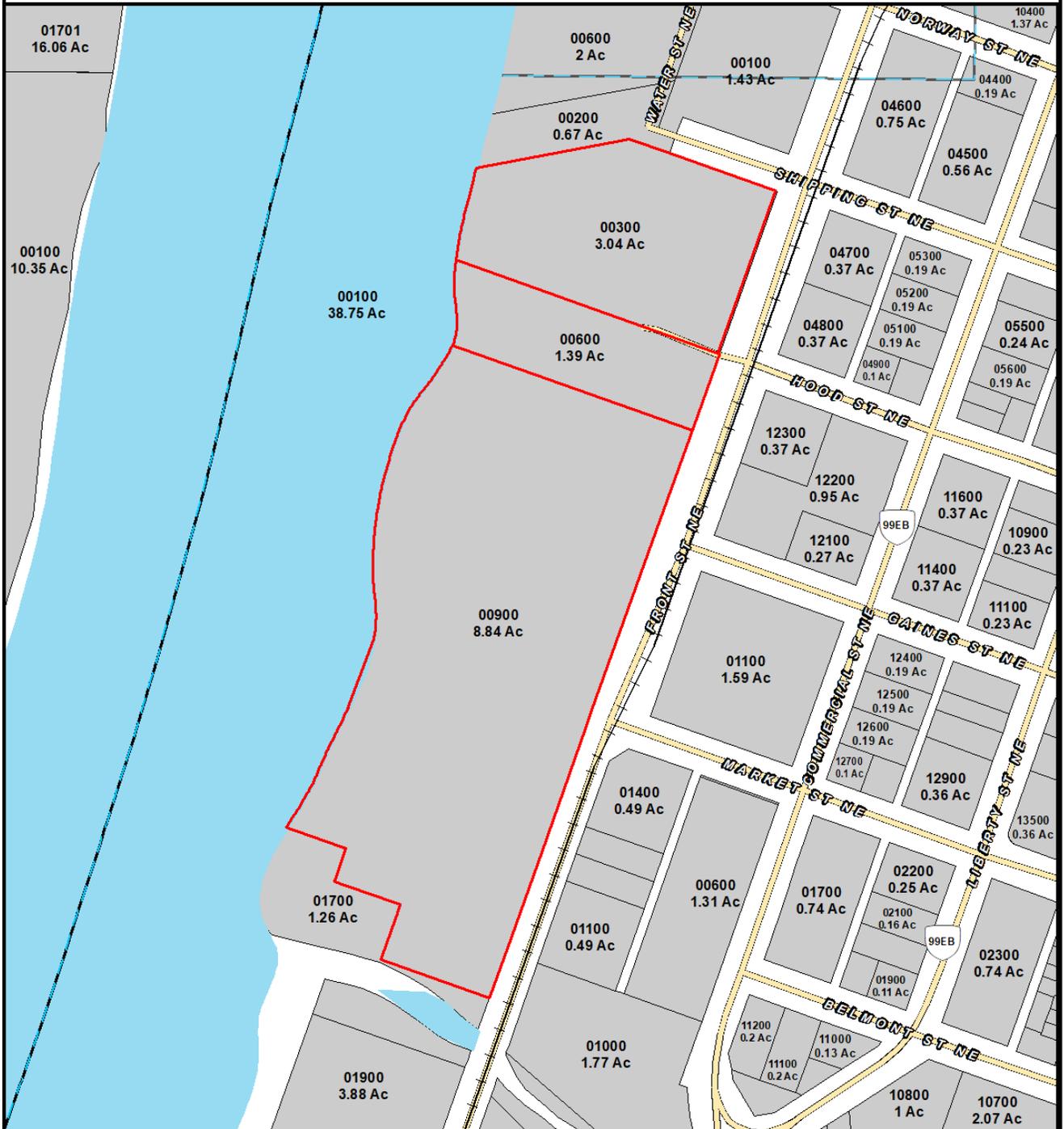
**Notice of Sale.** We do not sell California resident information, nor have we sold California resident information in the past 12 months. To the extent any First American affiliated entity has a different practice, it will be stated in the applicable privacy policy. We have no actual knowledge of selling the information of minors under the age of 16.

**Right of Non-Discrimination.** You have a right to exercise your rights under California law, including under the CCPA, without suffering discrimination. Accordingly, First American will not discriminate against you in any way if you choose to exercise your rights under the CCPA.

**Notice of Collection.** To learn more about the categories of personal information we have collected about California residents over the last 12 months, please see "What Information Do We Collect About You" in <https://www.firstam.com/privacy-policy>. To learn about the sources from which we have collected that information, the business and commercial purpose for its collection, and the categories of third parties with whom we have shared that information, please see "How Do We Collect Your Information", "How Do We Use Your Information", and "How Do We Share Your Information" in <https://www.firstam.com/privacy-policy>.

**Notice of Sale.** We have not sold the personal information of California residents in the past 12 months.

**Notice of Disclosure.** To learn more about the categories of personal information we may have disclosed about California residents in the past 12 months, please see "How Do We Use Your Information" and "How Do We Share Your Information" in <https://www.firstam.com/privacy-policy>.



# Taxlot



Subject



Taxlot

3/28/2023

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## **Attachment 0: Deed History**

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# Preliminary Report

Fidelity National Title - Oregon

File No.: 60222300149

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**TITLE PLANT RECORDS REPORT**  
**Report of Requested Information from**  
**Title Plant Records**

AKS Engineering & Forestry, LLC  
3700 River Road N, Suite 1  
Keizer, OR 97303

**Customer Ref.:** \_\_\_\_\_  
**Order No.:** 60222300149  
**Effective Date:** January 6, 2023 at 08:00 AM  
**Fee(s):** \$250.00

The information contained in this report is furnished by Fidelity National Title Company of Oregon (the "Company") as an information service based on the records and indices maintained by the Company for the county identified below. THIS IS NOT TITLE INSURANCE NOR IS IT A PRELIMINARY TITLE REPORT OR A COMMITMENT FOR TITLE INSURANCE. No examination has been made of the Company's records, other than as specifically set forth herein. Liability for any loss arising from errors and/or omissions is limited to the lesser of the fee paid or the actual loss to the customer, and the Company will have no greater liability by reason of this report. THIS REPORT ("THE REPORT") IS SUBJECT TO THE LIMITATIONS OF LIABILITY STATED BELOW, WHICH LIMITATIONS OF LIABILITY ARE A PART OF THIS REPORT

**County and Time Period**

This report is based on a search of the Company's title plant records for County of Marion, State of Oregon, for the time period **from January 1, 1957 through January 6, 2023** (with the through date being "the Effective Date").

**Ownership and Property Description**

The Company reports the following, as of the Effective date and with respect to the following described property ("the Property"):

**Owner.** The apparent vested owner of the Property is:

Truitt Properties, LLC, an Oregon limited liability company, as to Parcel II; and Front Street Properties, LLC, an Oregon limited liability company, as to Parcels I and III; and City of Salem, a municipal corporation of the State of Oregon, as to Parcel IV

**Premises.** The Property is:

**(a) Street Address:**

1105 Front Street NE, Salem, OR 97301  
1375 Front Street NE, Salem, OR 97301  
No Situs, Salem, OR 97301

**(b) Legal Description:**

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

**Encumbrances**

*[If no information appears in this section, the section is intentionally omitted.]*

**General Index Liens against Named Party**

***[If no information appears in this section, the section is intentionally omitted.]***

**Recorded Documents**

For the above stated county and time period, the Company reports the following types of recordings that relate to the Property:

**a. Types of recordings:** Deeds

**b. List of recordings:** Deeds Affecting Parcel I:

[Volume 148, page 504](#), recorded 2-27-1919

[Volume 519, page 893](#), recorded 2-16-1959

[Volume 543, page 828](#), recorded 4-17-1961

[Volume 543, page 830](#), recorded 4-17-1961

[Volume 543, page 832](#), recorded 4-17-1961

[Volume 606, page 715](#), recorded 9-16-1965

[Volume 697, page 270](#), recorded 1-28-1971

[Volume 743, page 662](#), recorded 1-24-1973

[Reel 78, page 1726](#), recorded 4-26-1977

[Reel 194, page 165](#), recorded 10-3-1979

[Reel 2483, page 45](#), recorded 5-26-2005

Deeds affecting Parcel II:

[Volume 148, page 504](#), recorded 2-27-1919

[Reel 78, page 1728](#), recorded 4-26-1977

[Reel 124, page 1305](#), recorded 5-19-1978

[Reel 352, page 890](#), recorded 8-1-1984

[Reel 1472, page 565](#), recorded 3-24-1998

Deeds affecting Parcel III:

[Volume 148, page 504](#), recorded 2-27-1919

[Reel 90, page 1557](#), recorded 8-3-1977

Reel 90., page 1560, recorded 8-3-1977

[Reel 174, page 528](#), recorded 7-3-1979

[Reel 183, page 443](#), recorded 9-6-1979

[Reel 632, page 196](#), recorded 7-18-1988

[Reel 740, page 48](#), recorded 12-29-1989

[Reel 740, page 49](#), recorded 12-29-1989

[Reel 1658, page 441](#), recorded 12-22-1999

[Reel 2483, page 45](#), recorded 5-26-2005

Deeds affecting Parcel IV:

[Reel 249, page 782](#), recorded 5-8-1981

**End of Reported Information**

There will be additional charges for additional information or copies. For questions or additional requests, contact:

James Carter  
503-336-9126  
FAX

[james.carterjr@titlegroup.fntg.com](mailto:james.carterjr@titlegroup.fntg.com)

Fidelity National Title Company of Oregon  
1433 SW 6th Ave  
Portland, OR 97201

**EXHIBIT "A"**  
Legal Description

**For APN/Parcel ID(s): 582541, 582542 and 596343**

**For Tax Map ID(s): 073W22AB00900, 073W22AB00900 and 073W22AB00300**

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PARCEL I:

A parcel of land situated in the Northeast Quarter of Section 22, Township 7 South, Range 3 West of the Willamette Meridian, in the City of Salem, County of Marion, State of Oregon, more particularly described as follows:

Tract 1:

Beginning at the Northeast corner of the South one-half of Lot 7, Block 1, MILL ADDITION to the City of Salem, Marion County, Oregon. (See Volume 1, Page 90, Record of Town Plats for said County and State.) being that point on the East line of said Lot 7, which is 25 feet Northerly from the Southeast corner of said Lot; thence North 70° 35' West along the middle line of said Lot 7, a distance of 200 feet; thence South 19° 25' West and parallel to the West line of Front Street, a distance of 60 feet; thence Easterly on a line parallel to the South line of said Lot 7, a distance of 200 feet to the said West line of Front Street; thence Northerly along said West line Addition to the City of Salem, Marion County, Oregon, and the Place of Beginning.

Tract 2:

Beginning at an iron pipe in the West line of Front Street in Salem, Oregon, 25 feet Southerly from the Northeast corner of Lot 7, Block 1, MILL ADDITION to Salem, Marion County, Oregon; thence North 19° 25' East along the West line of Front Street, 689.6 feet to the center of Gaines Street; thence North 70° 35' West along the center line of Gaines Street, now vacated, 230.33 feet; thence South 19° 25' West along the center line of Water Street, now vacated, 298.6 feet; thence North 70° 35' West along the Westerly extension of the South line of Block 24, North Salem, 90.57 feet; thence South 19° 25' West 216.0 feet; thence North 70° 35' West along a Westerly extension of the North line of Lot 4, Block 1, MILL ADDITION, 85 feet more or less to the low water line of the Willamette River; thence up said River following the low water line of the same to a Westerly extension of the line cutting Lot 7, Block 1, Mill Addition, into North and South halves; thence South 70° 35' East along said line, 515 feet more or less to the Point of Beginning.

EXCEPTING THEREFROM:

Beginning at the Southeast corner of Lot 8, Block 1, MILL ADDITION to Salem, Marion County, Oregon; thence North 70° 35' West along the Southerly line of said Lot 8, a distance of 320.90 feet; thence North 19° 25' East parallel with the West line of Front Street, a distance of 136.63 feet to the True Point of Beginning; thence North 70° 35' West parallel with the Southerly line of said Lot 8 and the Westerly extension thereof, a distance of 80.00 feet, more or less, to the low water line of the Willamette River; thence Northerly along said low water line to a point on the Westerly extension of the Southerly line of Lot 3, in said Block 1; thence South 70° 35' East along the Westerly extension of the Southerly line of said Lot 3, a distance of 73.00 feet, more or less, to a point which is North 19° 25' East 113.72 feet from the true point of beginning; thence South 19° 25' West a distance of 113.72 feet to the Place of Beginning.

Tract 3:

Beginning on the Westerly line of Front Street at a point which is 33.00 feet North 19° 25' East from the Northeast corner of Block 24, NORTH SALEM, Marion County, Oregon; thence North 70° 35' West along the center line of Gaines Street (vacated) 230.33 feet, thence South 19° 25' West parallel with the Westerly line of said Front Street 250.60 feet to the True Point of Beginning; thence South 19° 25' West, parallel with the Westerly line of said Front Street 48.00 feet; thence North 70° 35' West, 90.57 feet; thence North 19° 25' East 48.00 feet; thence South 70° 35' East 90.57 feet to the True Point of Beginning.

**EXHIBIT "A"**  
Legal Description

Tract 4:

Beginning at a point which is North 19° 25' East 15 feet and North 70° 35' West 200 feet from the Southeast corner of Lot 8, Block 1, MILL ADDITION to Salem, Marion County, Oregon, which point is the True Place of Beginning; thence North 70° 35' West and parallel with the Westerly extension of the Southerly line of said Lot 8, 120.9 feet; thence North 19° 25' East 60 feet, more or less, to the Southerly property line of USP Corporation property; thence South 70° 35' East and parallel with the Southerly line of the said Lot 8, 120.9 feet; thence South 19° 25' West 60 feet, more or less, to the Place of Beginning.

Tract 5:

Beginning at a point on the Easterly boundary line of Block 25, NORTH SALEM, said point bears South 19° 25' West 108.00 feet from the Northeast corner of said Block 25 and running thence North 70° 35' West, parallel to the Northerly boundary line of Block 25, to the low water line of the Willamette River; thence Southerly, along said low water line, to the Southerly line of that parcel of land described in the exception to Tract 2, said description being recorded in Reel 42, Page 596, Marion County Records; thence South 70° 35' East, along said Southerly boundary line, 80.00 feet, more or less, to the Southeasterly corner of said exception; thence North 19° 25' East 377.72 feet along the Westerly boundary lines of the aforementioned Tract 2 and Tract 3, said Tract 3 being described in Reel 42, Page 597, Marion County Records; thence South 70° 35' East 90.57 feet, along the Northerly boundary line of said Tract 3, to the Northeasterly corner of same; thence North 19° 25' East 250.60 feet, along the aforementioned Westerly boundary line of Tract 2, said Westerly boundary line being the center-line of vacated Water Street to the Northwesterly corner of said Tract 2; thence South 70° 35' East 230.33 feet, along the Northerly boundary line of vacated Gaines Street, to the Northerly corner of said Tract 2; thence North 19° 25' East 190.60 feet along said Easterly boundary line of Block 25 and its extension to the Point of Beginning.

Tract 6:

Beginning at the Southeast corner of Lot 8, Block 1, MILL ADDITION to Salem, in Marion County, Oregon, and thence South 19° 30' West a distance of 85.0 feet to the true point of beginning; thence North 70° 30' West a distance of 200.0 feet; thence North 19° 30' East a distance of 100.0 feet; thence South 70° 30' East a distance of 200.0 feet; thence South 19° 30' West a distance of 100.0 feet to the true Point of Beginning.

PARCEL II:

A tract of land situated in the Northwest Quarter of the Northeast Quarter of Section 22, Township 7 South, Range 3 West of the Willamette Meridian, in the City of Salem, County of Marion, State of Oregon, more particularly described as follows:

Beginning at the Northeast corner of Block 25, NORTH SALEM, and running thence South 19°25' West 108.00 feet along the Easterly boundary line of said Block 25; thence North 70°35' West, parallel with the Northerly boundary line of said Block 25, to the low water line of the Willamette River; thence Northerly, along said low water line, to a point on the Westerly extension of the centerline of Hood Street; thence South 70°35' East, along said Westerly extension, to a point on the Northerly extension of the Westerly boundary line of the aforementioned Block 25; thence South 19°25' West 33.00 feet, along said Northerly extension, to the Northwesterly corner of said Block 25; thence South 70°35' East 197.50 feet, along the Northerly boundary line of said Block 25, to the Point of Beginning.

AND ALSO:

Beginning at the Northeast corner of Lot 1, Block 25, NORTH SALEM, thence running Westerly, along the Northerly lines of Lots 1 and 8, a distance of 197.50 feet to the Northwest corner of Lot 8; thence running Northeasterly and parallel with the Easterly line of said Block 25, a distance of 33.0 feet; thence running Easterly

**EXHIBIT "A"**  
Legal Description

and parallel with the North lines of Lots 8 and 1, a distance of 197.50 feet to the Westerly edge of Front Street in the City of Salem; thence running Southerly, along the edge of Front Street, a distance of 33.0 feet to the Place of Beginning, and being the Southerly one-half of vacated Hood Street.

TOGETHER WITH a perpetual non-exclusive easement for roadway purposes, over and across and under the following described property:

Beginning at the point of intersection of the Westerly right-of-way line of Front Street with the centerline of vacated Hood Street in NORTH SALEM in Township 7 South, Range 3 West of the Willamette Meridian in Marion County, Oregon; thence North 19°25' East, along the Westerly right-of-way line of said Front Street, 20.00 feet; thence North 70°37' West, parallel with the centerline of vacated Hood Street, 170.00 feet; thence South 19°25' West, parallel with the Westerly right-of-way line of Front Street, 20.00 feet to a point on the centerline of vacated Hood Street; thence South 70°37' East, along the centerline of vacated Hood Street, 170.00 feet to the Point of Beginning, as set forth in instrument recorded March 6, 1979 in Reel 159, page 5, Film Records for Marion County, Oregon.

PARCEL III:

Tract 1:

Lot 1, WILLAMETTE LANDING, in the City of Salem, County of Marion, State of Oregon.

EXCEPTING THEREFROM, the land described as follows:

Beginning at a point on the southerly right-of-way line of Shipping Street, which is 197.50 feet North 70°37'00" West from the Northeast corner of Lot 1 of said WILLAMETTE LANDING; thence North 70°37'00" West a distance of 53.26 feet; thence along the arc of a 140.00 foot radius curve to the right a distance of 25.55 feet, (a chord of which bears North 14°17'27" East 25.51 feet), to the end of said curve; thence North 19°31'05" East 7.49 feet; thence North 79°15'34" East, along the Southerly line of Lot 3, WILLAMETTE LANDING, a distance of 25.54 feet to a point at the Easterly Southeast corner of said Lot 3, said point also being on the East line of said WILLAMETTE LANDING; thence South 19°31'05" West, along said East line, a distance of 12.72 feet to an angle in said East line; thence South 70°37'00" East, along said East line, a distance of 33.47 feet to an angle in said East line; thence South 19°24'59" West, along said East line, a distance of 33.00 feet to the Point of Beginning.

Tract 2:

Lot 2, WILLAMETTE LANDING, in the City of Salem, County of Marion, State of Oregon.

EXCEPTING THEREFROM, the land described as follows:

Beginning at a point on the Southerly right-of-way line of Shipping Street, which is 269.46 feet North 70°37'00" West from the Northeast corner of Lot 1 of said WILLAMETTE LANDING; thence North 70°37'00" West a distance of 18.70 feet; thence South 79°25'00" West a distance of 68.61 feet to a property corner between said Lots 2 and 3; thence North 10°43'47" West, along said property line between Lots 2 and 3, a distance of 20.01 feet to an angle in said line; thence North 79°15'34" East, along the Southerly line of said Lot 3, a distance of 99.35 feet; thence South 19°31'05" West 7.49 feet to the beginning of a 140.00 foot radius curve to the right; thence along the arc of said curve, a distance of 25.55 feet, ( a chord of which bears South 14°17'27" West 25.51 feet), to the Place of Beginning.

PARCEL IV:

Block A, WILLAMETTE LANDING, in the City of Salem, County of Marion, State of Oregon.

**EXHIBIT "A"**  
[Legal Description](#)

**LIMITATIONS OF LIABILITY**

"CUSTOMER" REFERS TO THE RECIPIENT OF THIS REPORT.

CUSTOMER EXPRESSLY AGREES AND ACKNOWLEDGES THAT IT IS EXTREMELY DIFFICULT, IF NOT IMPOSSIBLE, TO DETERMINE THE EXTENT OF LOSS WHICH COULD ARISE FROM ERRORS OR OMISSIONS IN, OR THE COMPANY'S NEGLIGENCE IN PRODUCING, THE REQUESTED REPORT, HEREIN "THE REPORT." CUSTOMER RECOGNIZES THAT THE FEE CHARGED IS NOMINAL IN RELATION TO THE POTENTIAL LIABILITY WHICH COULD ARISE FROM SUCH ERRORS OR OMISSIONS OR NEGLIGENCE. THEREFORE, CUSTOMER UNDERSTANDS THAT THE COMPANY IS NOT WILLING TO PROCEED IN THE PREPARATION AND ISSUANCE OF THE REPORT UNLESS THE COMPANY'S LIABILITY IS STRICTLY LIMITED. CUSTOMER AGREES WITH THE PROPRIETY OF SUCH LIMITATION AND AGREES TO BE BOUND BY ITS TERMS.

THE LIMITATIONS ARE AS FOLLOWS AND THE LIMITATIONS WILL SURVIVE THE CONTRACT:

ONLY MATTERS IDENTIFIED IN THIS REPORT AS THE SUBJECT OF THE REPORT ARE WITHIN ITS SCOPE. ALL OTHER MATTERS ARE OUTSIDE THE SCOPE OF THE REPORT.

CUSTOMER AGREES, AS PART OF THE CONSIDERATION FOR THE ISSUANCE OF THE REPORT AND TO THE FULLEST EXTENT PERMITTED BY LAW, TO LIMIT THE LIABILITY OF THE COMPANY, ITS LICENSORS, AGENTS, SUPPLIERS, RESELLERS, SERVICE PROVIDERS, CONTENT PROVIDERS AND ALL OTHER SUBSCRIBERS OR SUPPLIERS, SUBSIDIARIES, AFFILIATES, EMPLOYEES, AND SUBCONTRACTORS FOR ANY AND ALL CLAIMS, LIABILITIES, CAUSES OF ACTION, LOSSES, COSTS, DAMAGES AND EXPENSES OF ANY NATURE WHATSOEVER, INCLUDING ATTORNEY'S FEES, HOWEVER ALLEGED OR ARISING, INCLUDING BUT NOT LIMITED TO THOSE ARISING FROM BREACH OF CONTRACT, NEGLIGENCE, THE COMPANY'S OWN FAULT AND/OR NEGLIGENCE, ERRORS, OMISSIONS, STRICT LIABILITY, BREACH OF WARRANTY, EQUITY, THE COMMON LAW, STATUTE OR ANY OTHER THEORY OF RECOVERY, OR FROM ANY PERSON'S USE, MISUSE, OR INABILITY TO USE THE REPORT OR ANY OF THE MATERIALS CONTAINED THEREIN OR PRODUCED, **SO THAT THE TOTAL AGGREGATE LIABILITY OF THE COMPANY AND ITS AGENTS, SUBSIDIARIES, AFFILIATES, EMPLOYEES, AND SUBCONTRACTORS SHALL NOT IN ANY EVENT EXCEED THE COMPANY'S TOTAL FEE FOR THE REPORT.**

CUSTOMER AGREES THAT THE FOREGOING LIMITATION ON LIABILITY IS A TERM MATERIAL TO THE PRICE THE CUSTOMER IS PAYING, WHICH PRICE IS LOWER THAN WOULD OTHERWISE BE OFFERED TO THE CUSTOMER WITHOUT SAID TERM. CUSTOMER RECOGNIZES THAT THE COMPANY WOULD NOT ISSUE THE REPORT BUT FOR THIS CUSTOMER AGREEMENT, AS PART OF THE CONSIDERATION GIVEN FOR THE REPORT, TO THE FOREGOING LIMITATION OF LIABILITY AND THAT ANY SUCH LIABILITY IS CONDITIONED AND PREDICATED UPON THE FULL AND TIMELY PAYMENT OF THE COMPANY'S INVOICE FOR THE REPORT.

THE REPORT IS LIMITED IN SCOPE AND IS NOT AN ABSTRACT OF TITLE, TITLE OPINION, PRELIMINARY TITLE REPORT, TITLE REPORT, COMMITMENT TO ISSUE TITLE INSURANCE, OR A TITLE POLICY, AND SHOULD NOT BE RELIED UPON AS SUCH. THE REPORT DOES NOT PROVIDE OR OFFER ANY TITLE INSURANCE, LIABILITY COVERAGE OR ERRORS AND OMISSIONS COVERAGE. THE REPORT IS NOT TO BE RELIED UPON AS A REPRESENTATION OF THE STATUS OF TITLE TO THE PROPERTY. THE COMPANY MAKES NO REPRESENTATIONS AS TO THE REPORT'S ACCURACY, DISCLAIMS ANY WARRANTY AS TO THE REPORT, ASSUMES NO DUTIES TO CUSTOMER, DOES NOT INTEND FOR CUSTOMER TO RELY ON THE REPORT, AND ASSUMES NO LIABILITY FOR ANY LOSS OCCURRING BY REASON OF RELIANCE ON THE REPORT OR OTHERWISE.

IF CUSTOMER (A) HAS OR WILL HAVE AN INSURABLE INTEREST IN THE SUBJECT REAL PROPERTY, (B) DOES NOT WISH TO LIMIT LIABILITY AS STATED HEREIN AND (C) DESIRES THAT ADDITIONAL LIABILITY BE ASSUMED BY THE COMPANY, THEN CUSTOMER MAY REQUEST AND PURCHASE A POLICY OF TITLE INSURANCE, A BINDER, OR A COMMITMENT TO ISSUE A POLICY OF TITLE INSURANCE. NO ASSURANCE IS GIVEN AS TO THE INSURABILITY OF THE TITLE OR STATUS OF TITLE. CUSTOMER EXPRESSLY AGREES AND ACKNOWLEDGES IT HAS AN INDEPENDENT DUTY TO ENSURE AND/OR RESEARCH THE ACCURACY OF ANY INFORMATION OBTAINED FROM THE COMPANY OR ANY PRODUCT OR SERVICE PURCHASED.

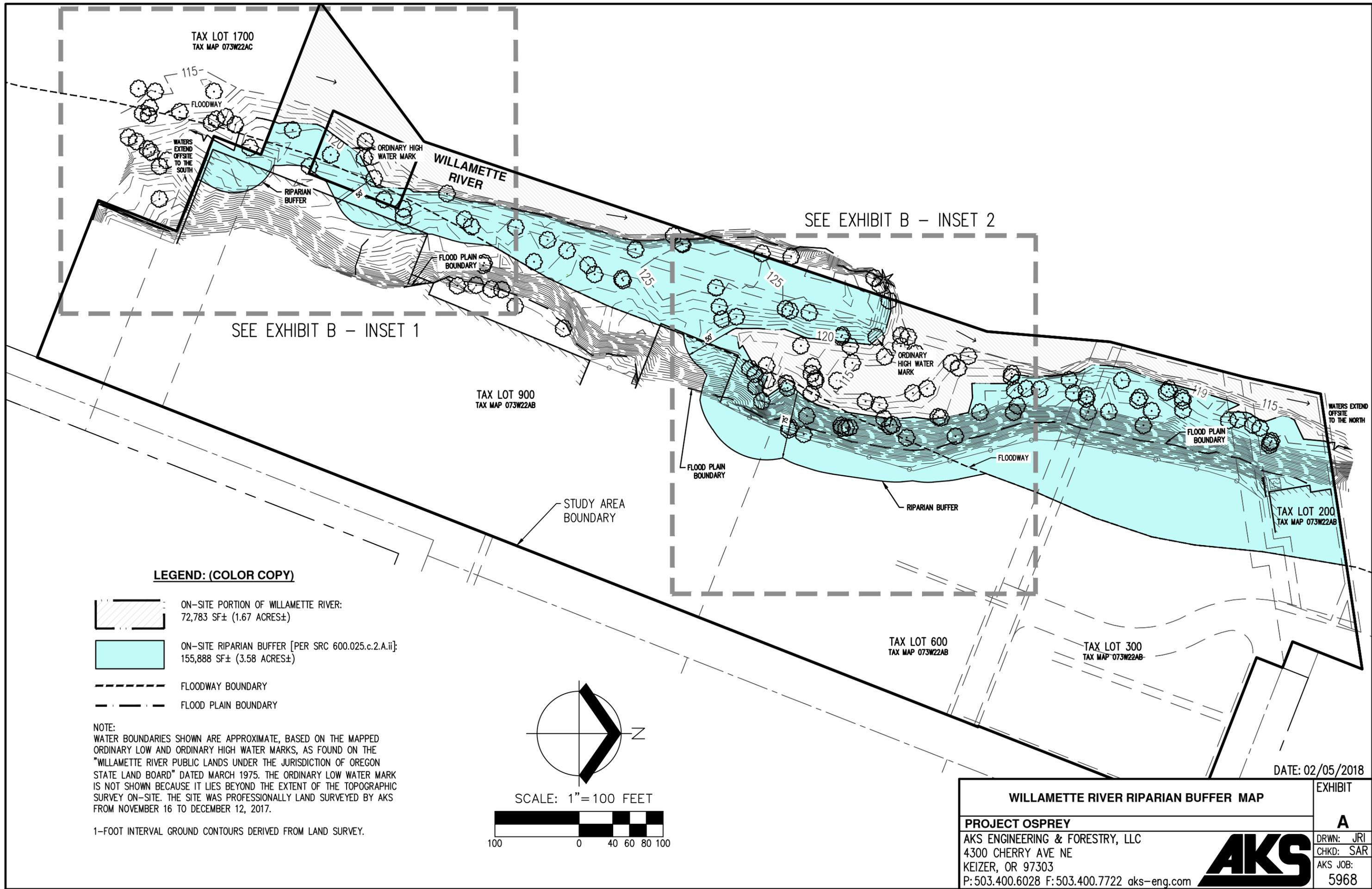
NO THIRD PARTY IS PERMITTED TO USE OR RELY UPON THE INFORMATION SET FORTH IN THE REPORT, AND NO LIABILITY TO ANY THIRD PARTY IS UNDERTAKEN BY THE COMPANY.

CUSTOMER AGREES THAT, TO THE FULLEST EXTENT PERMITTED BY LAW, IN NO EVENT WILL THE COMPANY, ITS LICENSORS, AGENTS, SUPPLIERS, RESELLERS, SERVICE PROVIDERS, CONTENT PROVIDERS, AND ALL OTHER SUBSCRIBERS OR SUPPLIERS, SUBSIDIARIES, AFFILIATES, EMPLOYEES AND SUBCONTRACTORS BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE, EXEMPLARY, OR SPECIAL DAMAGES, OR LOSS OF PROFITS, REVENUE, INCOME, SAVINGS, DATA, BUSINESS, OPPORTUNITY, OR GOODWILL, PAIN AND SUFFERING, EMOTIONAL DISTRESS, NON-OPERATION OR INCREASED EXPENSE OF OPERATION, BUSINESS INTERRUPTION OR DELAY, COST OF CAPITAL, OR COST OF REPLACEMENT PRODUCTS OR SERVICES, REGARDLESS OF WHETHER SUCH LIABILITY IS BASED ON BREACH OF CONTRACT, TORT, NEGLIGENCE, THE COMPANY'S OWN FAULT AND/OR NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTIES, FAILURE OF ESSENTIAL PURPOSE, OR OTHERWISE AND WHETHER CAUSED BY NEGLIGENCE, ERRORS, OMISSIONS, STRICT LIABILITY, BREACH OF CONTRACT, BREACH OF WARRANTY, THE COMPANY'S OWN FAULT AND/OR NEGLIGENCE OR ANY OTHER CAUSE WHATSOEVER, AND EVEN IF THE COMPANY HAS BEEN ADVISED OF THE LIKELIHOOD OF SUCH DAMAGES OR KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY FOR SUCH DAMAGES.

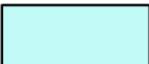
END OF THE LIMITATIONS OF LIABILITY

## Attachment P: Willamette River Riparian Buffer Map

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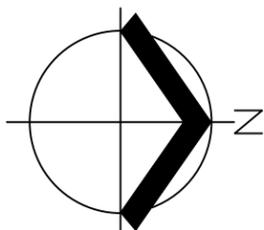


**LEGEND: (COLOR COPY)**

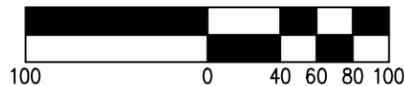
-  ON-SITE PORTION OF WILLAMETTE RIVER:  
72,783 SF± (1.67 ACRES±)
-  ON-SITE RIPARIAN BUFFER [PER SRC 600.025.c.2.A.ii]:  
155,888 SF± (3.58 ACRES±)
-  FLOODWAY BOUNDARY
-  FLOOD PLAIN BOUNDARY

NOTE:  
WATER BOUNDARIES SHOWN ARE APPROXIMATE, BASED ON THE MAPPED ORDINARY LOW AND ORDINARY HIGH WATER MARKS, AS FOUND ON THE "WILLAMETTE RIVER PUBLIC LANDS UNDER THE JURISDICTION OF OREGON STATE LAND BOARD" DATED MARCH 1975. THE ORDINARY LOW WATER MARK IS NOT SHOWN BECAUSE IT LIES BEYOND THE EXTENT OF THE TOPOGRAPHIC SURVEY ON-SITE. THE SITE WAS PROFESSIONALLY LAND SURVEYED BY AKS FROM NOVEMBER 16 TO DECEMBER 12, 2017.

1-FOOT INTERVAL GROUND CONTOURS DERIVED FROM LAND SURVEY.



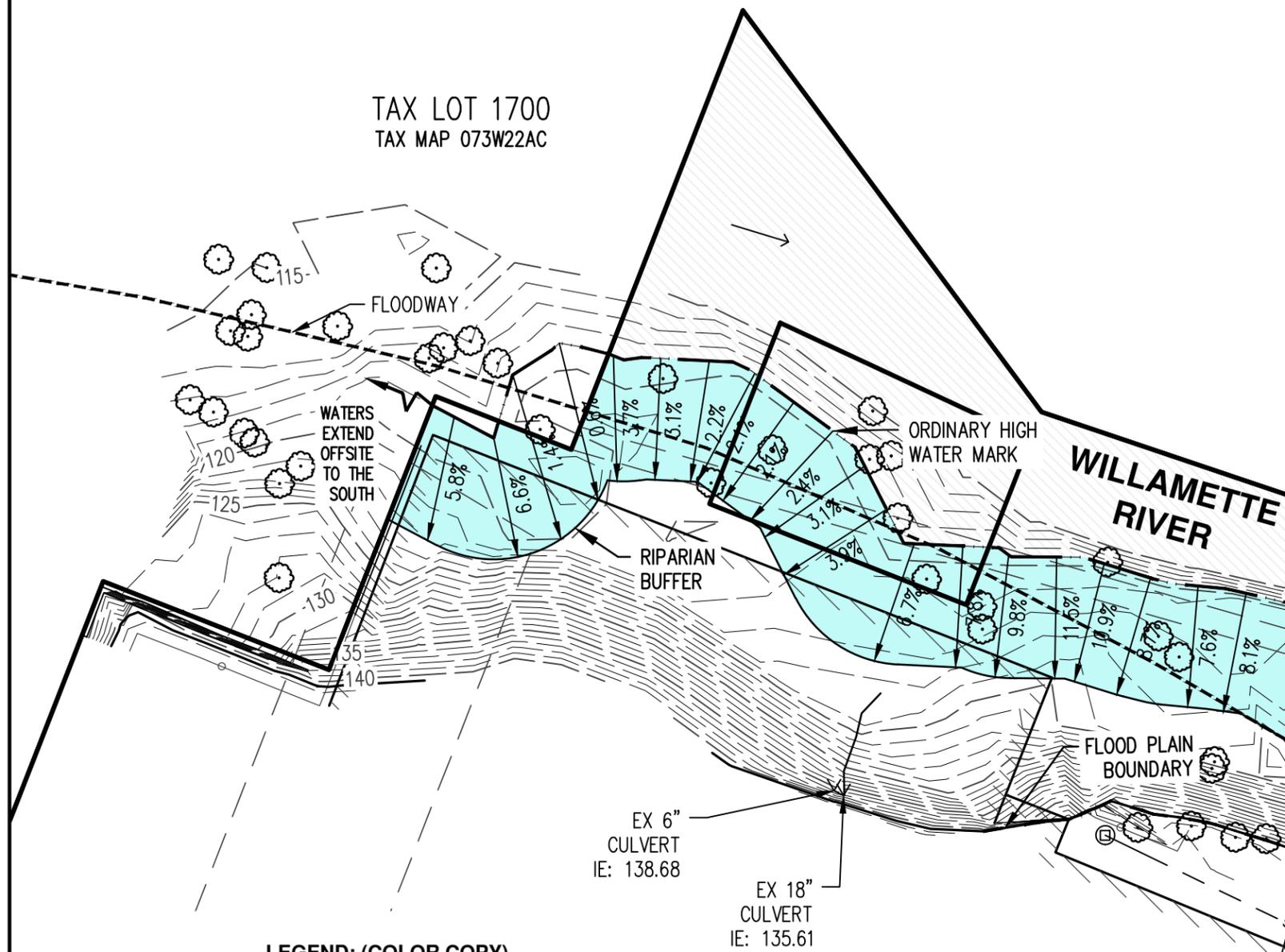
SCALE: 1" = 100 FEET



DATE: 02/05/2018

<b>WILLAMETTE RIVER RIPARIAN BUFFER MAP</b>		EXHIBIT
<b>PROJECT OSPREY</b>		<b>A</b>
AKS ENGINEERING & FORESTRY, LLC 4300 CHERRY AVE NE KEIZER, OR 97303 P: 503.400.6028 F: 503.400.7722 aks-eng.com		DRWN: JRI CHKD: SAR AKS JOB: 5968
		

TAX LOT 1700  
TAX MAP 073W22AC



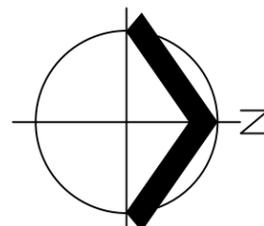
**LEGEND: (COLOR COPY)**

-  ON-SITE PORTION OF WILLAMETTE RIVER:  
72,783 SF± (1.67 ACRES±)
-  ON-SITE RIPARIAN BUFFER [PER SRC 600.025.c.2.A.ii]:  
155,888 SF± (3.58 ACRES±)
-  FLOODWAY BOUNDARY
-  FLOOD PLAIN BOUNDARY

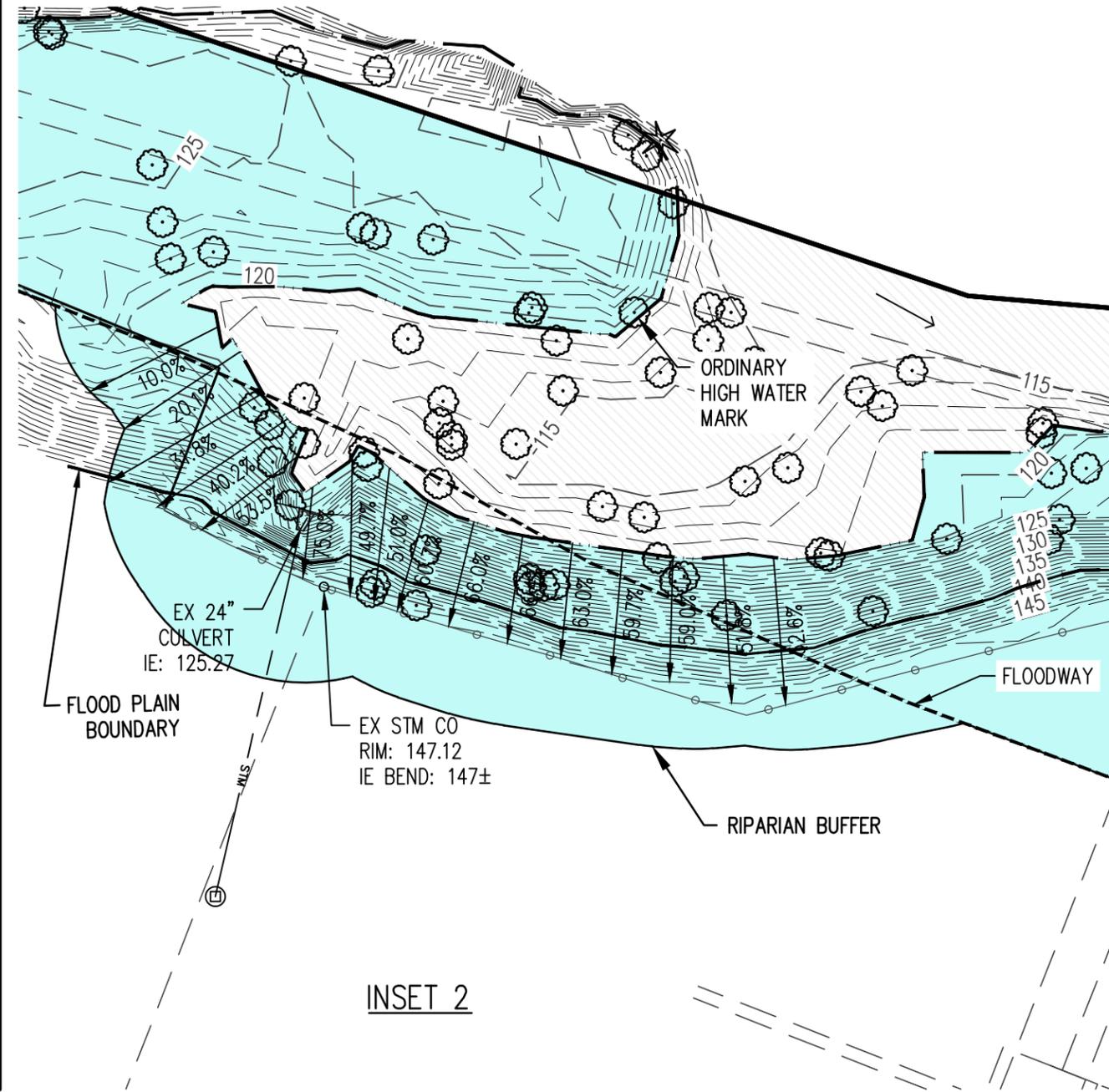
NOTE:  
WATER BOUNDARIES SHOWN ARE APPROXIMATE, BASED ON THE MAPPED ORDINARY LOW AND ORDINARY HIGH WATER MARKS, AS FOUND ON THE "WILLAMETTE RIVER PUBLIC LANDS UNDER THE JURISDICTION OF OREGON STATE LAND BOARD" DATED MARCH 1975. THE ORDINARY LOW WATER MARK IS NOT SHOWN BECAUSE IT LIES BEYOND THE EXTENT OF THE TOPOGRAPHIC SURVEY ON-SITE. THE SITE WAS PROFESSIONALLY LAND SURVEYED BY AKS FROM NOVEMBER 16 TO DECEMBER 12, 2017.

1-FOOT INTERVAL GROUND CONTOURS DERIVED FROM LAND SURVEY.

**INSET 1**



SCALE: 1" = 60 FEET



**INSET 2**

DATE: 02/05/2018

<b>WILLAMETTE RIVER RIPARIAN BUFFER MAP</b>		EXHIBIT
<b>PROJECT OSPREY</b>		<b>B</b>
AKS ENGINEERING & FORESTRY, LLC 4300 CHERRY AVE NE KEIZER, OR 97303 P: 503.400.6028 F: 503.400.7722 aks-eng.com		DRWN: JRI CHKD: SAR AKS JOB: 5968
		

## **Attachment Q: Arborist Letter**

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May 30, 2024

Trent Michels  
The Future of Neighborhood Development, LLC  
15017 Thomas Road  
Charlotte, NC 28278



**RE: The Cannery (1105 Front Street NE, Salem, Oregon) – Tree Impact Letter (AKS Job #5968-01)**

Dear Mr. Michels,

The purpose of this letter is to address City comments as they relate to several trees on The Cannery Project site. In the Land Use Application Completeness Review dated April 20<sup>th</sup>, 2024, The City commented on five subject trees that were proposed for removal. A site visit was conducted on May 2<sup>nd</sup>, 2024, to evaluate the trees and review potential construction impacts. The following summarizes impacts to the subject trees and proposes removal or preservation based on the proposed impacts.

Tree #10144 is a 27" Diameter at Breast Height (DBH) Black Cottonwood (*Populus trichocarpa*) that is generally in good condition. As shown on the attached Preliminary Tree Preservation and Removal Plan, the excavation line for the proposed sidewalk is 14'± from the face of the tree, which will result in the loss of 15%± of the tree's assumed root zone (1-ft of radius per 1-inch of DBH). Additionally, less than 6"± of fill is proposed beyond the edge of the sidewalk within 9'± of the tree.

Trees can be an inexact science, but there are some guidelines which can be used to evaluate the amount of disturbance to a tree's root system that can occur without seriously affecting tree health. These guidelines take into account various factors including species tolerance, tree age (in its life cycle), the overall health of the individual tree, type of disturbance and the total area of disturbance. The guidelines were taken from the book "Trees and Development-A Technical Guide to Preservation of Trees During Land Development" 1998, by Nelda Matheny and James R. Clark. The book states that "a healthy tree tolerates removal of approximately one-third of its roots".

Black Cottonwood is a species with poor relative tolerance to construction related impacts. However, given that 85%± of the tree's assumed root zone will be preserved and that the minimal depth of fill soil will likely not impact the tree's root system, proposed improvements will likely not result in significant negative impacts to the health or structural stability of the tree. Therefore, the tree is proposed for preservation.

Tree #10151 is a 26" DBH Black Cottonwood (*Populus trichocarpa*) that is generally in good condition. As shown on the attached Preliminary Tree Preservation and Removal Plan, the excavation line for the proposed sidewalk is 19'± from the face of the tree, which will result in the loss of 10%± of the tree's assumed root zone. Additionally, less than 6"± of fill is proposed beyond the edge of the sidewalk within 11'± of the tree. Black Cottonwood is a species with poor relative tolerance to construction related impacts. However, given that 90%± of the tree's assumed root zone will be preserved and that the minimal depth of fill soil will likely not impact the tree's root system, proposed improvements will likely not result in significant negative impacts to the health or structural stability of the tree. Therefore, the tree is proposed for preservation.

Tree #10193 is a 22" DBH Bigleaf Maple (*Acer Macrophyllum*) that is generally in good condition. As shown on the attached Preliminary Tree Preservation and Removal Plan, the tree is 2'± from fill grading associated with the proposed sidewalk. The proposed depth of fill is 6"-1'± and would result in the coverage of 50%± of the tree's assumed root zone. Bigleaf Maple is a species with poor relative tolerance to construction related impacts and is intolerant of fill soils. Given the percentage of the tree's root zone that will be impacted by fill and the species intolerance to fill soils, the proposed construction may result in significant negative impacts to the tree's health and structural stability. Therefore, the tree is proposed for removal.

Tree #10383 is a 17,18" DBH Bigleaf Maple (*Acer Macrophyllum*) that is generally in fair condition. Due to access constraints, the tree was evaluated from behind a chain link fence. The 17" stem has been topped for adjacent overhead wires and about half of the trunk is covered in ivy. As shown on the attached Preliminary Tree Preservation and Removal Plan the excavation line for the proposed sidewalk is 11'± from the face of the tree and will result in the removal of 10%± of the tree's assumed root zone. Bigleaf Maple is a species with poor relative tolerance to construction related impacts and is intolerant of fill soils. However, given the distance from sidewalk excavation and preservation of 90%± of the tree's assumed root zone, proposed improvements will likely not result in significant negative impacts to the health or structural stability of the tree. Therefore, the tree proposed for preservation.

Tree #10384 is a 15" DBH Bigleaf Maple (*Acer Macrophyllum*) that is generally in fair condition. Due to access constraints, the tree was evaluated from behind a chain link fence. The tree appears to lack vigor and the entire trunk is covered in ivy. As shown on the attached Preliminary Tree Preservation and Removal Plan the excavation line for the proposed sidewalk is 15'± from the face of the tree and none of the tree's assumed root zone will be impacted. Therefore, the tree is proposed for preservation.

Sincerely,

**AKS ENGINEERING & FORESTRY, LLC**



Bennett R. Kocsis  
Certified Arborist, Qualified Tree Risk Assessor  
3700 River Road N, Suite 1  
(503) 563-6151 | kocsisb@aks-eng.com



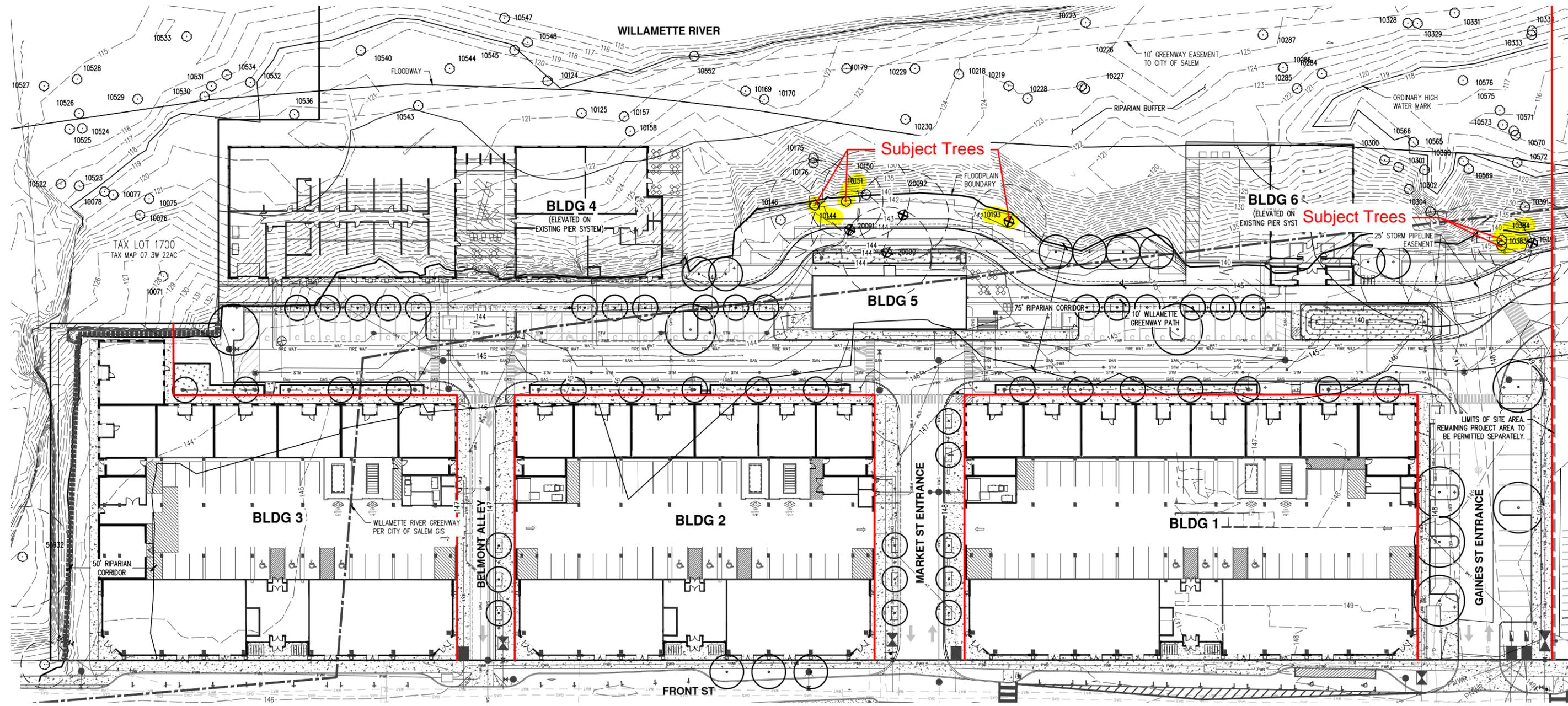
**BENNETT R. KOCSIS**  
CERTIFICATE NUMBER: PN 8877A  
EXPIRATION DATE: 12/31/2025

PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN  
**THE CANNERY**  
 FUND  
 SALEM, OREGON



RENEWS: DECEMBER 31, 2024  
 JOB NUMBER: 5968-01  
 DATE: 05/28/2024  
 DESIGNED BY: TDR  
 DRAWN BY: M.J.M.  
 CHECKED BY: TDR

AKS DRAWING FILE: 5968-01 PRELIM TREE PLANNING LAYOUT: P6



**TREE SUMMARY:**

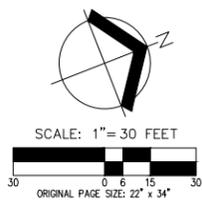
TREES REMOVED FOR GREENWAY PATH = 5

**GENERAL NOTES:**

1. CRITICAL ROOT ZONES SHOWN ARE FOR ANTICIPATED TREE IMPACTS ONLY.
2. TREES BELOW TOP OF BANK ARE NOT ANTICIPATED TO BE IMPACTED.
3. REFER TO ARBORIST LETTER FOR TREE SPECIES AND MORE INFORMATION REGARDING TREE REMOVAL.
4. NO SIGNIFICANT TREES PER CITY OF SALEM REQUIREMENTS ARE PROPOSED TO BE REMOVED.

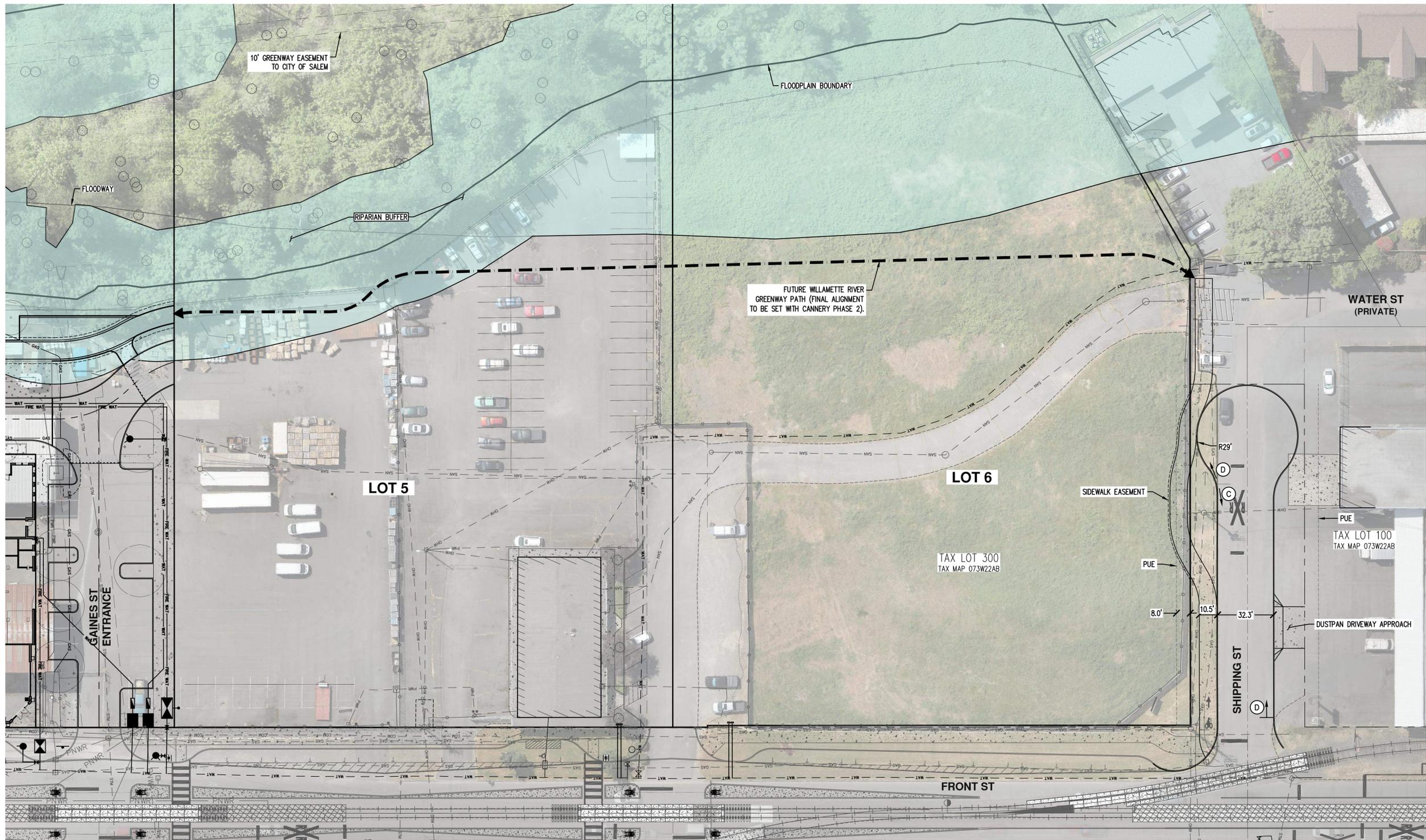
**LEGEND**

EXISTING GROUND CONTOUR (1 FT)	---	149
EXISTING GROUND CONTOUR (5 FT)	---	150
FINISHED GRADE CONTOUR (1 FT)	---	149
FINISHED GRADE CONTOUR (5 FT)	---	150
INTERIOR PROPERTY LINE	---	
EXISTING TREE TO REMAIN	⊙	
EXISTING TREE TO BE REMOVED	⊗	
CRITICAL TREE ROOT ZONE 1" DBH = 1'-0" RADIUS	○	
PLANNED TREE (REFER TO LANDSCAPE PLANS BY OTHERS)	○	



# Attachment R: Shipping Street Improvements

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**CURB KEYED NOTES** <sup>1</sup>

- (C) TYPE 'C' CURB
- (D) TYPE 'D' MOUNTABLE CURB



SCALE: 1" = 30 FEET



DATE: 05/30/2024 AKS JOB: 5968-01

AKS ENGINEERING & FORESTRY, LLC  
 3700 RIVER RD N, STE 1  
 KEIZER, OR 97303  
 503.400.6026  
 WWW.AKS-ENG.COM



ENGINEERING · SURVEYING · NATURAL RESOURCES  
 FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

# CONCEPTUAL SHIPPING STREET IMPROVEMENTS THE CANNERY

SALEM, OREGON

## **Attachment S: LOMR-FW Approval**

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# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION FLOODWAY DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF SALEM, MARION COUNTY, OREGON	Lots 1 and 2, Willamette Landing; Lots 1 through 8, Block 24, Lots 1 through 8, Block 25, North Salem; Lots 1 through 8, Block 1, Mill Addition; as shown on the Plats recorded in Book 35, Page 27, in Book 1, Page 34, and in Book 1, Page 90, all in the Office of the County Clerk, Marion County, Oregon  The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 410167	
AFFECTED MAP PANEL	NUMBER: 41047C0333H	
	DATE: 1/2/2003	
FLOODING SOURCE: WILLAMETTE RIVER		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 44.953284, -123.036610 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

### DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	0, 1375, 1105 Front Street NE	Portion of Property	X (shaded)	--	--	141.1 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION STATE LOCAL CONSIDERATIONS  
INADVERTENT INCLUSION FLOODWAY 1  
PORTIONS REMAIN IN THE SFHA

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Revision for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the NFIP regulatory floodway or the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document revises the effective NFIP map to remove the subject property from the NFIP regulatory floodway and the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION FLOODWAY DETERMINATION DOCUMENT (REMOVAL)

### ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

#### LEGAL PROPERTY DESCRIPTION (CONTINUED)

Beginning at the Northeasterly corner of Lot 2 of the plat of "Willamette Landing", also being on the westerly extension of the northerly line of Lot 1 of said plat; thence along said westerly extension and continuing along said northerly line, South 68°39'53" East 268.50 feet, to the northeasterly corner thereof; thence along the easterly line thereof, South 21°22'07" West 278.73 feet; thence South 68°37'53" East 1.00 feet, to the northwesterly right-of-way line of Front Street NE (49.50 feet from the centerline); thence along said northwesterly line, (continuing along said northwesterly right-of-way line as the right-of-way width decreases to 30.00 feet from the centerline) South 21°22'07" West 1193.01 feet; thence leaving said northwesterly right-of-way line, North 45°59'45" West 6.11 feet; thence North 79°28'11" West 6.51 feet; thence North 64°49'00" West 26.55 feet; thence North 67°33'52" West 40.32 feet; thence North 73°53'11" West 18.75 feet; thence North 64°07'32" West 8.91 feet; thence North 57°56'56" West 12.32 feet; thence North 67°44'32" West 14.46 feet; thence North 68°32'32" West 5.14 feet; thence North 68°10'22" West 8.37 feet; thence North 51°21'39" West 6.05 feet; thence North 34°24'49" West 3.42 feet; thence North 69°00'29" West 5.28 feet; thence North 68°25'00" West 11.20 feet; thence North 71°07'13" West 11.56 feet; thence North 46°55'38" West 3.01 feet; thence North 56°38'29" West 1.72 feet; thence North 60°05'27" West 2.69 feet; thence North 13°44'52" West 3.50 feet; thence North 21°56'20" East 57.91 feet; thence North 14°36'22" East 6.40 feet; thence North 22°11'31" East 11.52 feet; thence North 52°45'48" East 1.04 feet; thence North 05°46'33" East 3.13 feet; thence North 64°32'11" West 17.88 feet; thence North 21°54'41" East 2.11 feet; thence South 68°57'53" East 51.80 feet; thence North 21°00'57" East 62.34 feet; thence North 69°24'18" West 49.95 feet; thence North 20°35'42" East 33.30 feet; thence North 21°17'23" East 35.62 feet; thence North 69°24'49" West 16.06 feet; thence North 21°23'26" East 142.39 feet; thence North 68°33'31" West 9.56 feet; thence North 20°50'40" East 30.64 feet; thence North 69°59'46" West 19.73 feet; thence North 22°00'31" West 12.78 feet; thence North 27°38'32" West 5.03 feet; thence North 13°19'21" East 29.35 feet; thence North 10°49'12" East 11.98 feet; thence North 14°51'39" East 2.90 feet; thence North 17°13'05" East 20.89 feet; thence North 15°20'01" East 1.55 feet; thence North 19°00'22" East 29.53 feet; thence North 24°59'49" East 27.58 feet; thence North 30°18'09" East 5.98 feet; thence North 56°22'26" East 9.07 feet; thence North 34°31'42" East 15.41 feet; thence North 63°44'34" East 24.91 feet; thence North 35°52'49" East 24.19 feet; thence North 05°03'52" West 19.47 feet; thence North 11°27'15" East 3.31 feet; thence North 08°08'38" East 18.81 feet; thence North 53°01'23" East 3.58 feet; thence North 61°18'50" East 17.57 feet; thence North 80°08'29" East 2.52 feet; thence North 71°13'49" East 6.66 feet; South 68°35'42" East 11.81 feet; thence North 21°25'06" East 10.09 feet; thence South 68°34'54" East 4.98 feet; thence North 21°45'58" East 7.90 feet; thence North 67°50'29" West 6.06 feet; thence North 21°26'08" East 48.02 feet; thence South 69°08'44" East 14.00 feet; thence North 21°29'59" East 13.25 feet; thence North 68°46'11" West 8.01 feet; thence North 20°57'30" East 5.25 feet; thence North 68°36'13" West 5.11 feet; thence North 21°23'47" East 17.13 feet; thence North 68°26'47" West 25.22 feet; thence North 21°31'51" West 3.35 feet; thence North 09°27'57" East 5.88 feet; thence North 21°50'03" East 2.52 feet; thence North 40°51'49" East 2.35 feet; thence North 80°45'47" East 1.23 feet; thence North 26°43'02" East 46.91 feet; thence North 15°36'24" East 0.82 feet; thence North 06°19'00" West 10.85 feet; thence North 17°44'15" West 0.87 feet; thence North 26°58'45" West 2.53 feet; thence North 19°18'30" East 16.40 feet; thence North 30°34'42" East 9.25 feet; thence North 15°18'09" East 38.26 feet; thence North 19°03'55" East 25.93 feet; thence North 07°10'36" East 11.80 feet; thence North 11°01'57" East 28.33 feet; thence North 06°18'05" East 33.13 feet; thence North 05°22'57" West 27.12 feet; thence North 18°54'31" West 20.37 feet; thence North 14°26'53" West 21.42 feet; thence North 11°25'08" West 10.67 feet; thence North 15°30'05" West 22.62 feet; thence North 22°44'17" West 9.13 feet; thence North 15°43'20" West 27.20 feet; thence North 00°28'03" West 25.39 feet; thence North 03°38'22" West 17.56 feet; thence North 19°02'28" East 24.07 feet; thence North 10°42'53" East 20.68 feet; thence North 09°50'25" East 18.73 feet; thence North 14°34'04" East 14.68 feet; thence North 13°44'24" East 16.28 feet; thence North 07°16'13" East 19.42 feet; thence North 06°10'42" East 12.08 feet; thence North 10°42'11" East 16.67 feet; thence North 16°48'49" East

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION FLOODWAY DETERMINATION DOCUMENT (REMOVAL)

### ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

20.68 feet; thence North 09°42'22" East 16.12 feet; thence North 09°58'16" West 9.36 feet; thence North 24°02'01" East 7.55 feet; thence North 12°28'05" East 21.55 feet; thence North 24°28'48" East 14.47 feet; thence North 31°39'21" East 11.25 to the northerly line of said Lot 2; thence along said northerly line, North 81°22'07" East 156.85 feet to the Point of Beginning

#### **INADVERTENT INCLUSION IN THE FLOODWAY 1 (PORTIONS OF THE PROPERTY REMAIN IN THE FLOODWAY) (This Additional Consideration applies to the preceding 1 Property.)**

A portion of this property is located within the National Flood Insurance Program (NFIP) regulatory floodway for the flooding source indicated on the Determination Document, while the subject of this determination is not. The NFIP regulatory floodway is the area that must remain unobstructed in order to prevent unacceptable increases in base flood elevations. Therefore, no construction may take place in an NFIP regulatory floodway that may cause an increase in the base flood elevation, and any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. The NFIP regulatory floodway is provided to the community as a tool to regulate floodplain development. Therefore, the NFIP regulatory floodway modification described in the Determination Document, while acceptable to the Federal Emergency Management Agency (FEMA), must also be acceptable to the community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations. Any proposed revision to the NFIP regulatory floodway must be submitted to FEMA by community officials. The community should contact either the Regional Director (for those communities in Regions I-IV, and VI-X), or the Regional Engineer (for those communities in Region V) for guidance on the data which must be submitted for a revision to the NFIP regulatory floodway. Contact information for each regional office can be obtained by calling the FEMA Mapping and Insurance eXchange toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at <http://www.fema.gov/about/regoff.htm>.

#### **PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)**

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

#### **STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMR-FW DETERMINATION DOCUMENT (REMOVAL))**

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration