CITY OF West Linn

22500 Salamo Road
West Linn, OR 97068

STAFF REPORT
FOR THE PLANNING COMMISSION

FILE NUMBER:	DR-12-08/VAR-12-01
HEARING DATE:	June 6, 2012
REQUEST:	Class II Design Review approval for construction of a 4,335 square foot Chase Bank Branch with parking and remote three-lane drive through at the rear of the building and a Class II Variance from the transparency (window) requirements on the front and side elevations.
APPROVAL CRITERIA:	Community Development Code (CDC) Chapter 55, Design Review; Chapter 19, General Commercial; and Chapter 75, Variances.
STAFF REPORT PREPARED BY:	Peter Spir, Associate Planner

Planning Director's Initials

EXECUTIVE SUMMARY

JP Morgan Chase Bank is applying to build a 4,335 square foot bank at 19080 Willamette Drive. The 38,014 square foot site was formerly occupied by Kasch's Nursery. The site is flat for the first 200 feet, drops down 10 feet, and then is flat to the rear lot line. There are no significant trees or natural features on the property.

The proposed bank structure would be single story with a parapet height of 19 feet in height that would effectively hides the heating, ventilation and air conditioning (HVAC) equipment. The peak of the building is proposed to be 26 feet high. A proposed 20-foot wide sidewalk/plaza area with planters with seating ledge and the awnings along the building face would provide a quality pedestrian environment (see Exhibit PC 3, Sheet A 0.1). A 14-stall parking lot and driveway are proposed to be located at the rear of the bank. Beyond that, the applicant proposes three drive through lanes for two vacuum assisted tellers (VAT) and one Automated Teller Machine (ATM).

To minimize occurrences of customers leaving the bank property, driving 200 feet along Willamette Drive, then turning into the shopping center immediately to the north of the bank

property, the owner of that property has built a stub out driveway to allow easy vehicular connection between the two parcels. This is expected reduce vehicle loads on Willamette Drive and would also reduce potential turn conflicts on that street. The applicant's plans show this driveway connection. A mutual access easement will be needed to allow use of the driveways as provided for is Proposed Condition of Approval 5.

The proposal is generally compliant with applicable regulations. However the proposed building design has insufficient windows per the design review standards. Therefore, the applicant requests a variance. In researching this issue, staff found an example of a very similar Chase Bank in Hillsdale that has more windows than the proposed West Linn version (see Finding 9). Therefore, staff recommends Condition of Approval 3 which would require more windows.

There is also an issue regarding the building setback from the street. CDC Subsection 55.100(B)(7)(c) calls for commercial buildings to be built as close to the adjacent right-of-way as practical. However, a decades old covenant associated with the original plat prohibits development from being within 60 feet of the centerline of the Willamette Drive right-of-way. That translates into a setback from the property line of about 20 feet. Although other development on adjacent and nearby parcels have ignored the covenant and built with no front setbacks (see Finding 6), Chase insists on deferring to the covenant. Presumably, they do not find violation of the covenant to be practical. This is arguable. While the City is not bound by the covenant and could condition the project to reduce the front yard setback to as little as zero, the proposed design solution of developing the setback area as a 20-foot wide sidewalk/plaza area seems like a reasonable compromise.

Staff has reviewed the applicant's proposal relative to all other applicable CDC requirements and finds that there are sufficient grounds for approval, subject to the conditions listed on page 10.

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GENERAL INFORMATION

APPLICANT: JP Morgan Chase Bank

REPRESENTATIVE: Hans Christiansen
Callison Architects
1420 Fifth Avenue, Suite 2400
Seattle, WA 98101

SITE LOCATION: 19080 Willamette Drive (former Kasch's Nursery site)

LEGAL DESCRIPTION: Clackamas County Assessor's Tax Lot 703 and 705 of Clackamas County Assessor's Map 2-1E-23AA

SITE SIZE: 38,014 sq. ft.

ZONING: General Commercial (GC)

COMP PLAN DESIGNATION: Commercial

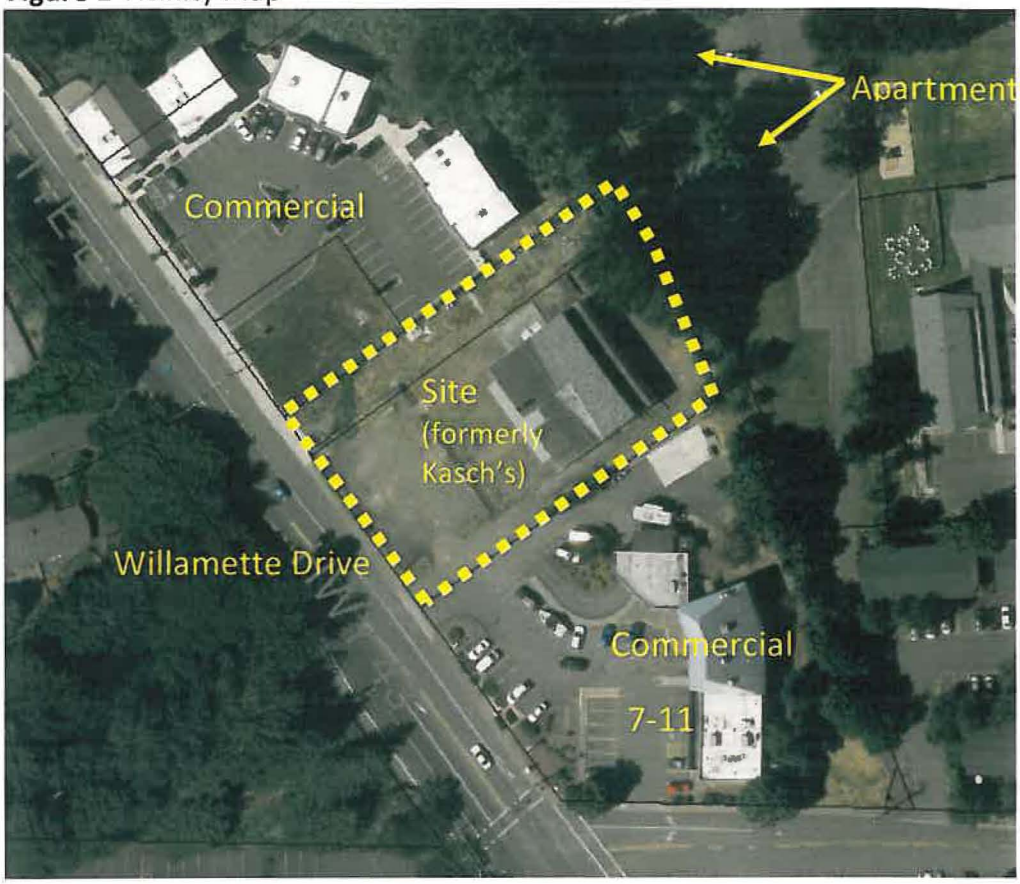
120-DAY PERIOD: This application was deemed complete on April 19, 2012. The 120-day maximum application-processing period ends August 18, 2012.

PUBLIC NOTICE: Public notice was mailed to all neighborhood associations and to property owners within 500 feet of the site perimeter on May 3, 2012. The property was posted with a sign on May 11, 2012. In addition, the application has been posted on the City's website and was published in the West Linn Tidings on May 17, 2012. The notice requirements have been satisfied.

BACKGROUND

The applicant's site, at 19080 Willamette Drive, was occupied by a plant nursery for many years; most recently, Kasch's.

Figure 1 Vicinity Map

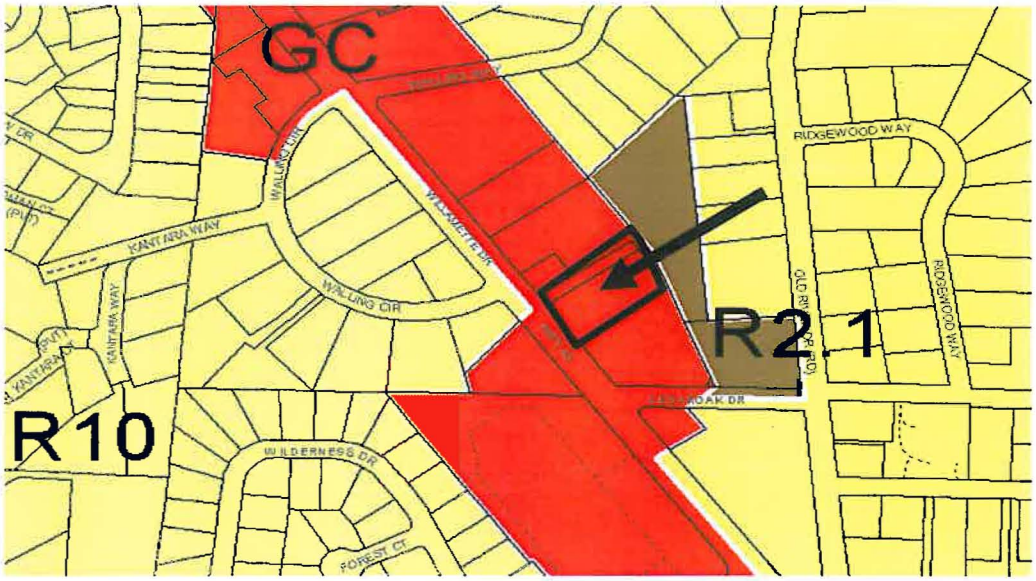


Surrounding Land Use and Zoning: The site has apartments to the rear, commercial to the north and south. The zoning is General Commercial.

Table 1 Surrounding Land Use and Zoning

DIRECTION FROM SITE	LAND USE	ZONING
North	Commercial center with vacant commercial pad immediately adjacent to proposed bank site.	GC
East	Apartments/multi-family residential	R-2.1
South	Commercial center	GC
West	(across Willamette Drive) City owned open space with stream	GC

Figure 2: Zoning Map

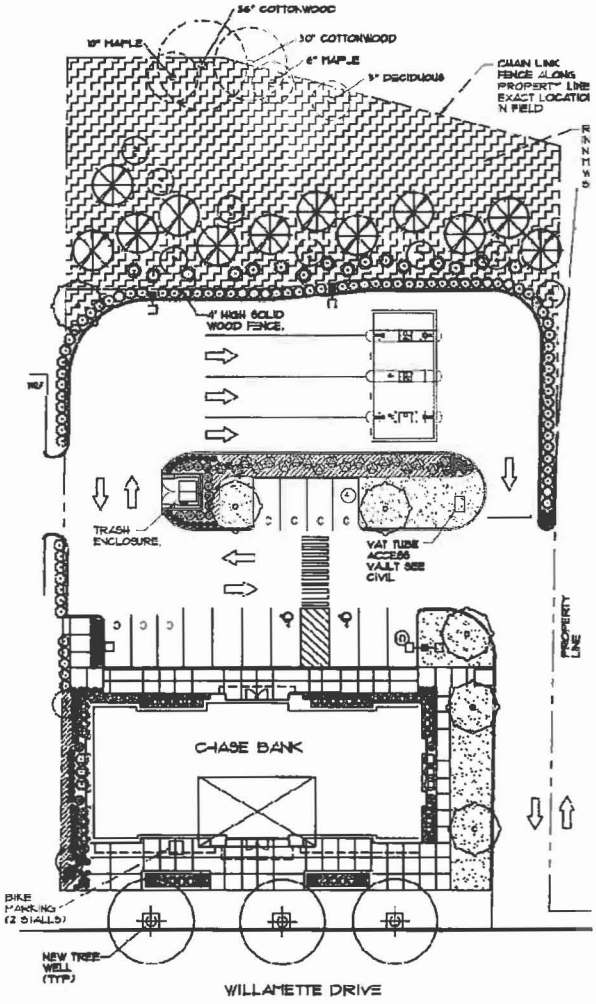


Site Conditions: The site is 150 feet wide and averages 250 feet deep. It is flat for the first 200 feet adjacent to Willamette Drive followed by a cut bank that drops ten feet to another flat area that extends to the north property line. Along the rear property line is a row of non-significant trees, mostly cottonwoods. Many of these trees are located on an adjoining 20-foot wide property to the north. There are no other trees or significant natural features (streams, etc.) elsewhere on the property. The site is currently occupied by a parking area fronting on Willamette Drive and structure that formerly housed the nursery.

Trees at the rear of the site

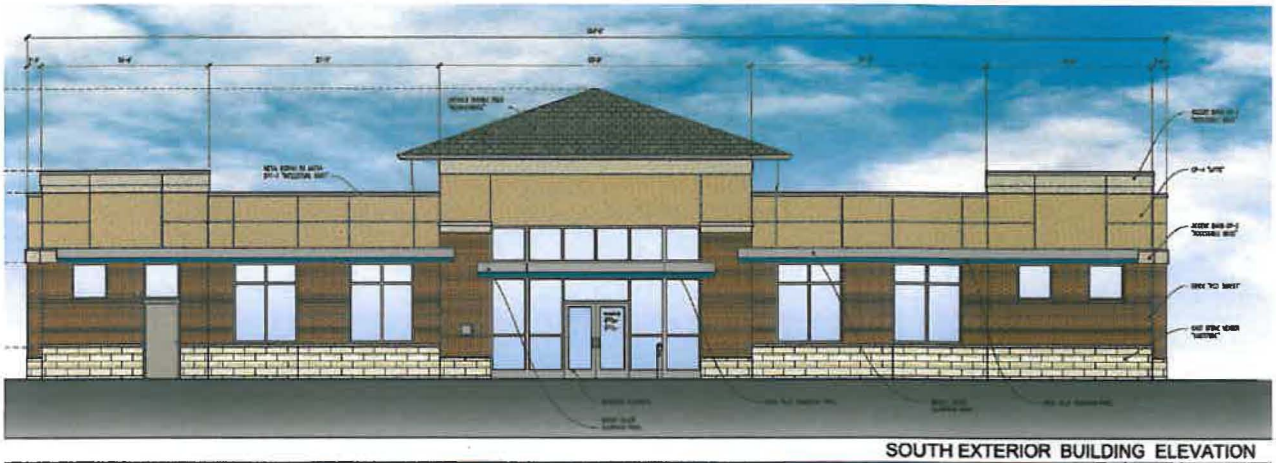
Project Description: Chase proposes a 4,335 square foot bank towards the front of the property. A 20-foot wide sidewalk/plaza area with planters with seating ledge and the awnings along the building face provide a quality pedestrian environment (see Exhibit PC 3, Sheet A0.1). A 14-stall parking lot and driveway are proposed to be located at the rear of the bank. Beyond that, the applicant proposes three drive through lanes for two vacuum assisted tellers (VAT) and one Automated Teller Machine (ATM).

The northeast edge of the drive through area is delineated by a four foot high solid wood fence which serves the dual purpose of blocking vehicle headlight glare and engine noise from the apartments on the adjoining property. The existing steep grade change is proposed to be softened beyond the fence to the northeast property line with a 3:1 graded and landscaped slope that spans 50 to 70 feet (see Exhibit PC 3, Landscape Plan, Sheet L-1). This landscaping, which includes a wooden fence and several evergreen trees (red cedar), coupled with the existing trees along the real property line, is expected to provide screening of the apartments to the northeast. Access to the site is proposed to be via a shared driveway that is currently used by the commercial tenants to the south.



Proposed site/landscaping plan

The proposed bank structure, as depicted below, would be single story with a parapet height of 19 feet in height that would effectively hides the heating, ventilation and air conditioning (HVAC) equipment. The peak of the building is proposed to be 26 feet high. The design offers similar front and rear elevations to accommodate access from both the Willamette Drive side and the parking lot in the rear. The bank is proposed to be predominantly constructed of brick veneer with a stone veneered base. As proposed, the upper third will be clad with a beige drivet/stucco. Four to six foot wide flat awnings would extend along most of the front elevation.



SOUTH EXTERIOR BUILDING ELEVATION

To accommodate the front and rear access, most of the activity areas that would typically be at the rear of the building have been relocated to the two sides (see Exhibit PC-3, Floor Plan, Sheet A 1.1). This design solution has turned the two side elevations into blank walls with no windows at the pedestrian level. Meanwhile, the amount of pedestrian level windows on the front elevation falls short of the required 60%. Thus, the design is at odds with front and side transparency (windows) requirements. (See findings 4 and 9.)

APPROVAL CRITERIA AND ANALYSIS

The required permits include a Class II Design Review for development of the commercial site and a Class II Variance for reduced transparency requirements (windows) on the front and side elevations as required by CDC 55.100(B) (6) (f). The Design Review criteria are found in Chapter 55. Allowed uses and site dimensional standards are found in CDC Chapter 19, General Commercial (GC). Class II Variance criteria are found in Chapter 75 of the CDC. Approval or disapproval of the request by the Planning Commission will be based upon these criteria.

The site lies within the context of developed and undeveloped commercial sites to the north and south. The main trip generating tenant to the south is a 7-11 convenience store. The proposed development links the commercial properties together with a connecting driveway that should allow traffic to move from one property to another without first having to access Willamette Drive and then use another driveway with the attendant conflicts (see Finding 12).

The proposed project provides for screening from residences to the north and noise attenuation that meet applicable standards (see Finding 7).

The proposed use is consistent with the General Commercial zoning and the Comprehensive Plan designation of Commercial (see findings 10 and 11).

However, there are two significant issues with this application: how far the building is set back from the Willamette Drive right-of-way and the amount of transparency (windows) on the front and side elevations of the building.

1. CDC Subsection 19.070A (7) requires no minimum front yard setback and a 20-foot maximum setback. The Design Review Subsection 55.100(B) (7) (c) requires that "Commercial, office, and multi-family projects shall be built as close to the adjacent main right-of-way as practical to facilitate safe pedestrian and transit access".

In addition to the stated purposes of above , locating buildings close to the street can provide amenities for pedestrian passersby in the form of awnings which provide shelter from rain and sun, an activity area in front of the building that creates opportunities for interaction between people, pedestrian level windows offer visual interest for passing pedestrians and motorists and, as buildings "crowd" the street, the narrower field of vision along Willamette Drive encourages slower vehicle speeds.

Working against compliance with Subsection 55.100(B) (7) (c) is a decades old covenant associated with the original plat of the area that prohibits development from being within 60 feet of the centerline of the Willamette Drive right-of-way. That translates into a setback from the property line of about 20 feet instead of the desired zero setback. Although other development on adjacent and nearby parcels have ignored the covenant and built with no front setbacks (see Finding 6), Chase insists on deferring to the covenant. Presumably, they do not find violation of the covenant to be practical. This is arguable. While the City is not bound by the covenant and could condition the project to reduce the front yard setback to as little as zero, the proposed design solution of developing the setback area as a 20-foot wide sidewalk/plaza area with planters including a seating ledge (see Exhibit PC 3, Sheet A0.1) seems like a reasonable compromise.

2. In order to accommodate parking behind the bank, the design places all of the typical "rear of building" functions such as the safe, bathrooms, utility rooms, break rooms, etc to the sides of the building which means that the amount of pedestrian level windows on the sides shrinks to zero instead of the required 30 percent windows on each of the side elevations. The front elevation also falls short of meeting the transparency requirement as windows comprise just 43 feet of a 102 foot long elevation. That translates into 42.1 percent of the elevation; not the required 60 percent. To address these transparency shortcomings, a Class II Variance is needed.

In researching this issue staff found an example of a very similar Chase bank in Hillsdale that had more windows (see Finding 9). Therefore, staff recommends Condition of Approval 3 which would require more windows.

Staff has reviewed the applicant's proposal relative to all other applicable CDC requirements and finds that there are sufficient grounds for approval, subject to the conditions listed below. Please see the following Supplementary Findings for details.

Public comments:

No public comments have been received to date.

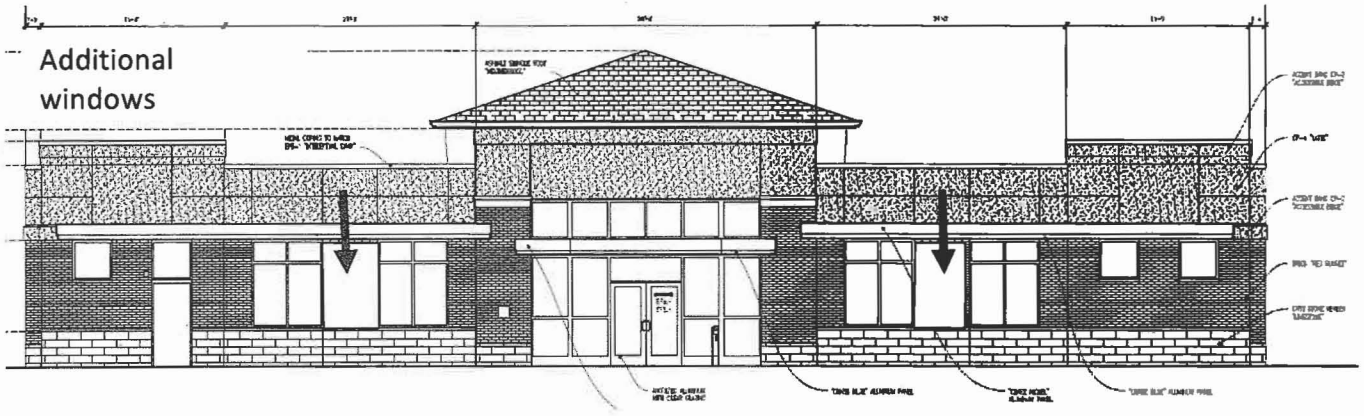
RECOMMENDATION

Staff recommends approval of application DR-12-08/VAR-12-01 subject to the following conditions:

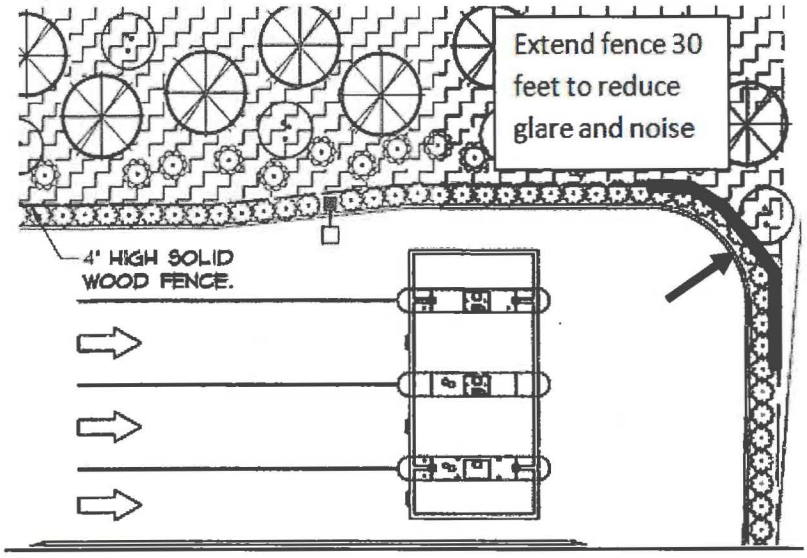
1. Approved plans. The approved site plan is the Landscape Plan, Sheet L-1, dated 4/23/2012. The approved elevation is Exterior Elevations Sheets A4.1 and A4.2 dated 4/11/2012 with window modifications per Condition of Approval 3 and no individualized awnings over clerestory windows.

2. Exterior building lighting. Colored illumination or colored lighting (e.g., blue) of the building exterior is prohibited.

3. Windows. At least nine lineal feet of additional windows shall be added at the pedestrian level to the front elevation. The window placement shall be consistent with, or similar to, the elevation below. New windows shall match proposed multi-light windows.



4. Fences. The southerly end of the four-foot high wood fence to the east of the drive through ATM lanes, depicted on Exhibit PC-3, Sheet L1 shall be extended 30 feet to reduce glare, generally as depicted below:



5. Mutual Access Easement. In order to allow Chase Bank customers to use the driveway through tax lot 700 to access Willamette Drive, the applicant shall construct a driveway to City standards to connect with the driveway and parking lot to the north on tax lot 700 assessor's map 21E 23AA. The applicant shall record a mutual access easement that allows traffic from tax lot 700 to traverse that applicant's driveways and access to Willamette Drive with the understanding that the owner of tax lot 700 will record a similar mutual access easement for the benefit of the applicant and motorists accessing the applicant's property. The mutual access easement(s) shall be submitted to the City Attorney for review and approval prior to being recorded. It is recognized that this condition is contingent on the actions of a second party over whom the applicant has no control. In the event that, after demonstration of a good faith effort to establish mutual access easements from the owner of tax lot 700, no mutual access easement is recorded, this condition shall be voided. Any delays in the recording of the mutual access easement by the owner of tax lot 700 will not constitute grounds for delay of final occupancy approval for Chase Bank.

ADDENDUM
SUPPLEMENTARY STAFF FINDINGS

55.100(B) (6) (a).

The predominant architecture of West Linn identified in the West Linn vision process was contemporary vernacular residential designs emphasizing natural materials: wood with brick and stone detail. Colors are subdued earth tones: grays, brown, off-whites, slate, and greens. Pitched roofs with overhanging eaves, decks, and details like generous multi-light windows with oversized trim are common. Also in evidence are the 1890s Queen Anne style homes of the Willamette neighborhood. Neo-traditional homes of the newer subdivisions feature large front porches with detailed porch supports, dormers, bracketed overhanging eaves, and rear parking for cars. Many of these design elements have already been incorporated in commercial and office architecture.

FINDING 1:

The applicant has proposed night time illumination of the exterior of the building with blue lighting. Blue is apparently Chase Bank's corporate color and part of their branding or identity strategy. Staff finds that whereas the building uses earth tones per this code section for the building, the use of blue light effectively changes the building color at night time to deep blue. For that reason, staff recommends Condition of Approval 2 which would prohibit blue or other colored exterior lighting.

55.100(B) (6) (b).

The proposed structure(s) scale shall be compatible with the existing structure(s) on site and on adjoining sites. Contextual design is required. Contextual design means respecting and incorporating prominent architectural styles, building lines, roof forms, rhythm of windows, building scale and massing, materials and colors of surrounding buildings in the proposed structure.

FINDING 2:

The pre-application conference staff emphasized staff's desire that the extended awnings found on the commercial properties to the north of the site be replicated, not only for the purpose of contextual design but also because they provide the very real benefit of shade from the sun and shelter from the rain. Staff finds that the applicant's design satisfies that requirement with 4-6 foot deep awnings running along most of the front elevation. The flat roof with parapets as well as the brick facing on the building also reflects nearby commercial designs, material choices and color schemes.

55.100(B) (6) (e)

Human scale is a term that seeks to accommodate the users of the building and the notion that buildings should be designed around the human scale (i.e., their size and the average range of their perception). Human scale shall be accommodated in all designs by, for example, multi-light windows that are broken up into numerous panes, intimately scaled entryways, and visual breaks (exaggerated eaves, indentations, ledges, parapets, awnings, engaged columns, etc.) in the facades of buildings, both vertically and horizontally. The human scale is enhanced by bringing the building and its main entrance up to the edge of the sidewalk. It creates a more dramatic and interesting streetscape and improves the "height and width" ratio referenced in this section.

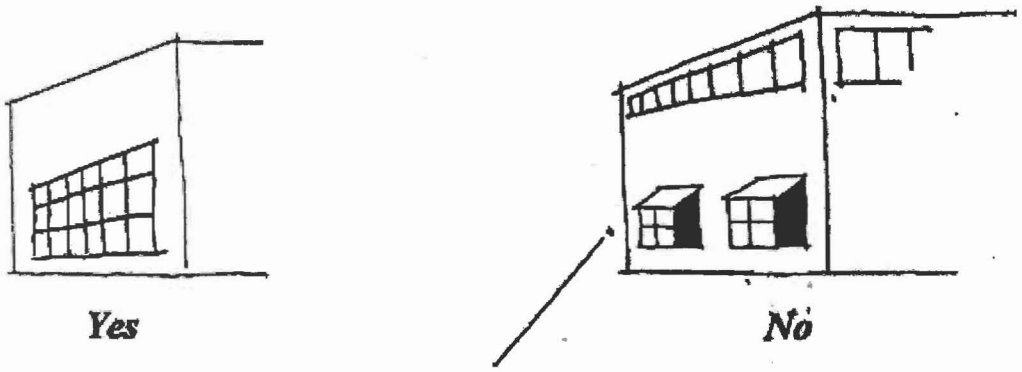
FINDING 3:

Staff finds that the awnings running across the front elevation at 9.5 feet, the use of three different building materials (cladding) and two different colors contribute to the human scale by vertically breaking up the elevations. The building's total height is relatively low at 17 feet (to the main parapet) meaning that human scale is respected. The front elevation's horizontal plane is broken up by modulations (e.g. popouts, indents) and details (multi-paned windows). Additional windows would help as recommended. Therefore, the intent of the provision above is met.

55.100(B) (6) (f)

The main front elevation of commercial and office buildings shall provide at least 60 percent windows or transparency at the pedestrian level to create more interesting streetscape and window shopping opportunities. One side elevation shall provide at least 30 percent transparency. Any additional side or rear elevation, which is visible from a collector road or greater classification, shall also have at least 30 percent transparency. Transparency on other elevations is optional. The transparency is measured in lineal fashion. For example, a 100-foot-long building elevation shall have at least 60 feet (60 percent of 100 feet) in length of windows. The window height shall be, at minimum, three feet tall. The exception to transparency would be cases where demonstrated functional constraints or topography restrict that elevation from being used. When this exemption is applied to the main front elevation, the square footage of transparency that would ordinarily be required by the above formula shall be installed on the remaining elevations at pedestrian level in addition to any transparency required by a side elevation, and vice versa. The rear of the building is not required to include transparency. The transparency must be flush with the building elevation.

60 percent of lineal street facing or main elevation is windows. 30 percent of one side elevation is windows. You may transfer windows from the side to front, or vice versa.



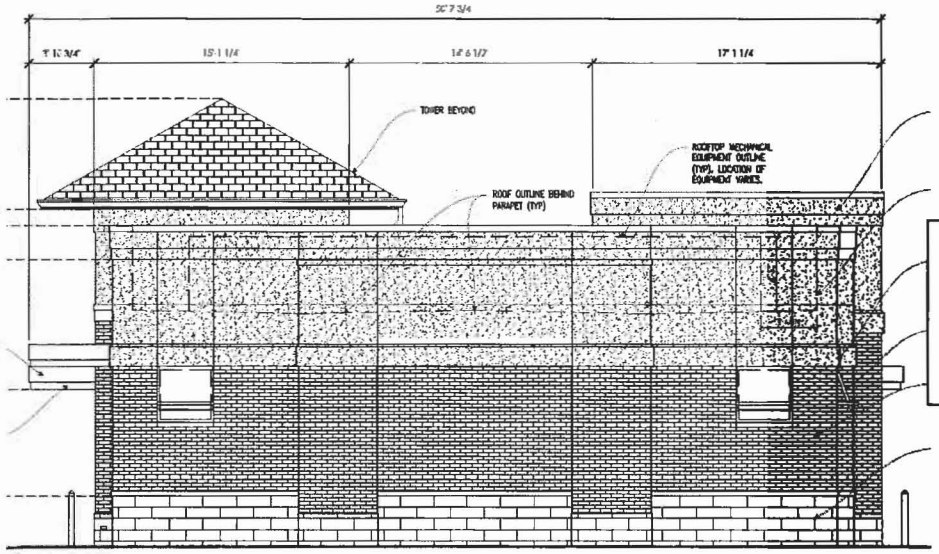
(Windows not at eye level and/or not flush with building.)

FINDING 4:

The applicant does not meet the front transparency requirement of 60%. Only 42.1% of the front elevation has windows at pedestrian or eye level. Four clerestory windows on the front elevation are too high to contribute to the transparency requirement. But even if they were included, the amount would fall short. The two side elevations are both visible from Willamette Drive so both must meet the 30% transparency requirement. The two side elevations have no windows at pedestrian or eye level so their 0% percent transparency is well short of the required 30%. Consequently, the applicant has applied for a Class II Variance. See Finding 8 below.

The applicant makes the case that by having a front entrance onto Willamette Drive and a second at the rear to allow access from the parking lot (per 55.100(B) (7) (a)) it is impossible to accommodate the bank's functional requirements and specific activity/work areas (ATM money room, vault, bathrooms etc.) along the rear of the building where they would typically go. Consequently, these activity/work areas (which typically have limited or no windows) must go along the sides of the structure which, per the applicant, justifies the lack of transparency on the sides. Staff agrees with these findings.

Since the clerestory windows do not factor into the transparency calculations because they are too high for people to look in or out of the bank and because most are for secure interior spaces the applicant has requested that they be opaque instead of clear. Staff can support the change from clear to opaque glass on those grounds and further notes that opaque clerestory windows will still help break up the elevations architecturally.



Chase Bank's side elevation with two windows 7.5 feet above grade

55.100(B) (6) (g)

g. Variations in depth and roof line are encouraged for all elevations. To vary the otherwise blank wall of most rear elevations, continuous flat elevations of over 100 feet in length should be avoided by indents or variations in the wall. The use of decorative brick, masonry, or stone insets and/or designs is encouraged. Another way to vary or soften this elevation is through terrain variations such as an undulating grass area with trees to provide vertical relief.

h. Consideration of the micro-climate (e.g., sensitivity to wind, sun angles, shade, etc.) shall be made for building users, pedestrians, and transit users, including features like awnings.

i. The vision statement identified a strong commitment to developing safe and attractive pedestrian environments with broad sidewalks, canopied with trees and awnings.

FINDING 5:

Staff finds that the roofline/building profile is capped in the center with a hipped roof tower that adds interest to the building roof line. There are 1.5 to 2- foot indents to the front and side elevations to provide variations on the horizontal plane of the wall. The large sidewalk/plaza area with planters and the awnings along the building face makes for an attractive pedestrian environment. The criteria are met.

55.100(B) (7) (c):

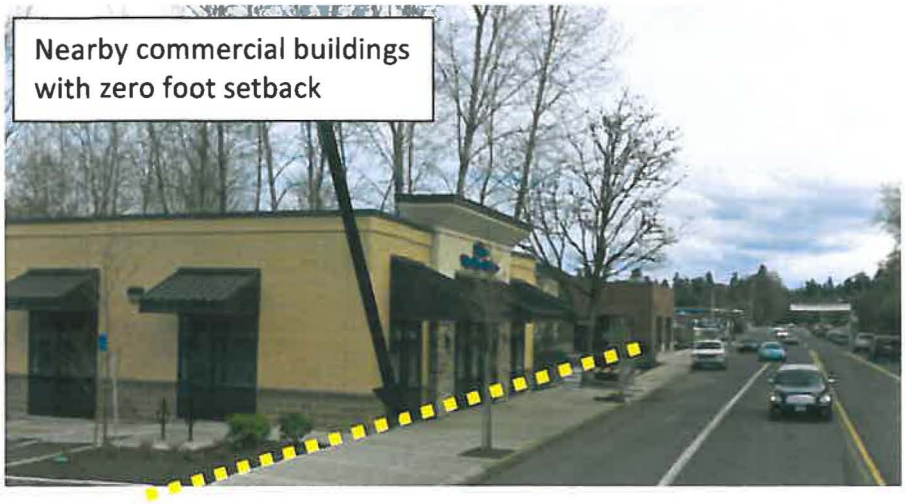
c. Commercial, office, and multi-family projects shall be built as close to the adjacent main right-of-way as practical to facilitate safe pedestrian and transit access. Reduced frontages by buildings on public rights-of-way may be allowed due to extreme topographic (e.g., slope, creek, wetlands, etc.) conditions or compelling functional limitations, not just inconveniences or design challenges.

FINDING 6:

The applicant was advised by staff that the bank should be built on the edge of the Willamette Drive right-of-way per this approval criterion and the following reasons:

- the building can offer amenities for passersby in the form of awnings which provide shelter from rain and sun,
- a focused activity area in front of the building creates opportunities for social interaction between people on the sidewalk and in the businesses (through the pedestrian level windows),
- as buildings are built closer to the street, pedestrian level windows offer visual interest or visual snags for passing pedestrians and motorists,
- as buildings "crowd" the street, the narrower field of vision along Willamette Drive encourages slower and safer vehicle speeds.

The applicant responded with a document ("Reservations and Restrictions in Cedaroak Park") recorded in 1948 which establishes a setback 60 feet from the Willamette Drive centerline. Measuring 60 feet from the centerline pushes the bank 20 feet back from the front lot line. The document appears to apply to all of the commercial development along Willamette Drive from Cedaroak Drive to Fairview Avenue. This raises the question: if the decades old CCR has not been enforced against any of the other commercial and office uses that were built along Willamette Drive with their buildings contiguous to the right-of-way, then why should this applicant be concerned about a CCR that clearly no one is enforcing? Certainly the City of West Linn is not obliged to enforce private CCRs. Ultimately it comes down to the comfort level of the developer and their sensitivity to perceived risk.



Subsection 55.100(B) (7) (c) states "Reduced frontages by buildings on public rights-of-way may be allowed due to extreme topographic (e.g., slope, creek, wetlands, etc.) conditions or compelling functional limitations, not just inconveniences or design challenges." The "compelling limitation" could be interpreted to be the covenant. In this case, no variance is needed and the criterion is met.

Staff notes that the applicant compensates for the increased setback by providing a larger paved patio area in front of the bank which could have social value with its landscaped planters and seating space. (See photo of a similar seating area below).

55.100(C). Compatibility between adjoining uses, buffering, and screening.

1. In addition to the compatibility requirements contained in Chapter 24 CDC, buffering shall be provided between different types of land uses; for example, buffering between single-family homes and apartment blocks. However, no buffering is required between single-family homes and duplexes or single-family attached units. The following factors shall be considered in determining the adequacy of the type and extent of the buffer:

a. The purpose of the buffer, for example to decrease noise levels, absorb air pollution, filter dust, or to provide a visual barrier.

b. The size of the buffer required to achieve the purpose in terms of width and height.

c. The direction(s) from which buffering is needed.

d. The required density of the buffering.

e. Whether the viewer is stationary or mobile.

2. On-site screening from view from adjoining properties of such things as service areas, storage areas, and parking lots shall be provided and the following factors will be considered in determining the adequacy of the type and extent of the screening:

a. What needs to be screened?

b. The direction from which it is needed.

c. How dense the screen needs to be.

d. Whether the viewer is stationary or mobile.

e. Whether the screening needs to be year-round.

3. Rooftop air cooling and heating systems and other mechanical equipment shall be screened from view from adjoining properties.

D. Privacy and noise.

1. Structures which include residential dwelling units shall provide private outdoor areas for each ground floor unit which is screened from view from adjoining units.

2. Residential dwelling units shall be placed on the site in areas having minimal noise exposure to the extent possible. Natural-appearing sound barriers shall be used to lessen noise impacts where noise levels exceed the noise standards contained in West Linn Municipal Code Section 5.487.

3. Structures or on-site activity areas which generate noise, lights, or glare shall be buffered from adjoining residential uses in accordance with the standards in subsection C of this section where applicable.

4. Businesses or activities that can reasonably be expected to generate noise in excess of the noise standards contained in West Linn Municipal Code Section 5.487 shall undertake and submit appropriate noise studies and mitigate as necessary to comply with the code. (See CDC 55.110(B) (11) and 55.120(M).)

If the decision-making authority reasonably believes a proposed use may generate noise exceeding the standards specified in the municipal code, then the authority may require the applicant to supply professional noise studies from time to time during the user's first year of operation to monitor compliance with City standards and permit requirements.

FINDING 7:

The main concern is to protect the residents of the multi-family housing at the rear of the site from noise and glare associated with the three 24-hour teller and transaction machines and vehicular traffic they generate. Staff finds that the potential impacts are mitigated by the following factors:

- Distance. The nearest drive through lane is 110 feet from the nearest multi-family unit to the east.

- Screening. The applicant will install a solid wood fence four feet tall along the northeast edge of the drive through aisles. Additionally there are a row of evergreen (red cedar) trees along the northeast edge of the bank property. As proposed, they should block most headlight glare while the fence should diminish noise from idling engines to acceptable levels (Department of Environmental Quality (DEQ) standards) per the applicant's noise study. Staff is concerned that the fence does not extend far enough in a south-easterly direction so as to block glare from apartments behind the 7-11 store. Proposed Condition 4 calls for extending the fence 30 feet to address that glare issue.

- Choice of light fixtures and location. The applicant's lighting (photometric) study shows that illumination from lights will diminish to 0.0 at the northeast property line. The applicant has changed from metal halide light bulbs to low pressure sodium and LED which will reduce glare and light intensity.

- Noise Analysis. The noise analysis by Michael Minor and Associates, dated February 21, 2012 identifies and discusses the noise sources listed above and finds that the bank operations will meet DEQ standards. Staff finds that the criterion is met.

Staff was also concerned about the noise associated with heating ventilation and air conditioning (HVAC) on the roof as well as its visual impact. Similar concerns existed in regards to the recycling /garbage enclosure. Staff finds that the HVAC will be hidden below the parapet wall so there is no visual impact and the noise study determined that it will meet DEQ standards. Similar findings apply to the recycling/garbage enclosure.

55.100 (J). Crime prevention and safety/defensible space.

1. Windows shall be located so that areas vulnerable to crime can be surveyed by the occupants.
2. Interior laundry and service areas shall be located in a way that they can be observed by others.
3. Mailboxes, recycling, and solid waste facilities shall be located in lighted areas having vehicular or pedestrian traffic.

4. The exterior lighting levels shall be selected and the angles shall be oriented towards areas vulnerable to crime.

5. Light fixtures shall be provided in areas having heavy pedestrian or vehicular traffic and in potentially dangerous areas such as parking lots, stairs, ramps, and abrupt grade changes.

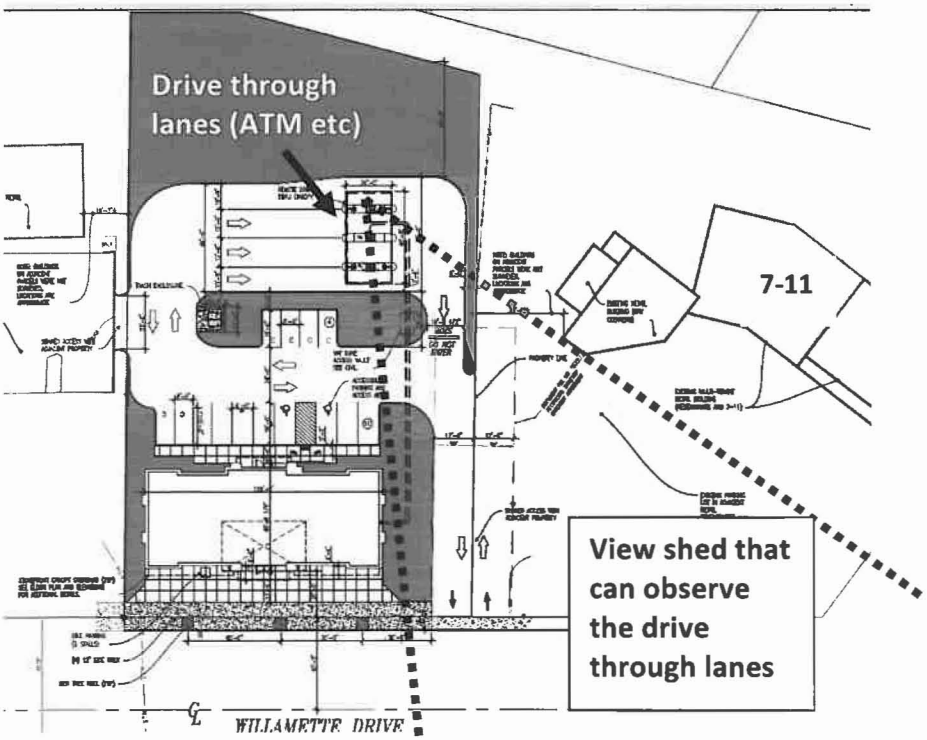
6. Fixtures shall be placed at a height so that light patterns overlap at a height of seven feet which is sufficient to illuminate a person. All commercial, industrial, residential, and public facility projects undergoing design review shall use low or high pressure sodium bulbs and be able to demonstrate effective shielding so that the light is directed downwards rather than omni-directional. Omni-directional lights of an ornamental nature may be used in general commercial districts only.

7. Lines of sight shall be reasonably established so that the development site is visible to police and residents.

8. Security fences for utilities (e.g., power transformers, pump stations, pipeline control equipment, etc.) or wireless communication facilities may be up to eight feet tall in order to protect public safety. No variances are required regardless of location.

FINDING 8:

Staff's concern is surveillance of the drive through lanes at night time. Specifically, can the drive through lanes be readily observed from Willamette Drive or nearby activity areas? Staff finds that with the lines of sight to the south through the 7-11 parking lot and along the entry driveway, the answer is yes. The proposed security lighting also helps.



75.060 APPROVAL CRITERIA (VARIANCE)

The appropriate approval authority shall approve a variance request if all the following criteria are met and corresponding findings of fact prepared. The approval authority may impose appropriate conditions to ensure compliance with the criteria. The approval authority shall deny the variance if any of the criteria is not met.

A. Exceptional or extraordinary circumstances apply to the property which do not apply generally to other properties in the same zone or vicinity, and result from lot size or shape, legally existing prior to the date of this code, topography, or other circumstances over which the applicant has no control.

B. The variance is necessary for the preservation of a property right of the applicant, which is substantially the same as a right possessed by owners of other property in the same zone or vicinity.

C. The authorization of the variance will not be materially detrimental to the purposes and standards of this code, will not be inconsistent with all other regulatory requirements, and will not conflict with the goals and policies of the West Linn Comprehensive Plan.

D. The variance request is the minimum variance which would alleviate the exceptional and extraordinary circumstance.

E. The exceptional and extraordinary circumstance does not arise from the violation of this code.

F. The variance will not impose physical limitations on other properties or uses in the area, and will not impose physical limitations on future use of neighboring vacant or underdeveloped properties as authorized by the underlying zoning classification. (Ord. 1442, 1999)

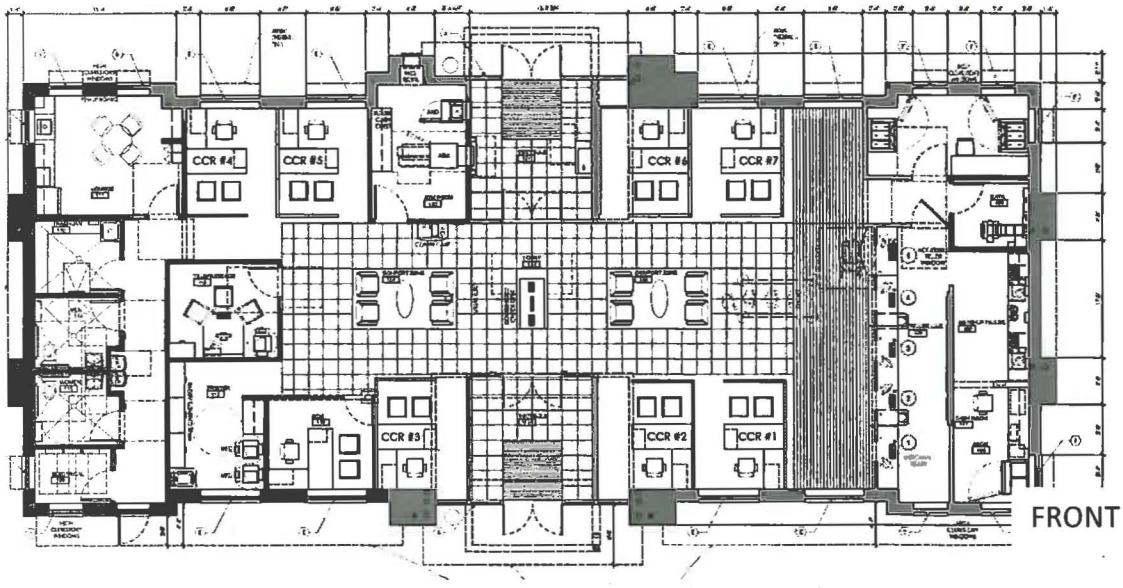
FINDING 9:

As previously noted, the applicant is requesting a variance to waive the 60% transparency requirement for the front elevation facing Willamette Drive and to waive the 30% transparency requirement for the two side elevations. The applicant also proposes that the transparency on the rear should be transferable to the front and side elevations. Staff finds that there is no transparency requirement for the rear elevation since it is not visible from a collector or higher category street. Although the code allows transfers of transparency between the sides and front and vice versa there is no transferability of transparency allowed from the rear elevation to the side(s) or front. (Please see criteria preceding Finding 4.)

Building Elevation	Transparency required per CDC 55.100(B)(6)(f) at pedestrian level expressed as percent of that elevation	Transparency required per CDC 55.100(B)(6)(f) at pedestrian level expressed in lineal feet	Amount of transparency proposed by Chase Bank at pedestrian level (lineal feet and percentage)
Front	60%	61.2 ft. (102 ft. X 60%)	43 ft. / 42.1%
Side ("east")	30%	12.9 ft. (43 ft. X 30%)	0 ft. / 0%
Side ("west")	30%	12.9 ft. (43 ft. X 30%)	0 ft. / 0%
Rear	0%	0 ft.	39.75 feet (not visible from Willamette Drive)

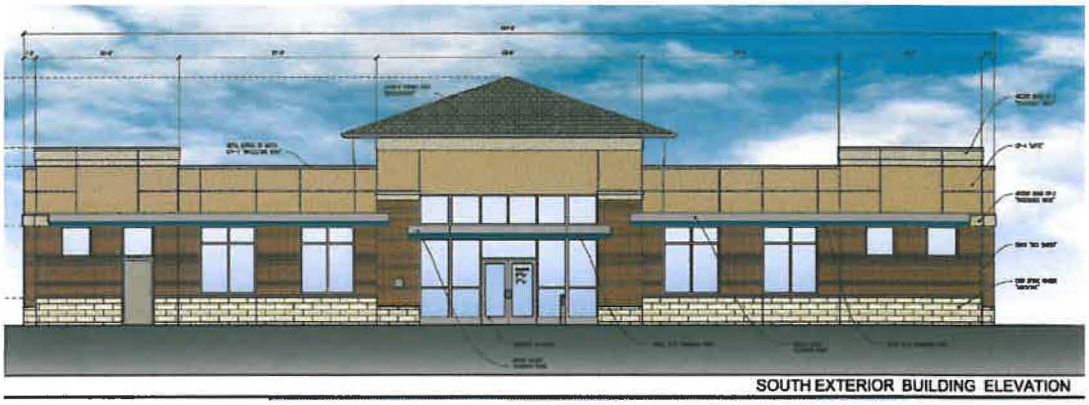
Staff can, however, support the variances for the side elevations based on the applicant's argument that the entryway at the rear of the bank and associated windows means that the activities/uses that would typically go along that rear elevation, such as the vault room, bathrooms, etc. are pushed to the sides of the building meaning that it is not practical to introduce windows (particularly eye level windows) on those sides.

While the argument is compelling as it relates to the side elevations, particularly for those spaces that demand either privacy or deference to security concerns, there are portions of the front elevation does not suffer from those constraints. Staff finds that transparency can be added to the front elevation.

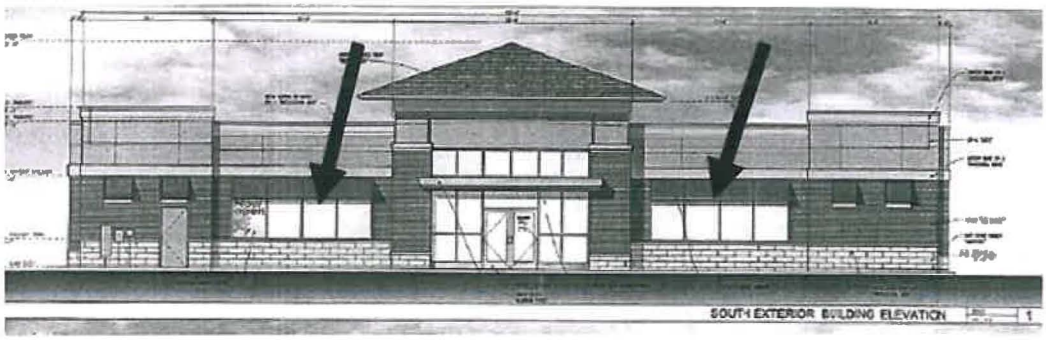


Examples of transparency include the new US Bank slated for the commercial space 250 feet north of this site. That bank has 60% transparency on the front elevation, 55% transparency on the side facing Willamette Drive and 35% on the side facing north on Willamette Drive. Umpqua Bank in Lake Oswego, shown below, is another good example of design with transparency.

The most compelling evidence demonstrating that more windows could be added is that Chase Bank's architects (Callison Architects) submitted virtually the same building and elevation designs to the City of Portland and the Hillsdale Neighborhood Association in 2011 but with more windows along the front elevation (see the following illustrations). According to the applicant's calculations (page 4 of the 04/12/12 submittal) the front elevation is 102 feet long and the proposed transparency comprises 43 feet 4 inches which translates to 42.4% transparency. If the Hillsdale version can have more transparency, then West Linn's version should be able to as well.

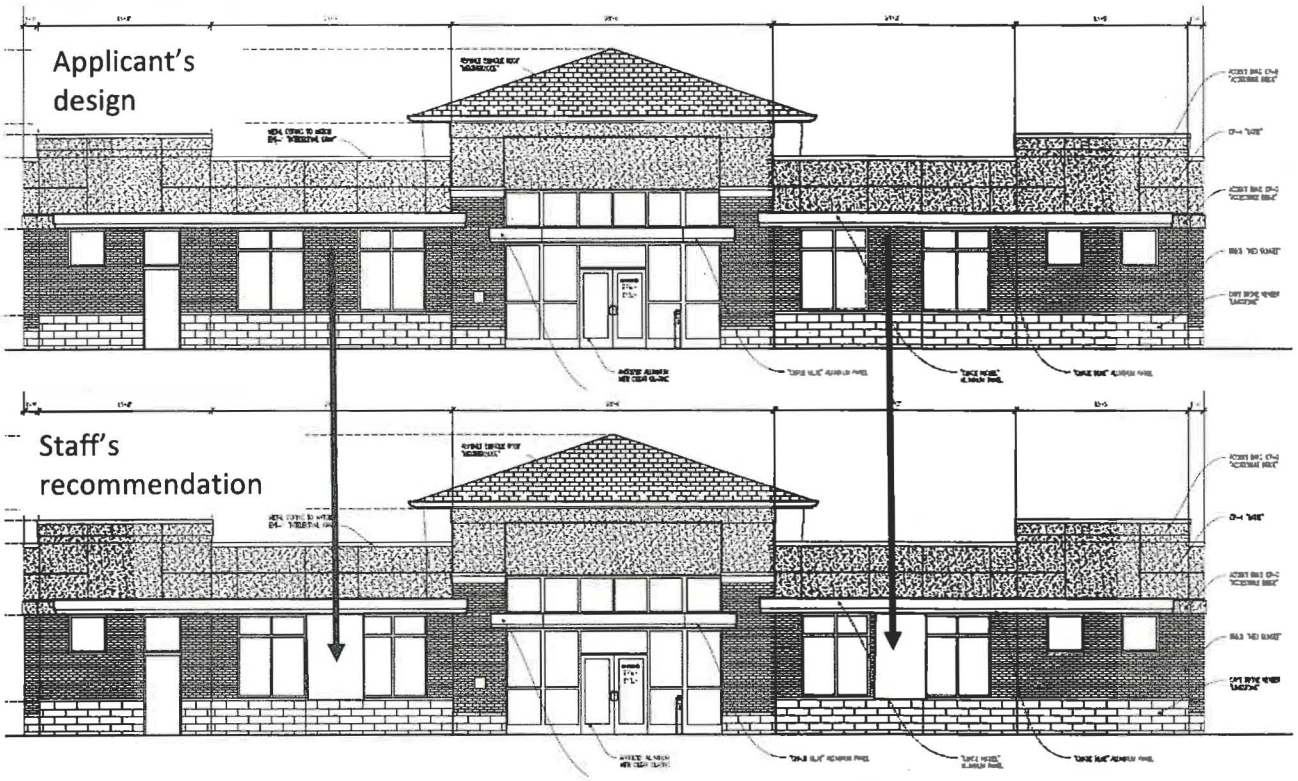


Contrast the proposed West Linn version (above) with the Hillsdale version (below).



Adding nine feet of windows on the front elevation, which would be similar to the Hillsdale Chase Bank proposal, would increase transparency to 51.2%; still shy of the required 60%, but an improvement. Staff recommends approval of the variance with the condition that the transparency be increased as indicated in the drawings below and per proposed Condition of Approval 3.

Staff is also mindful of the legacy of this building in that it may not always be a bank and by limiting the transparency we are also limiting its value for non-bank purposes such as retail which require easy, more welcoming visual access.



Compliance with the standards of the underlying General Commercial zone

19.020 PROCEDURES AND APPROVAL PROCESS

A. A use permitted outright, CDC 19.030, is a use which requires no approval under the provisions of this code. If a use is not listed as a use permitted outright, it may be held to be a similar unlisted use under the provisions of Chapter 80 CDC.

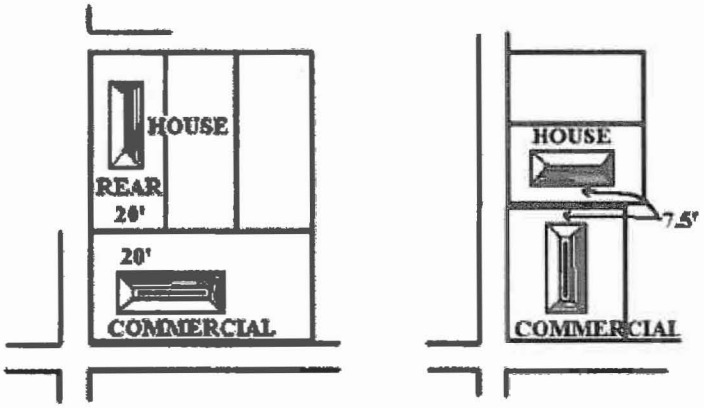
FINDING 10:

Per Section 19.030 (12) banks are permitted outright under the land use category of "Financial, insurance and real estate services".

19.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS

A. Except as may be otherwise provided by the provisions of this code, the following are the requirements for uses within this zone:

1. *The minimum front lot line length or the minimum lot width at the front lot line shall be 35 feet.*
2. *The average minimum lot width shall be 50 feet.*
3. *The average minimum lot depth shall not be less than 90 feet.*
4. *Where the use abuts a residential district, the setback distance of the residential zone shall apply. For example, when the rear of a residential property abuts the side of a commercial property, the residential 20-foot setback shall apply to the commercial property. When the side of a residential property abuts the rear of a commercial property, the residential five- to seven-and-one-half-foot setback shall apply to the commercial property. In addition, a buffer of up to 50 feet may be required.*



SETBACK OF ABUTTING HOUSE DICTATES COMMERCIAL SETBACK

5. *The maximum lot coverage shall be 50 percent.*
6. *The maximum building height shall be two and one-half stories or 35 feet for any structure located within 50 feet of a low or medium density residential zone, and three and one-half stories or 45 feet for any structure located 50 feet or more from a low or medium density residential zone.*
7. *For lot lines that abut an arterial, there shall be no minimum yard dimensions or minimum building setback area, and the maximum building setback shall be 20 feet. The front setback area between the street and the building line shall consist of landscaping or a*

combination of non-vehicular hardscape areas (covered with impervious surfaces) and landscaped areas, with at least 25 percent of the front setback area consisting of landscaped areas. If there are not street trees within the public right-of-way, the front setback area shall include such trees per the requirements of the City Arborist.

FINDING 11:

The application meets the minimum 35 foot frontage width with a frontage width of 150 feet. The required lot depth of 90 feet is exceeded by an average depth of 250 feet. The 20 foot rear setback is exceeded by a distance of 70 feet to the drive through facilities and 180 feet to the bank itself.

The maximum lot coverage of 50% is not exceeded since the bank and drive through teller facilities comprise only 12% of the site. The bank's height of 26.5 feet is under the allowable height of 50 feet. The setback of 20 feet meets the allowed setback of this zone and the combination of at grade landscaping and landscaping in planters satisfies the required 25% landscaping for the setback area. Therefore the standards of the General Commercial zone are met.

48.025(B) (8)

Shared driveways. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:

a. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).

b. Access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.

FINDING 12:

To minimize occurrences of customers leaving the bank property, driving 200 feet along Willamette Drive, then turning into the shopping center immediately to the north of the bank property, the owner of that property (tax lot 700 assessor's map 21E 23AA) has built a stub out

driveway to allow easy vehicular to allow easy vehicular connection between the two parcels. This would reduce vehicle loads on Willamette Drive and would also reduce potential turn conflicts on that street. The applicant's plans show this driveway connection. A mutual access easement will be needed to allow use of the driveways (see Condition 5).

EXHIBITS PC-1 AND PC-2

AFFIDAVIT AND NOTICE MAILING

PACKET AND COMPLETENESS LETTER

FILE NUMBER: **DR-12-08/VAR-12-01**

REQUEST: **Class II Design Review approval for construction of a 4,335 square foot Chase Bank Branch with parking and remote three-lane drive through at the rear of the building. A Class II Variance is required to waive the transparency (window) requirements on the front and side elevations.**

AFFIDAVIT OF NOTICE

We, the undersigned do hereby certify that, in the interest of the party (parties) initiating a proposed land use, the following took place on the dates indicated below:

GENERAL
File No. DR-12-08 Applicant's Name JP Morgan Chase Bank
Development Name _____
Scheduled Meeting / Decision Date 6/6/12

NOTICE: Notices were sent at least 20 days prior to the scheduled hearing, meeting, or decision date per Section 99.080 of the Community Development Code. **(check below)**

TYPE A ✓

A.	The applicant (date) 5/14/12	(signed)	S. Shroyer
B.	Affected property owners (date) 5/14/12	(signed)	S. Shroyer
C.	School District/Board (date) _____	(signed)	_____
D.	Other affected gov't. agencies (date) 5/14/12	(signed)	S. Shroyer
E.	Affected neighborhood assns. (date) 5/14/12 (ALL)	(signed)	S. Shroyer
F.	All parties to an appeal or review (date) 5/14/12	(signed)	S. Shroyer

At least 10 days prior to the scheduled hearing or meeting, notice was published/posted:

Tidings (published date) 5/24/12 (signed) S. Shroyer
City's website (posted date) 5/14/12 (signed) S. Shroyer

SIGN

At least 10 days prior to the scheduled hearing, meeting or decision date, a sign was posted on the property per Section 99.080 of the Community Development Code.

(date) May 22, 2012 (signed) _____

NOTICE: Notices were sent at least 14 days prior to the scheduled hearing, meeting, or decision date per Section 99.080 of the Community Development Code. **(check below)**

TYPE B _____

A.	The applicant (date) _____	(signed)	_____
B.	Affected property owners (date) _____	(signed)	_____
C.	School District/Board (date) _____	(signed)	_____
D.	Other affected gov't. agencies (date) _____	(signed)	_____
E.	Affected neighborhood assns. (date) _____	(signed)	_____

Notice was posted on the City's website at least 10 days prior to the scheduled hearing or meeting.
Date: _____ (signed) _____

STAFF REPORT mailed to applicant, City Council/Planning Commission and any other applicable parties 10 days prior to the scheduled hearing.

(date) _____ (signed) _____

FINAL DECISION notice mailed to applicant, all other parties with standing, and, if zone change, the County surveyor's office.

(date) _____ (signed) _____

p:\devrvw\forms\affidvt of notice-land use (9/09)

CITY OF WEST LINN
PLANNING COMMISSION
PUBLIC HEARING NOTICE
FILE NO. DR-12-08/VAR-12-01

The West Linn Planning Commission is scheduled to hold a public hearing on Wednesday, June 6, 2012, **starting at 7:30 p.m.** in the Council Chambers of City Hall, 22500 Salamo Road, West Linn, to consider the request of JP Morgan Chase Bank to build a bank at 19080 Willamette Drive (Tax Lots 703 and 705 of Clackamas County Assessor's Map 2-1E-23AA). The site was formerly occupied by Kasch's Nursery.

The required permits include a Class II Design Review and Class II Variance. Design Review criteria are found in Chapter 55. Class II Variance criteria are found in Chapter 75 of the CDC. Approval or disapproval of the request by the Planning Commission will be based upon these criteria and these criteria only. At the hearing, it is important that comments relate specifically to the applicable criteria listed.

You have been notified of this proposal because County records indicate that you own property within 500 feet of the proposed site and/or as required by Chapter 99 of the West Linn Community Development Code.

The complete application in the above noted file is available for inspection at no cost at City Hall or via the web site http://westlinnoregon.gov/planning/19080-willamette-dr-class-ii-design-review-construct-new-chase-bank or copies can be obtained for a minimal charge per page. At least ten days prior to the hearing, a copy of the staff report will be available for inspection at no cost or copies can be obtained for a minimal charge per page. For further information, please contact Peter Spir, Associate Planner, at City Hall, 22500 Salamo Road, West Linn, OR 97068, pspir@westlinnoregon.gov, or 503-723-2539.

The hearing will be conducted in accordance with the rules of Section 99.170 of the Community Development Code, adopted December 14, 1987, Ordinance 1129. Anyone wishing to present written testimony on this proposed action may do so in writing prior to, or at the public hearing. Oral testimony may be presented at the public hearing. At the public hearing, the Planning Commission will receive a staff report presentation from the City Planner, and invite both oral and written testimony. The Planning Commission may continue the public hearing to another meeting to obtain additional information, leave the record open for additional evidence, arguments or testimony, or close the public hearing and take action on the application as provided by state law. Failure to raise an issue in person or by letter at some point prior to the close of the hearing, or failure to provide sufficient specificity to afford the decision maker an opportunity to respond to the issue, precludes an appeal to the Land Use Board of Appeals (LUBA) based on that issue.

SHAUNA SHROYER
Planning Administrative Assistant

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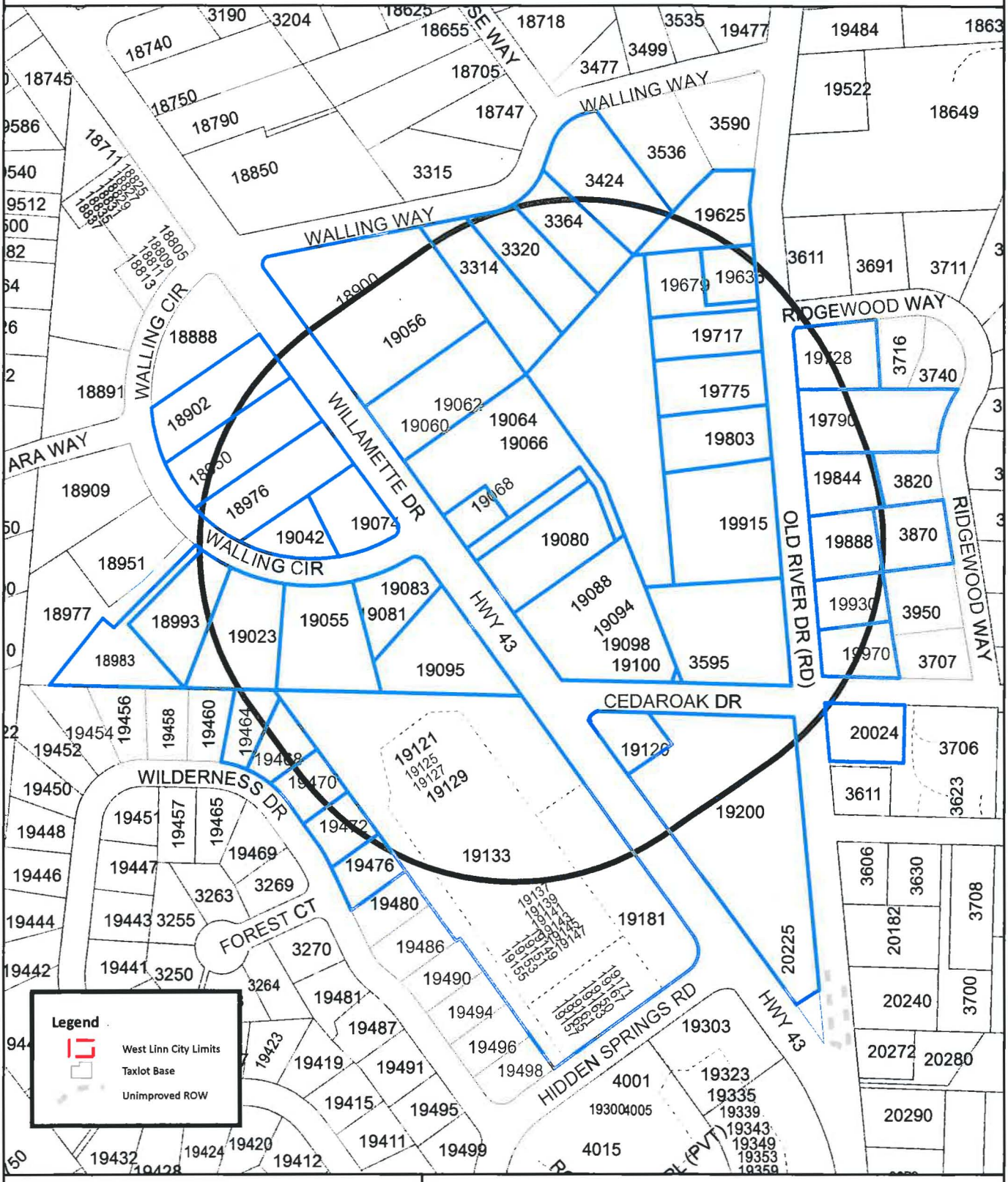
19080 Willamette Dr.- Chase Bank - 500' Buffer



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Taxlot Base Source: Clackamas County GIS

NOT TO SCALE

SNAPNOTIFY.MXD / AHA APP 3-24-2011

User Name:

Map Creation Date: May 09, 2012

ALLEN WILLIAM A & DORIS J
3870 RIDGEWOOD WAY
WEST LINN, OR 97068

BELDEN WILLIAM P & KELSEY A
PO BOX 388
WEST LINN, OR 97068

BENNETT DURWARD E & YVONNE
3320 WALLING WAY
WEST LINN, OR 97068

BEZMERTNEY GERARDO & GAIL
19042 WALLING CIR
WEST LINN, OR 97068

BLAIR KENT E & DEBBIE A
19464 WILDERNESS DR
WEST LINN, OR 97068

CARLSON BRENT
19930 OLD RIVER DR
WEST LINN, OR 97068

CEDAR LINN LLC
7831 SE LAKE RD STE 200
MILWAUKIE, OR 97267

CITY OF WEST LINN
22500 SALAMO RD #600
WEST LINN, OR 97068

CRAIG WILLIAM S & ROXIE ANNE
19055 WALLING CIR
WEST LINN, OR 97068

EHLINGER DAVID P & KATHERINE L WARNER
19790 OLD RIVER DR
WEST LINN, OR 97068

ERFAN INC/ERFAN ARSANJANI
3480 RIVERKNOLL WAY
WEST LINN, OR 97068

ETHINGTON FLORENCE
3777 UA AVE
EMMETT, ID 83617

FRANKEL MARILYN
3364 WALLING WAY
WEST LINN, OR 97068

FURUI MASANO
18902 WALLING CIR
WEST LINN, OR 97068

GORGONE FRANK R JR
19970 OLD RIVER DR
WEST LINN, OR 97068

HACKNEY JULIE A TRUSTEE
19470 WILDERNESS DR
WEST LINN, OR 97068

HAYES MICHAEL & ELIZABETH
19775 OLD RIVER DR
WEST LINN, OR 97068

JORDAN WAYNE T
20235 NE INTERLACHEN LN
FAIRVIEW, OR 97024

KEENEY LEROY
18950 WALLING CIR
WEST LINN, OR 97068

KHOSRAVI FARIDOON G
PO BOX 157
WEST LINN, OR 97068

KNUDSEN PAUL C & NOEL Z LEE
19679 OLD RIVER DR
WEST LINN, OR 97068

LACHMAN THEODORE D
16984 ALDER CIR
LAKE OSWEGO, OR 97034

LASTER JEFFREY & TONI
19472 WILDERNESS DR
WEST LINN, OR 97068

MCDERMOTT MARY GRACE
18976 WALLING CIR
WEST LINN, OR 97068

MERCIER ROBERT H & JEANNE SYBIL
19717 OLD RIVER DR
WEST LINN, OR 97068

MICETIC JOHN S
20024 OLD RIVER DR
WEST LINN, OR 97068

MONTPART EDWARD R & HELEN M
19728 OLD RIVER DR
WEST LINN, OR 97068

MORE WILLIAM
222 N RAMPART ST
NEW ORLEANS, LA 70112

MURRAY HERMENA R TRUSTEE
19620 S KALAL CT
OREGON CITY, OR 97045

NEW LIFE CHURCH ROBINWOOD
PO BOX 5
WEST LINN, OR 97068

NEWELL DAVID B
19635 OLD RIVER DR
WEST LINN, OR 97068

NUTTBROCK PATRICIA M & MICHAEL F
19468 WILDERNESS DR
WEST LINN, OR 97068

POND WALLACE P CO-TRUSTEE
18983 WALLING CIR
WEST LINN, OR 97068

PRESBYTERY OF PORTLAND
19200 WILLAMETTE DR
WEST LINN, OR 97068

QUINN LAURA MATCHAK
18993 WALLING CIR
WEST LINN, OR 97068

ROWINSKI DANIEL T & NANCY
3424 WALLING WAY
WEST LINN, OR 97068

RUSSELL SUSAN
19023 WALLING CIR
WEST LINN, OR 97068

SEELY DOUGLAS E & RUTHANN
1780 SW ADVANCE RD
WEST LINN, OR 97068

STEPTO ANN M
19844 OLD RIVER DR
WEST LINN, OR 97068

TRIBBETT FAMILY LTD PRTNSHP
1942 WESTLAKE LOOP
NEWBERG, OR 97132

TRIBBETT&SON
1942 WESTLAKE LOOP
NEWBERG, OR 97132

WATSON WENDY
19476 WILDERNESS DR
WEST LINN, OR 97068

WEST LINN INVESTORS LLC
ROBERT AMES
1136 NW HOYT #200
PORTLAND, OR 97209

WEST LINN PROPERTIES
10250 SW NORTH DAKOTA ST
TIGARD, OR 97223

ZHAO WEN & SUI YIN TIAN
1701 ASPEN CT
LAKE OSWEGO, OR 97034

JP MORGAN CHASE
C/O STEPHEN CARY
10011 GRAVELLY LAKE DR, SW 2ND FL
LAKEWOOD, WA 98499

ODOT REGION 1
MARAH DANIELSON
123 NW FLANDERS
PORTLAND, OR 97209

HANS CHRISTIANSEN
CALLISON ARCHITECTS
1420 FIFTH AVE, STE 2400
SEATTLE, WA 98101

STEVE GARNER
BHT NA PRESIDENT
3525 RIVERKNOLL WAY
WEST LINN OR 97068

SALLY MCLARTY
BOLTON NA PRESIDENT
19575 RIVER RD # 64
GLADSTONE OR 97027

ALEX KACHIRISKY
HIDDEN SPRINGS NA PRESIDENT
6469 PALOMINO WAY
WEST LINN OR 97068

JEF TREECE
MARYLHURST NA PRESIDENT
1880 HILLCREST DR
WEST LINN OR 97068

BILL RELYEA
PARKER CREST NA PRESIDENT
3016 SABO LN
WEST LINN OR 97068

ANTHONY BRACCO
ROBINWOOD NA PRESIDENT
2716 ROBINWOOD WAY
WEST LINN OR 97068

~~DEAN SUHR~~
~~ROSEMONT SUMMIT NA PRESIDENT~~
~~21345 MILES DR~~
~~WEST LINN OR 97068~~

DAVE RITTENHOUSE
SAVANNA OAKS NA PRESIDENT
2101 GREENE ST
WEST LINN OR 97068

KRISTIN CAMPBELL
SKYLINE RIDGE NA PRESIDENT
1391 SKYE PARKWAY
WEST LINN OR 97068

TROY BOWERS
SUNSET NA PRESIDENT
2790 LANCASTER ST
WEST LINN OR 97068

BETH SMOLENS
WILLAMETTE NA PRESIDENT
1852 4TH AVE
WEST LINN OR 97068

ALMA COSTON
BOLTON NA DESIGNEE
PO BOX 387
WEST LINN OR 97068

SUSAN VAN DE WATER
HIDDEN SPRINGS NA DESIGNEE
6433 PALOMINO WAY
WEST LINN OR 97068

KEVIN BRYCK
ROBINWOOD NA DESIGNEE
18840 NIXON AVE
WEST LINN OR 97068

DOREEN VOKES
SUNSET NA SEC/TREAS
4972 PROSPECT ST
WEST LINN OR 97068

WEST LINN CHAMBER OF
COMMERCE
1745 WILLAMETTE FALLS DR
WEST LINN OR 97068

DR-12-08 / VAR-12-01
MAILING LABELS

MAILED
5-14-12 SS

CITY OF WEST LINN
PLANNING COMMISSION
PUBLIC HEARING NOTICE
FILE NO. DR-12-08/VAR-12-01

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The required permits include a Class II Design Review and Class II Variance. Design Review criteria are found in Chapter 55. Class II Variance criteria are found in Chapter 75 of the CDC. Approval or disapproval of the request by the Planning Commission will be based upon these criteria and these criteria only. At the hearing, it is important that comments relate specifically to the applicable criteria listed.

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SHAUNA SHROYER
Planning Administrative Assistant

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CITY OF
West Linn

April 19, 2012

Hans Christiansen
Callison Architects
1420 Fifth Avenue, Suite 2400
Seattle, WA 98101

SUBJECT: DR-12-08 et al completeness

Dear Mr. Christiansen:

Your application, submitted on February 27, 2012 with a subsequent re-submittal on April 16, 2012 has been found to be **complete** as of April 19, 2012. The City now has 120 days from today's date to exhaust all local review and potential appeals. That period will lapse on August 18, 2012.

Staff expects that the application will be noticed and heard by the Planning Commission at a public hearing on either May 23 or June 6, 2012. You can expect to receive notice of the exact hearing date at least 20 days in advance.

This letter also waives specific submittal requirements and approval criteria as allowed by CDC 55.085(B) and as requested by the applicant. Specifically, CDC approval criteria 55.100(B) (2) (d) requires that both for "*non-residential and residential development, the layout shall achieve at least 70 percent of maximum density for the developable net area...*" The CDC uses 'dwelling units per net acre' as its measure of density. The Planning Director finds that this standard was written in response to Metro's 70 percent density rule for housing and that "non-residential" development was added to the criterion in error. There are no density standards for non-residential development. Staff went through the exercise of trying to apply the 70% rule to non-residential development and found that the standard was unworkable, inapplicable and serves no public purpose. The Planning Director approves the waiver request.

CDC submittal requirement of 55.110 (B) (3) calls for a slope analysis which identifies portions of the site according to the slope ranges as follows:

a. Zero to 15 percent;

b. 16 to 25 percent;

c. 26 to 35 percent;

d. 36 to 50 percent;

e. Greater than 50 percent.

The Planning Director finds that the applicant has provided a topographic survey with one foot contour intervals which provides all the information needed to understand the form of the site and any grading plans that may be proposed. Planning Director also found that slope issues are not relevant on a lot that is 95 percent flat and substantially built out. The small sloped area will be part of an undeveloped landscaped area that will act as a buffer or transition to the residential properties west of the site.

This letter also waives the CDC submittal requirement of 55.110 (B) (13) which require the identification of Type I and II lands in map form and the provision of a table which identifies square footage of Type I and II lands also as percentage of total site square footage. (Type I lands have slopes over 35% while Type II lands have slopes 25-35%.) The Planning Director finds that type I and II breakdowns are not relevant on a lot that is 95 percent flat and substantially built out. The only purpose of the Type I and II breakdown is to see if a Planned Unit Development is triggered per CDC 24.060: "*1. Any development site composed of more*

than 25 percent of Type I or Type II lands, as defined by CDC 24.060(C), shall be developed as a PUD." Since these lands comprise less than five percent of the site then the Type I and II breakdown is not germane.

Also, for the purpose of this application, the applicant has provided a topographic survey with one foot contour intervals which provide all the information needed to understand the form of the site and any grading plans that may be proposed.

Please contact me at 503-723-2539 or by email at pspir@westlinnoregon.gov if you have any questions or comments.

Sincerely,

Peter Spir

Peter Spir
Associate Planner

p:completeness DR-12-08 chase bank-new

EXHIBIT PC-3
APPLICANT'S SUBMITTAL

FILE NUMBER: **DR-12-08/VAR-12-01**

REQUEST: **Class II Design Review approval for construction of a 4,335 square foot Chase Bank Branch with parking and remote three-lane drive through at the rear of the building. A Class II Variance is required to waive the transparency (window) requirements on the front and side elevations.**

CALLISON

April 12, 2012

Mr. Peter Spir
Associate Planner
City of West Linn
22500 Salamo Rd.
West Linn, OR 97068

Re: Chase – Cedar Oak & Willamette, 19080 Willamette Drive, West Linn, OR
210461.89
Class II Design Review Application (DR-12-08 et al) – Completeness Review Response

Dear Mr. Peter Spir:

Unless noted please find 3 copies of the following materials attached in support of our response to your Completeness Review comment letter dated March 22, 2012. Plans include full size and 11" x 17".

3-copies	Architectural Drawings (Site Plan, A0.1; Floor Plan, A1.1; & Elevations, A4.1, A4.2, & A4.3
3-copies	Preliminary Development Plan (Civil, Utilities & Grading), 1 of 1
3-copies	ALTA Survey (Existing Conditions), 1 of 1, dated 04/06/12
3-copies	Landscape Plan (L-1) & Irrigation Plan (L-2)
3-copies	Site Electrical Plan (Lighting), SE1.0
3-copies	Site Photometric Plan (Lighting), SP1.0
3-copies	Bicycle Rack Detail (8 ½" x 11")
3-copies	Preliminary Drainage Analysis (updated with revised building SF)
1-PDF	Plat Reservations & Restrictions re: 60' Building Setback from Willamette Drive. (only on CD). Also submitted PDF via e-mail direct to Peter Spir.
1-CD	PDF's of Completeness Response Documents & Drawings

Below we will respond to your comments in the order they appear in your letter. Our responses will be in **bold** text to differentiate comments from our responses:

55.100(A) (7) Parking. (Chapter 46) Bike parking must be show detail of racks.

We have included 3 copies of an 8 ½" x 11" bicycle rack detail with this response. The bicycle rack will be offset from the building 3' and aligned parallel with the building so that bicycles can be parked parallel to the building on either side of the rack. This configuration will keep bicycles from projecting out into the adjacent walkway and will allow bicycles to remaining protect by the storefront canopy. Details will be added to our construction drawings following design review approval.

*CDC chapter 19.070(A) (7) requires that 25% of the area of the front setback comprise landscaping. The applicant has 19.5% devoted to landscaping. Exceptions as proposed by the applicant require the preservation of a significant natural feature. None exist at the site. The only way to seek relief is by a

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Class II variance; however, the likelihood of approval is not high given that the solution of simply adding more landscaping is available.

Minor adjustments have been made to the plaza area located between the public sidewalk and building setback line, thus we have recalculated landscaping areas and percentages required. The area between the back of the required 12' sidewalk and 20' building setback line is 1,782 SF. 25% of this area is required to be landscaped which equates to 445 SF. There are landscape areas located to the north and south of the proposed plaza area between the back of public sidewalk and the building. The northerly landscape area equates to 123 SF, the southerly landscape area equates to 172 SF. In order to meet the minimum 25% landscape percentage, 150 SF of additional landscape area is required.

In order to meet the requirement we have added two raised planter areas to the front of the building. The planters will be constructed of similar materials to the bank branch. They will be 20" tall and incorporate a 1' wide informal seating area around the perimeter of the planters. Each planter area has an internal dimension of 19' x 4' equating to 76 SF of planting area per planter. Together the planters provide an additional 152 SF of landscaping, allowing the project to meet the minimum front setback landscaping requirement.

55.100(B) (2) (b) requires a tree inventory and review by City Arborist. None are provided.

Existing trees have been added to the ALTA survey drawing.

The landscape plan also includes the location of the existing trees, as well as a tree inventory.

55.100(B) (2) (d) requires that both for "*non-residential and residential development, the layout shall achieve at least 70 percent of maximum density for the developable net area...*" The CDC uses 'dwelling units per net acre' as its measure of density. Staff finds that this standard was written in response to Metro's 70 percent density rule for housing and that "non-residential" development was added to the criterion in error. There are no density standards for non-residential development. Staff went through the exercise of trying to apply the 70% rule to non-residential development and found that the standard was unworkable, inapplicable and serves no public purpose. The applicant should ask for a waiver of this criterion through CDC 99.035(B) (2). Staff will support the waiver request.

As discussed above, non-residential development was added to the criteria of 55.100(B) (2) (d) in error, and we therefore request a waiver from the criteria as allowed for by CDC 99.035(B) (2).

55.100(B) (3) requires that the topography and natural drainage shall be preserved to the greatest degree possible. The applicant needs to discuss the ten foot difference in grade at the rear of the site and what kind of grading will take place in this sloped area.

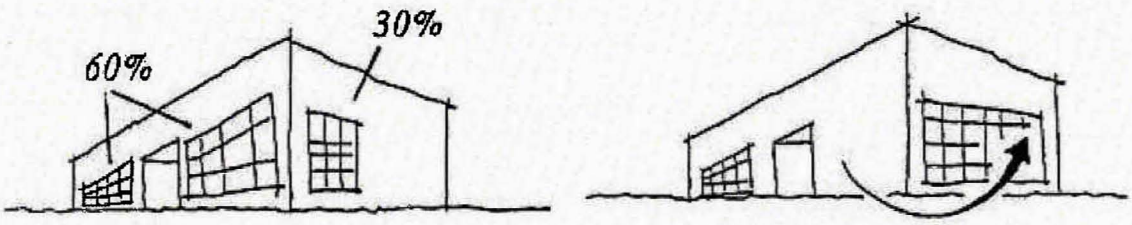
This requirement appears to have been created in order to limit impact of development on undeveloped lands and their drainage patters. The site was home to a nursery and the majority of this site has already been impacted by previous development. The front half of the site slopes gently away from Beaverton-Hillsdale Hwy and then slopes downhill more steeply along the north and south sides of the existing Kasch's Nursery building. The existing building itself is stepped to

match the slope. There is a lower flat area behind the Kasch's Nursery building that is 20'-30' wide before sloping downhill again toward the rear property line.

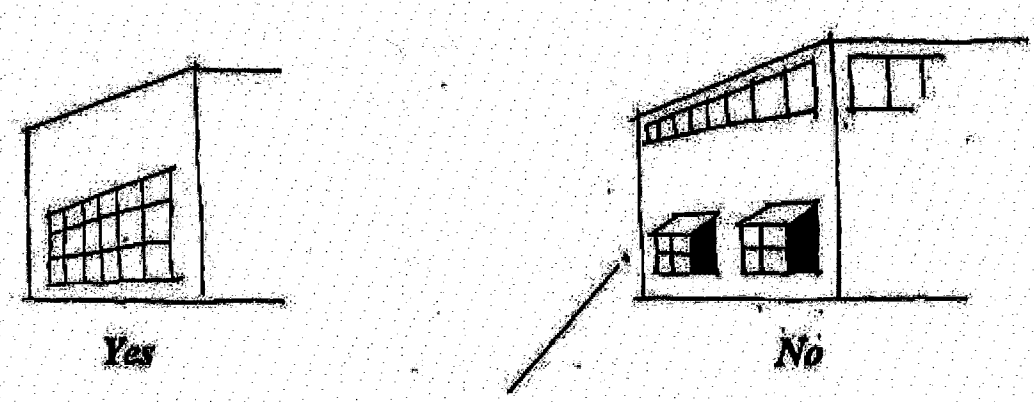
Grading proposed is to the minimum extent necessary to develop the site. Proposed grading will not alter existing drainage patterns as the site will still slope downhill and away from Beaverton-Hillsdale Hwy toward the rear property line. Beyond the drive-thru bypass lane the site grading has been adjusted to provide for a relatively flat area approximately 3' wide (typically). The flat area was created to allow for 4' tall solid wood screen fence to be located near the edge of the drive-thru lanes for the purposes of screening the drive-thru, as requested by the City. Beyond the fence line the site will be graded at a 3:1 slope until the grading matches the natural grade. The 3:1 slope area will have trees and shrubs planted on near the fence to provide additional vegetative screening once landscaping matures. Beyond the fence the slope will also be landscaped with salal which will provide slope stability and will eventually grow to blanket the slope and the remainder of the rear of the site.

*55.100(B) (6) (f) Transparency. This section requires that 60 percent of the lineal frontage of the street facing elevation comprise pedestrian level windows. The applicant contends that transparency is measured in terms of square footage, and not in lineal feet. The applicable section is as follows:

> *f. The main front elevation of commercial and office buildings shall provide at least 60 percent windows or transparency at the pedestrian level to create more interesting streetscape and window shopping opportunities. One side elevation shall provide at least 30 percent transparency. Any additional side or rear elevation, which is visible from a collector road or greater classification, shall also have at least 30 percent transparency. Transparency on other elevations is optional. The transparency is measured in lineal fashion. For example, a 100-foot-long building elevation shall have at least 60 feet (60 percent of 100 feet) in length of windows. The window height shall be, at minimum, three feet tall. The exception to transparency would be cases where demonstrated functional constraints or topography restrict that elevation from being used. When this exemption is applied to the main front elevation, the square footage of transparency that would ordinarily be required by the above formula shall be installed on the remaining elevations at pedestrian level in addition to any transparency required by a side elevation, and vice versa. The rear of the building is not required to include transparency. The transparency must be flush with the building elevation.*



60 percent of lineal street facing or main elevation is windows. 30 percent of one side elevation is windows. You may transfer windows from the side to front, or vice versa.



(Windows not at eye level and/or not flush with building.)

The City of West Linn has interpreted this section to mean that transparency is measured in lineal fashion only and not in terms of square feet. The front and rear elevations show pedestrian level transparency amounts of 41% only. That is below the requisite 60%. The two side elevations that need 30% transparency per code provide 0% each. Staff recognizes the functional requirements of a bank and that certain areas must be secure. Even if some additional windows were added, the bank is so far from the required amount that a Class II Variance should be applied for.

The front façade is 102' long which would require 61'-2" of transparency. Side elevations both are visible from the highway. The side elevations are each 43' long, which would require 12'-11" of transparency per elevation for a total of 25'-10". Overall the project is required to provide 87 lineal feet of transparency.

The proposed front façade has four 6' wide pedestrian scale windows and a 19'-4" storefront window/door system at the entry; providing 43'-4" of transparency. The two clerestory windows provided on each side elevation do not meet the definition of pedestrian scale windows and therefore do not count toward the transparency requirement.

We believe there is a conflict in the code regarding the transparency requirements for rear elevations. On one hand the code states that the rear elevation is not required to provide transparency. But on the other hand, if the rear elevation is visible from adjacent roadways of a collector classification or higher (highlighted above), then 30% glazing is required to be provided on the rear elevation. Because of this it cannot be definitively stated that the rear is exempt from the requirement to provide transparency.

Because code does not fully exempt rear elevations from the requirement to provide transparency we believe the rear elevation should be allowed to be considered as a qualifying elevation for the purpose of transparency transference in the same manner as front and side elevations are considered. The rear elevation is not visible from Willamette Drive. Therefore, 100% of the transparency provided on the rear of the bank should be transferable for the purpose of meeting the transparency requirements for the two side elevations and the front elevation. The rear elevation has four 6' wide pedestrian scale windows and a 15'-9" storefront window/door system at the rear entry; providing 39'-9" of transparency.

If considering glazing transference as allowed by code, the qualifying transparency provided at the front and rear elevations, combined, provide 83'-1" of transparency for the project as a whole, which is only 4'-11" (5.6%) shy of meeting the requirement of 87'.

The project provides 94.4% of the required transparency. Site layout and the resultant building design, combined with functional and security requirements of the bank precludes providing the required amount of transparency. In consideration of the transparency provided and the functional and security requirements of the Bank we request a variance from the standard. Following responses to the remainder of the staff completeness review comments, please see Transparency Variance section for full responses to the variance approval criteria of CDC section 75.060.

*55.100(B) (6) (h) discusses awnings. Although it does not spell out the dimension required, staff indicated to the applicant at the pre-app stage the importance of awnings projecting at least 4-6 feet out from the building so as to provide realistic protection from the weather similar to awnings on the commercial structures to the north on Willamette Drive. (Staff provided examples of awnings at nearby buildings as examples at the pre-application conference.). The applicant proposes 3-4'4" awnings that are 10 feet 8 inches above grade. Awnings that narrow and that high above grade do not provide any significant or functional protection from the elements. Also, they do not meet the contextual design requirements of (6) (b) and the human scale requirements of (6) (e) to the extent that awnings that were six feet wide or more.

The proposed canopy at the front entry projects 6' from the storefront window system. The two flanking canopies located on either side of the entry tower element have been revised to project from the building to align with the projection of the center entry canopy. Canopy depth varies along flanking canopies from 6'-3" to 4'-11".

*55.100(B) (7) (c) requires "*commercial, office, and multi-family projects shall be built as close to the adjacent main right-of-way as practical to facilitate safe pedestrian and transit access. Reduced frontages by buildings on public rights-of-way may be allowed due to extreme topographic (e.g., slope, creek, wetlands, etc.) conditions or compelling functional limitations, not just inconveniences or design challenges.*" The applicant states that CCRs prohibit positioning the building closer to the ROW. The applicant has provided no evidence of the CCR from a title company or its current applicability.

We have forwarded a copy of the language from the plat Cedar Oak Park Reservations & Restrictions that spell out the 60' building setback measured from the centerline (CL) of the Hwy (Willamette Drive). This language is applicable and runs with the land and has not been revoked by any other documents. Due to the original document's poor quality we have only submitted the document electronically in PDF format. You will find the document on the CD of documents & drawings submitted. Additionally we have e-mailed you a copy of the document for your review.

55.100(B)(7)(d) requires that "*accessways, parking lots, and internal driveways shall accommodate pedestrian circulation and access by specially textured, colored, or clearly defined footpaths at least six feet wide. Paths shall be eight feet wide when abutting parking areas or travel lanes*". The applicant should show a pedestrian walkway from the rear parking stalls to the rear entrance and further

accommodate that by shifting the ADA spaces two spaces north so the ADA aisle serves double function as a pedestrian access way.

We have added a cross-walk style striped pedestrian walkway connecting from the four compact stalls across the drive-aisle to the accessible aisle between the two ADA spaces. Please note that as discussed we were not able to shift the ADA access stalls and aisle closer to the entry due to the landing area required for the accessible ramp serving the accessible stalls.

Staff also notes a lack of pedestrian facilities that would allow pedestrian access between the bank and the properties to the north and south and between the rear parking area and Willamette Drive as required per 55.100(B)(7)(e). With the current design pedestrians at the rear of the bank (customers, employees) will be forced to walk in the travel lanes/driveways or across landscaping if they want to access neighboring businesses or Willamette Drive.

As we have reviewed over the phone and via sketches sent via e-mail, we have revised the walkways at the rear of the building to extend to the north property line and to the edge of the shared access drive at the south side of the site. Note that where adjacent to parking stalls the walkway measures 8' in width in consideration of possible vehicle overhang. Where not adjacent to parking the walkways are 6' in width.

As discussed we have added a less formal walkway along the south edge of the building to allow connectivity from the public sidewalk at Willamette Drive to the walkways at the rear of the site. This walkway is 4' wide and will be constructed of compacted crushed limestone, compacted decomposed granite, or concrete; depending on Chase's preference. Note the plan represents a concrete walk; however, final materials will be selected when construction plans are prepared.

*55.100(C) (D) requires consideration of the glare and noise. The applicant's acoustic engineer has already discussed noise in his report. Although the noise levels should meet DEQ standards, the noise level is close enough to the allowable limit to consider some mitigation as the acoustic engineer proposes.

Glare has not been discussed. Staff is concerned about glare from vehicles approaching the drive through tellers/ATM and the impact on residences to the east. Mitigation may be required in the form of a solid four foot high wood fence or CMU wall at the east edge of the drive through lanes to block glare and also diminish noise levels to meet DEQ standards. Relying solely on vegetation for noise/glare mitigation is impractical since the trees selected will take years before they provide even a modicum of screening.

As requested the site plan has been adjusted to provide a 4' solid wood fence for screening the drive-thru area to mitigate glare from vehicles approaching drive through tellers/ATM. Note: As discussed in the description of site grading earlier in this response letter, grading adjacent to the drive-thru lanes has been adjusted to provide a relatively flat (max slope 4:1) area for the fence to be constructed on before the slope breaks away downhill from the fence line.

55.100(G) Delineation of the rear of the site by a fence is needed to identify that area as a private space.

A chainlink fence has been called out on the site plan along the rear property line. Final details for fence material will be included in Final Site Development plans. Final fence line location will need to be field verified due to several trees being located along or on the rear property line.

*55.100(J) (6) The lighting plan shows metal halide fixtures. Low or high pressure sodium fixtures are required per the CDC. The City will consider LED lighting substitution. All fixtures must be physically shielded especially from the housing to the east.

Parking light lighting poles been updated to Low Pressure Sodium. LED lighting fixtures are proposed for the under canopy lighting for the drive-thru canopy. Compact Fluorescent Light (CFL) fixtures are proposed for building mounted site lighting.

19.070(A) (7) requires that 25% of the area of the front setback be landscaped. The applicant provides 19.5%. The applicant requests an exception. The CDC does not offer exceptions for this unless it is for a shortfall of 10% and a significant natural feature (e.g. heritage tree) is saved. Those conditions do not exist here. A Class II Variance is the only option apart from adding more landscaping.

As discussed earlier in this response letter. Two raised planter beds were added between to the building plaza located between the 12' sidewalk and building setback line to meet the 25% landscape requirements. See updated Site Plan, Development Plan and Landscape Plan

55.110 (B) (3) A slope analysis which identifies portions of the site according to the slope ranges as follows:

a. Zero to 15 percent;
b. 16 to 25 percent;
c. 26 to 35 percent;
d. 36 to 50 percent;
e. Greater than 50 percent.

Alternately, the applicant could ask for a waiver of this criterion through CDC 99.035(B). Staff will support the waiver request.

Per CDC 99.035(B) we request the requirement to provide a slope category map be waived. The site is a pre-developed site that is proposed to be redeveloped. Adequate information necessary for the review of the proposed project has been provided in the form of an ALTA survey showing existing site conditions and a Preliminary Development Plan showing the proposed grading of the site.

55.110 (B) (10) show location of trees with 6-inch caliper at five feet.

The ALTA survey has been updated to show trees as specified above. The Landscape Plan and Preliminary Development plan have been updated to show the existing tree locations as well.

55.110 (B) (13) Identify Type I and II lands in map form. Provide a table which identifies square footage of Type I and II lands also as percentage of total site square footage. (Type I lands have slopes over 35% while Type II lands have slopes 25-35%) If no part of the site falls into those categories then please state

as such. Alternately, the applicant could ask for a waiver of this criterion through CDC 99.035(B). Staff will support the waiver request.

Per CDC 99.035(B) we request the requirement to provide a slope category map be waived. The site is a pre-developed site that is proposed to be redeveloped. Adequate information necessary for the review of the proposed project has been provided in the form of an ALTA survey showing existing site conditions and a Preliminary Development Plan showing the proposed grading of the site.

55.130 Grading Plan. No grading plan is provided. The only information on grading is shown on the Preliminary Development Plan. Erosion Control measures should be shown too (also required by 55.150(B) (1).)

Grading information was provided on the Preliminary Development Plan provided as part of the original application. Erosion control notes were included on the original Preliminary Development Plan.

The Preliminary Development Plan has been updated to provide more clear grading information. Erosion control measures have also been added to the Preliminary Development Plan in response to the comment above.

55.140 Architectural Plans. No rooftop drawings provided to show location and dimensions (height) of HVAC. HVAC is supposed to be visually screened.

Building Sections have been provided to show location and dimensions of rooftop HVAC equipment.

Chapter 54: Landscaping. Discuss plans to remove non-native plant/invasives at the rear of the property and replace with approved natives or allowed alternative material.

A note has been added to the Landscape plan regarding the non-native plant/invasive at the rear of the site. The note states the following:

"Remove all invasive and non-native plant material. Replace with Salal as shown."

Engineering Comments:

In the course of reviewing the traffic report and the storm drainage report a disparity in the building square footages was noted which may have affected the calculations in one or both of those reports.

Traffic Report

- Existing Nursery Garden Center = 9,400 sq ft
- Proposed Building = 4,324 sq ft

Storm Drainage Report

- Existing Nursery Garden Center = 5,630 sq ft
- Proposed Building = 4,120 sq ft

At least one or both of these reports need to be modified to reflect the correct building square footage.

The Storm Drainage Report has been updated to reflect a building footprint area of 4,324 SF.

TRANSPARENCY VARIANCE:

On behalf of the bank we request the City of West Linn grant variance from the transparency requirements of CDC section 55.100(B) (6) (f) Transparency. We request the transference of transparency allowed by the code be considered as part of this variance request in order to demonstrate that the bank is requesting the minimum variance necessary to meet the code.

As discussed earlier in this response letter, there are transparency provisions in the code that would require the rear elevation of a project to provide 30% transparency if, similar to side elevations, it is visible from adjacent roads of a collector classification or higher. Furthermore, nowhere in the code section does it state that an elevation used for transference must itself be an elevation that is required to provide transparency.

Therefore, we request that the City allow the rear elevation to also be considered a qualifying elevation for the purposes of applying the provision in the code section that allows for the transference of transparency; thereby accepting transparency calculations provided earlier in this response letter.

Below we will respond to the variance approval criteria in **bold** text.

75.060 APPROVAL CRITERIA
The appropriate approval authority shall approve a variance request if all the following criteria are met and corresponding findings of fact prepared. The approval authority may impose appropriate conditions to ensure compliance with the criteria. The approval authority shall deny the variance if any of the criteria are not met.

A. Exceptional or extraordinary circumstances apply to the property which do not apply generally to other properties in the same zone or vicinity, and result from lot size or shape, legally existing prior to the date of this code, topography, or other circumstances over which the applicant has no control.

The proposed project is a bank. To meet code the building has been aligned with the street frontage along Willamette Drive and is sited to provide as much building frontage on Willamette Drive as feasible. Customer parking is located to the rear of the building. Additionally, walkways interior to the site provide for connections to adjacent retail development to the north and south of the site.

Providing dual entries is important to the function of the site and the bank. The dual entry provides strong connectivity to the adjacent retain developments via vehicular and pedestrian

connections interior to the site, as well as to the public via the entry from the public sidewalk along Willamette Drive.

The sacrifice that results from having a dual entry is there is effectively no "rear" to the building and as a result no place to locate "back of house" functions/uses and security sensitive uses. In this particular instance the dual entries are aligned on the center of the building requiring "back of house" and security sensitive areas to be located in the flanks of the building. The building has been designed and sited to meet code requirements. We believe providing the dual entry building provides the best building layout for this site, however functional and security requirements of the bank preclude the addition of more transparency to the building.

B. The variance is necessary for the preservation of a property right of the applicant, which is substantially the same as a right possessed by owners of other property in the same zone or vicinity.

Banks are permitted uses allowed by code. The site layout and building location proposed meet the Community Development Code requirements for this site. Additionally, the building design and materials are of high quality and meet the design intent of the code. When considering the transparency requirements, the impact of functional & security requirements should be considered as a limiting factor and not be counted as a strike against the design of the bank.

C. The authorization of the variance will not be materially detrimental to the purposes and standards of this code, will not be inconsistent with all other regulatory requirements, and will not conflict with the goals and policies of the West Linn Comprehensive Plan.

With the exception of meeting transparency requirements, we believe the project and building are of a high quality design; and for all intents and purposes meet the purposes and standards of the Community Development Code. Authorization of the variance will not be detrimental to the purposes and standards of this code, will not be inconsistent with all other regulatory requirements, and will not conflict with the goals and policies of the West Linn Comprehensive Plan.

D. The variance request is the minimum variance which would alleviate the exceptional and extraordinary circumstance.

Assuming the rear elevation can be considered for the purposes of allowing for the transference of transparency from one facade to another; our calculations have demonstrated the project provides 83'-1" of transparency. The transparency proposed to be provided is only 4'-11" (5.6 %) shy of the 87' of transparency required for the project as a whole. We believe this percentage of deficiency to be minor and is the minimum variance required to alleviate the circumstances of the bank. For a full discussion of transparency calculations please see pages 4 & 5 of this response letter.

E. The exceptional and extraordinary circumstance does not arise from the violation of this code.

The circumstances of the bank do not arise from the violation of this code.

F. The variance will not impose physical limitations on other properties or uses in the area, and will not impose physical limitations on future use of neighboring vacant or underdeveloped properties as authorized by the underlying zoning classification. (Ord. 1442, 1999)

This variance does not relate to setbacks, height, building size, or siting of the building. Therefore the granting of this variance will not impose physical limitations on the other properties or uses in the area, and will not impose physical limitations on future use of neighboring vacant or underdeveloped properties.

We look forward to approval of the requested variance as well as the approval of the project. If you require any additional information please do not hesitate to contact me.

Sincerely,

Hans Christiansen
Associate

Enclosure

c: Callison file: 210461.89

STORM SEWER NOTES

1) STORMWATER FROM THE PROPOSED DEVELOPMENT WILL BE CAPTURED BY CATCH BASINS TREATED IN A CARTRIDGE FILTER MANHOLE, DETAINED IN THE 60' CMP DETENTION PIPE RELEASED AT PREDEVELOPED RATES VIA A FLOW CONTROL MANHOLE, AND THEN CONVEYED VIA PIPE TO THE EXISTING STORM SYSTEM LOCATED AT THE NORTHWEST CORNER OF THE SITE.

2) STORMWATER TREATMENT IS PROVIDED BY A 48" STORMFILTER MANHOLE WITH 3 CARTRIDGE FILTERS.

3) STORMWATER DETENTION IS PROVIDED BY 180 LF OF 60" CMP PIPE WITH A FLOW CONTROL MANHOLE TO RESTRICT FLOWS TO PREDEVELOPED RATES.

4) EXISTING CATCH BASINS AND SERVICE LATERALS NOT BEING UTILIZED AS PART OF THE NEW DEVELOPMENT WILL BE COMPLETELY REMOVED.

SANITARY SEWER NOTES

1) SANITARY SEWER SERVICE FOR THE PROPOSED DEVELOPMENT WILL BE PROVIDED BY CONNECTING TO AN EXISTING SANITARY LATERAL LOCATED NEAR THE EAST END OF THE SITE AND EXTENDING A NEW SANITARY LATERAL TO THE PROPOSED BUILDING.

2) EXISTING SERVICE LATERALS AND CLEANOUTS NOT BEING UTILIZED AS PART OF THE NEW DEVELOPMENT WILL BE COMPLETELY REMOVED.

WATER NOTES

1) THE EXISTING 1" DOMESTIC WATER SERVICE LOCATED ON WILLAMETTE DRIVE IS TO REMAIN IN PLACE AND PROVIDE SERVICE TO THE PROPOSED DEVELOPMENT. A BACKFLOW PREVENTION DEVICE IS TO BE INSTALLED BETWEEN THE METER AND THE PROPOSED BUILDING.

2) THERE ARE TWO EXISTING FIRE HYDRANTS LOCATED ON THE NORTH SIDE OF WILLAMETTE DRIVE THAT ARE TO PROVIDE FIRE SUPPRESSION FOR THE PROPOSED DEVELOPMENT. ONE HYDRANT IS LOCATED APPROXIMATELY HALF NORTH OF THE SITE AND THE OTHER IS LOCATED APPROXIMATELY 180 LF SOUTH OF THE SITE.

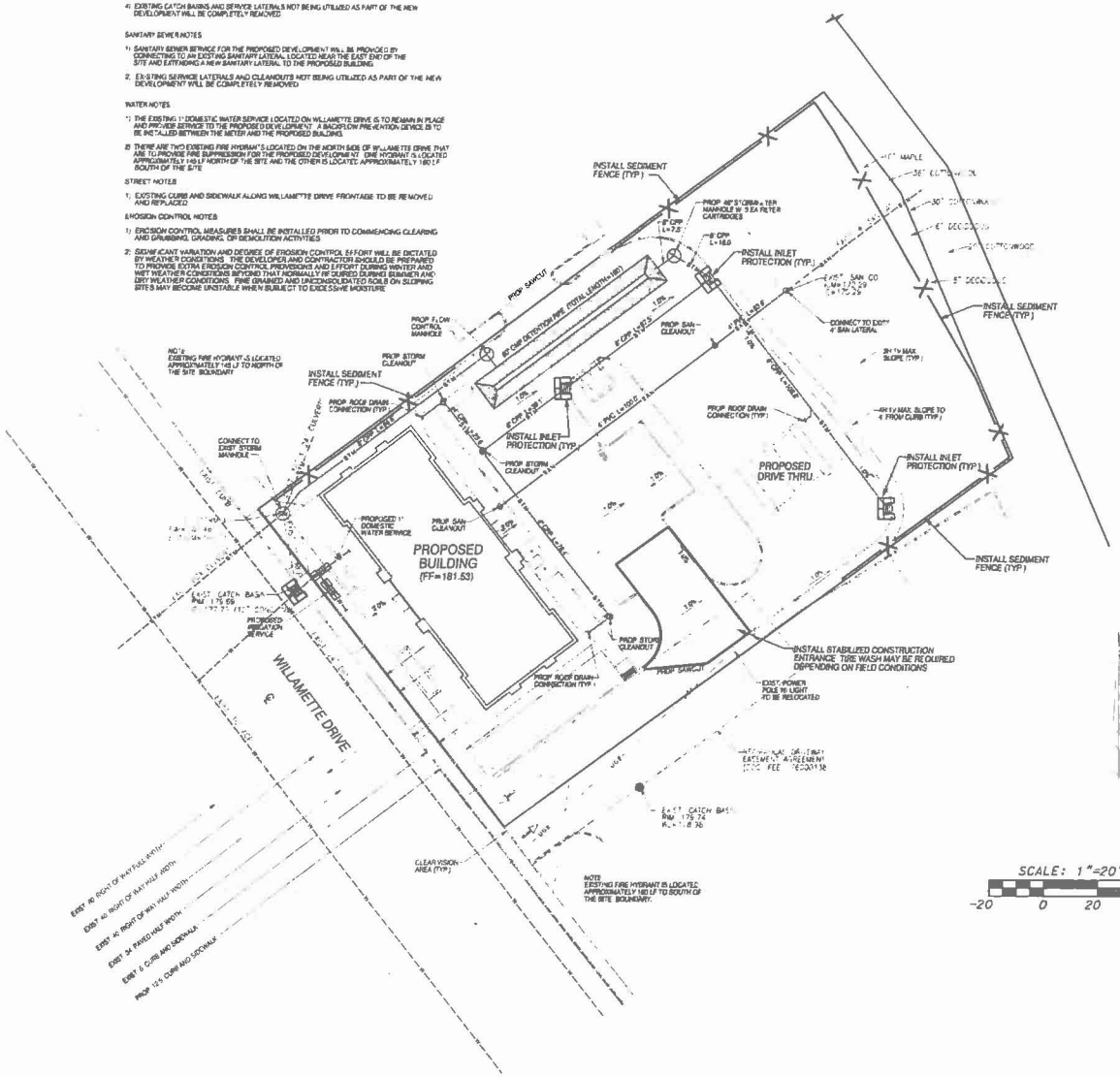
STREET NOTES

1) EXISTING CURB AND SIDEWALK ALONG WILLAMETTE DRIVE FRONTAGE TO BE REMOVED AND REPLACED.

EROSION CONTROL NOTES

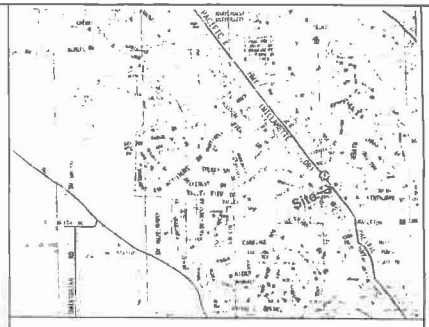
1) EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO COMMENCING CLEARING AND GRUBBING, GRADING, OR DEMOLITION ACTIVITIES.

2) SIGNIFICANT VARIATION AND DEGREE OF EROSION CONTROL EFFORT WILL BE DICTATED BY WEATHER CONDITIONS. THE DEVELOPER AND CONTRACTOR SHOULD BE PREPARED TO PROVIDE EXTRA EROSION CONTROL PROVISIONS AND EFFORT DURING WINTER AND WET WEATHER CONDITIONS BEYOND THAT NORMALLY REQUIRED DURING SUMMER AND DRY WEATHER CONDITIONS. FINE GRAINED AND UNCONSOLIDATED SOILS ON SLOPING SITES MAY BECOME UNSTABLE WHEN SUBJECT TO EXCESSIVE MOISTURE.

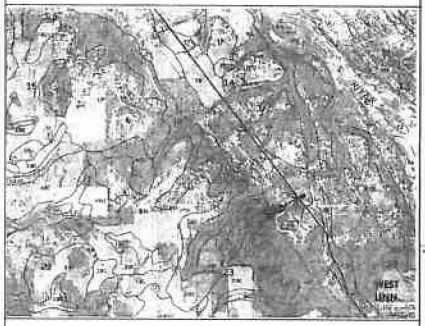


SCALE: 1"=20'

-20 0 20 40



VICINITY MAP



SOILS MAP

LEGEND

- PERIMETER OF SITE
- RIGHT OF WAY LINE
- CENTERLINE OF ROAD
- FACE OF CURB
- LOT LINE
- EASEMENT LINE
- STM — STORM SEWER LINE
- STM — EXIST STORM SEWER
- SAN — SANITARY SEWER LINE
- SAN — EXIST SANITARY SEWER
- W — WATER SERVICE LINE
- W — EXIST WATER LINE
- MANHOLE
- CLEAN OUT
- CATCH BASIN
- FIRE HYDRANT ASSEMBLY
- WATER VALVE AND BOX
- BLOWOFF ASSEMBLY
- THRUST BLOCK
- WATER SERVICE METER
- TELEPHONE RISER
- GAS RISER
- ELECTRIC RISER
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- SIGN POST
- 123 — GRADED CONTOUR LINE
- 123 — EXIST CONTOUR LINE
- X — SEDIMENT FENCE
- CONSTRUCTION ENTRANCE
- INLET PROTECTION

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.BP

ALLISON

ALLISON ARCHITECTS, P.C.

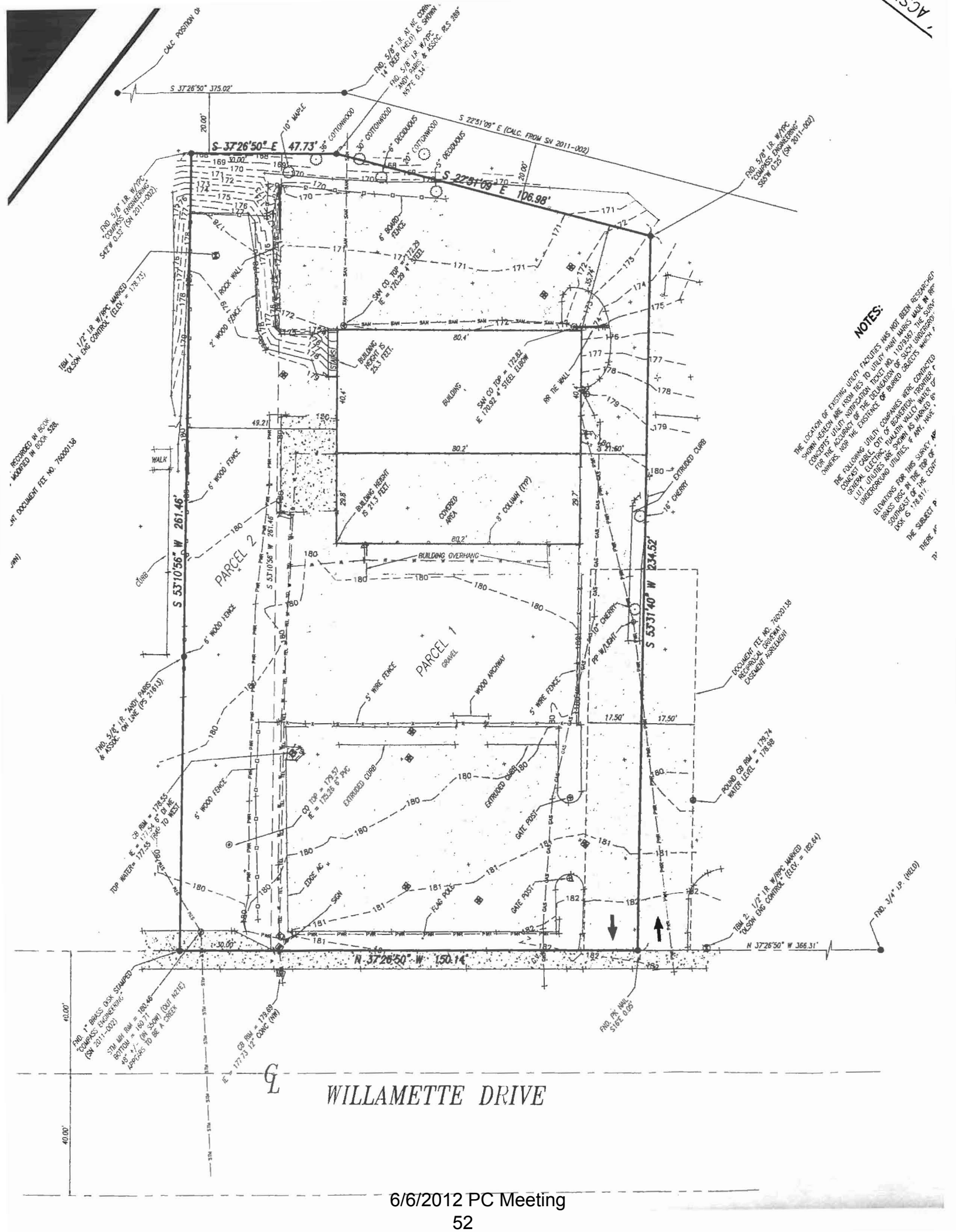
OLSON ENGINEERING

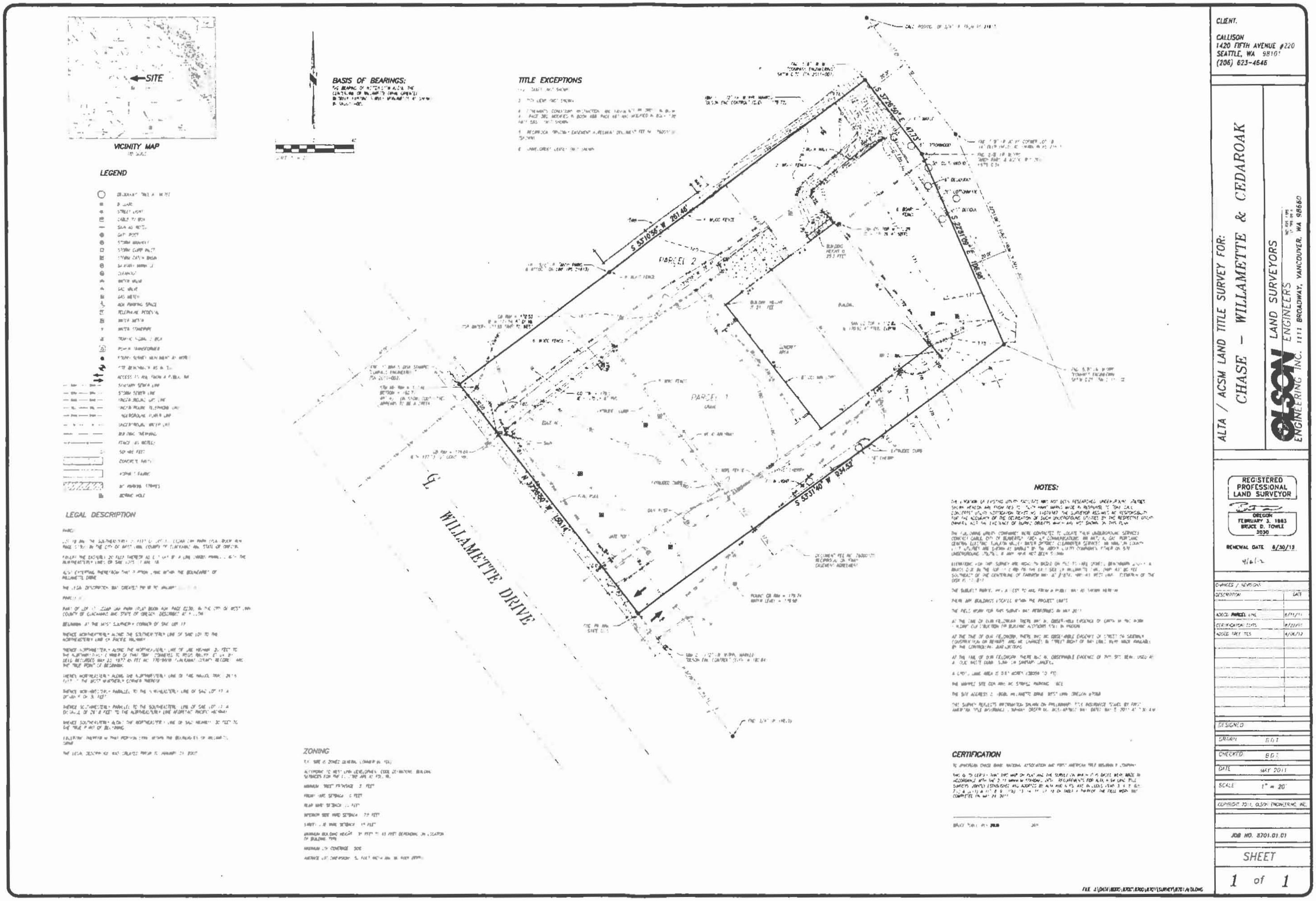
ISSUE	DATE	DESCRIPTION
	3/23/2012	PRELIMINARY DEVELOPMENT PLAN
	4/11/2012	COMPREHENSIVE REVISIONS

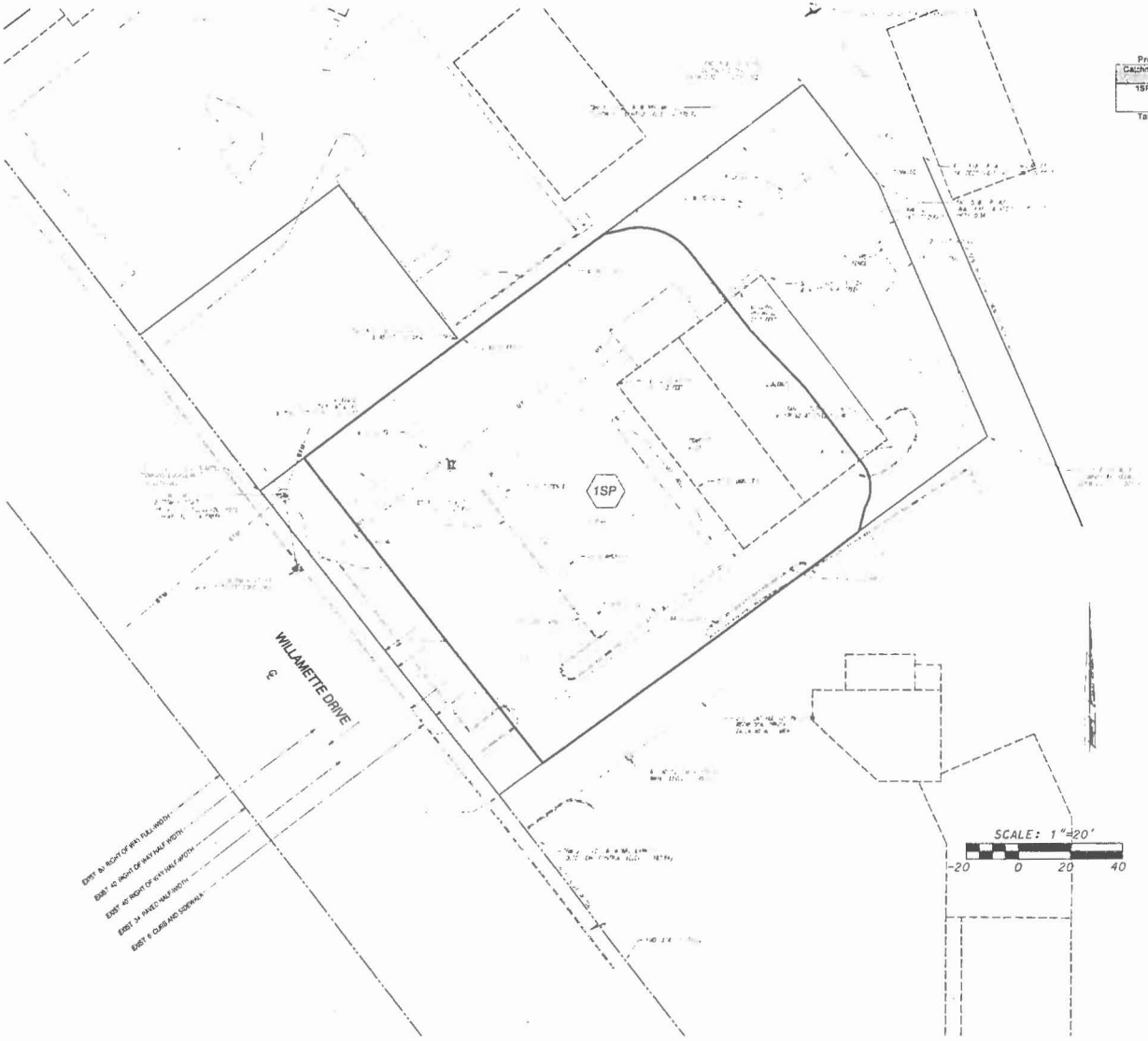
PRELIMINARY DEVELOPMENT PLAN

SHEET NUMBER

1 OF 1


S 37°26'50" E 47.73'
S 22°51'09" E 106.98'
S 53°10'56" W 261.46'
S 53°31'40" W 234.52'
N 37°26'50" W 150.14'
N 37°26'50" W 366.31'
PARCEL 1
PARCEL 2
GRAVEL
BUILDING
BUILDING OVERHANG
COVERED AREA
BUILDING HEIGHT IS 25.3 FEET.
BUILDING HEIGHT IS 21.3 FEET.
SAN CO TOP = 172.29 IE = 170.29 4" STEEL
SAN CO TOP = 172.82 IE = 170.92 4" STEEL ELBOW
CO TOP = 173.57 IE = 170.26 6" PVC
CB RIM = 178.55 IE = 177.54 6" PVC INLET TO WEST
TOP WATER = 177.55
STM MH RIM = 180.46 BOTTOM = 160.71 48" +/- APPEARS TO BE A CREEK
CB RIM = 179.68 IE = 177.73 12" CONC (NW)
POUND CB RIM = 178.74 WATER LEVEL = 178.68
FND. 5/8" I.R. AT N.C. CORN. 14" DEEP (HELD) AS SHOWN
FND. 5/8" I.R. W/YPC "ANDY PARRS & ASSOC. PLS 2893" NOTE 0.34
FND. 5/8" I.R. W/YPC "COMPASS ENGINEERING" S63°W 0.25' (SN 2011-002)
FND. 5/8" I.R. W/YPC "COMPASS ENGINEERING" S42°W 0.32' (SN 2011-002)
FND. 5/8" I.R. "ANDY PARRS & ASSOC. ON LINE (PS 21613)
FND. 1" BRASS DISK STAMPED "COMPASS ENGINEERING" (SN 2011-002)
FND. PK NAIL S16E 0.05
FND. 1/4" I.P. (HELD)
TBM 1 1/2" I.R. W/RPC MARKED "OLSON ENG CONTROL" (ELEV. = 178.75)
TBM 2 1/2" I.R. W/RPC MARKED "OLSON ENG CONTROL" (ELEV. = 182.64)
6' BOARD FENCE
6' WOOD FENCE
5' WIRE FENCE
2' WOOD FENCE
ROCK WALL
WOOD ARCHWAY
GATE POST
FLAG POLE
SIGN
EDGE AC
EXTRUDED CURB
CURB
WALK
STAIRS
PP W/LIGHT
10" MAPLE
30" COTTONWOOD
6" DECIDUOUS
20" COTTONWOOD
5" DECIDUOUS
16" CHERRY
10" CHERRY
8" COLUMN (TYP)
DOCUMENT FEE NO. 760001.38 RECIPROCAL DRIVEWAY EASEMENT AGREEMENT
RECORDED IN BOOK
MODIFIED IN BOOK 528,
DOCUMENT FEE NO. 760001.38
NOTES:
THE LOCATION OF EXISTING UTILITY FACILITIES HAS NOT BEEN RESEARCHED
SHOWN HEREON ARE FROM TIES TO UTILITY PAINT MARKS MADE IN RES
CONCEPTS UTILITY NOTIFICATION TICKET NO. 110193.57. THE SURV
FOR THE ACCURACY OF THE DELINEATION OF SUCH UNDERGRO
OWNERS, NOR THE EXISTENCE OF BURIED OBJECTS WHICH
THE FOLLOWING UTILITY COMPANIES WERE CONTACTED
CONCAST CABLE, CITY OF BEAVERTON, FRONTIER C
GENERAL ELECTRIC, TUALATIN VALLEY WATER DI
(UT. UTILITIES ARE SHOWN AS MARKED BY
UNDERGROUND UTILITIES, IF ANY, HAVE
ELEVATIONS FOR THIS SURVEY ARE
BRASS DISC IN THE TOP OF
SOUTHEAST OF THE CENTE
DISK IS 178.81'.
THE SUBJECT P
THERE AR
WILLAMETTE DRIVE
40.00'
40.00'


CLIENT:
CALLISON
1420 FIFTH AVENUE #220
SEATTLE, WA 98101
(206) 623-4646
ALTA / ACSM LAND TITLE SURVEY FOR:
CHASE – WILLAMETTE & CEDAROAK
OLSON ENGINEERING INC.
LAND SURVEYORS
ENGINEERS
1111 BROADWAY, VANCOUVER, WA 98660
REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
BRUCE D. TOWLE
RENEWAL DATE 6/30/13
VICINITY MAP
SITE
BASIS OF BEARINGS:
TITLE EXCEPTIONS
LEGEND
LEGAL DESCRIPTION
ZONING
NOTES:
CERTIFICATION
PARCEL 2
PARCEL 1
WILLAMETTE DRIVE
S 53°10'56" W 261.46'
S 53°31'40" W 234.52'
DESIGNED
DRAWN BDT
CHECKED BDT
DATE MAY 2011
SCALE 1" = 20'
JOB NO. 8701.01.01
SHEET
1 of 1



Pre-developed Catchment Area:

Catchment	Area (AC)	CN	Description	Type of Flow	Length (ft)	Slope (%)
1SP	0.573	70	Woods, Good, HSG "C"	Sheet Flow	167	1.1
				Shallow Conc. Flow	30	11.0

Table 1 Hydrologic parameters used in stormwater analysis

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

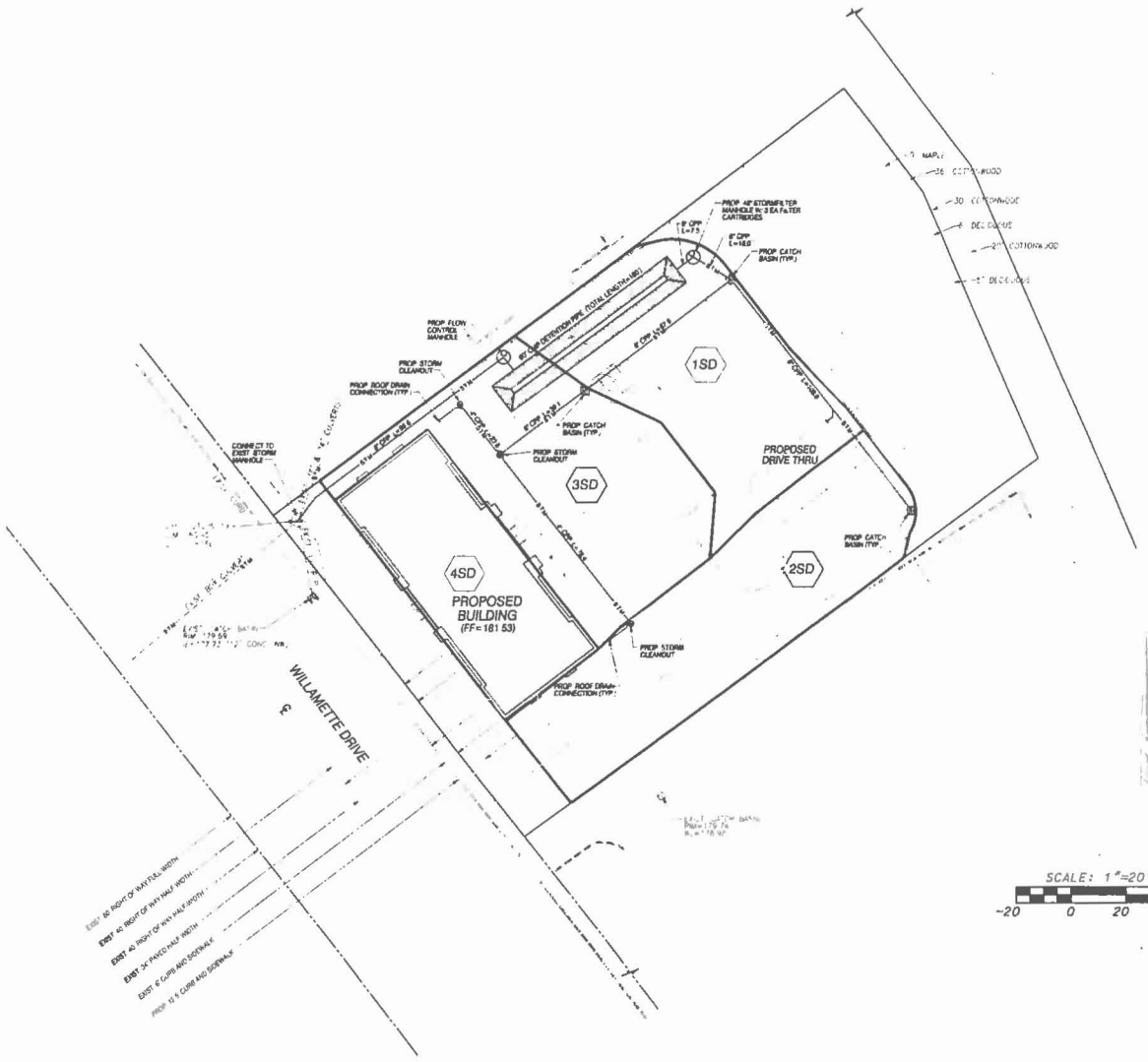
ARCHITECT OF RECORD
ALLISON
ALLISON ARCHITECTS, P.C.

ENGINEER OF RECORD
OLSON ENGINEERING

ISSUE	DATE	DESCRIPTION
	5/04/12	DESIGN REVIEW APPLICATION
	6/--/2012	COMPLETENESS RESPONSE

PRELIMINARY
PRE-DEVELOPED
CATCHMENT PLAN

SHEET NUMBER
1 OF 2



Developed Catchment Areas:

Catchment	Area (AC)	CN	Description	Type of Flow	Length (Ft.)	Slope (%)
1SD	0.127	98	Paved parking	Direct entry (5.0 Min.)	-	-
	0.023	74	>75% Grass cover, Good, HSG C			
2SD	0.105	98	Paved parking	Direct entry (5.0 Min.)	-	-
	0.056	74	>75% Grass cover, Good, HSG C			
3SD	0.110	98	Paved parking	Direct entry (5.0 Min.)	-	-
	0.016	98	Sidewalk			
	0.334	74	>75% Grass cover, Good, HSG C			
4SD	0.101	98	Roof	Direct entry (5.0 Min.)	-	-

Table 2: Hydrologic parameters used in stormwater analysis

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

ALLIED

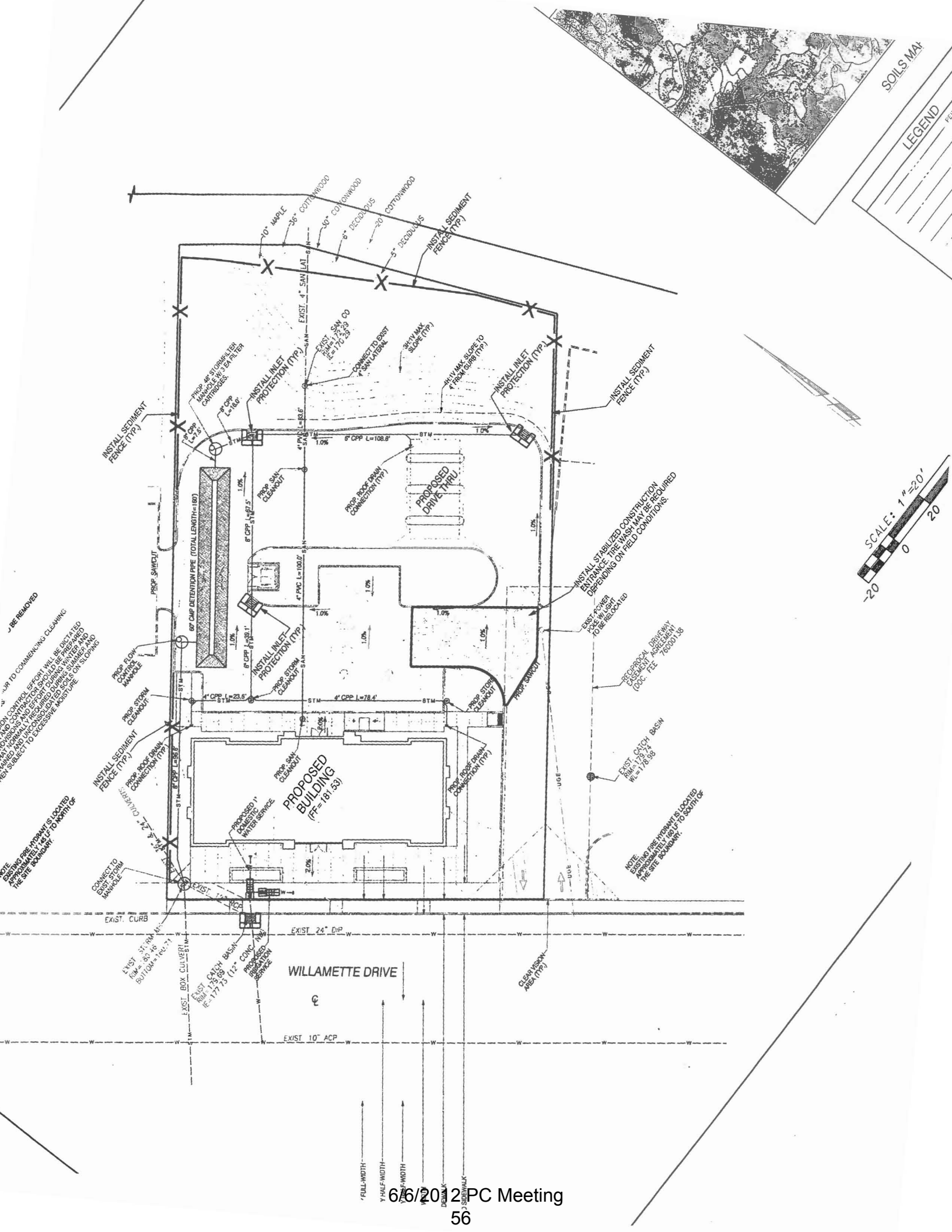
CALLISON ARCHITECTS, P.C.

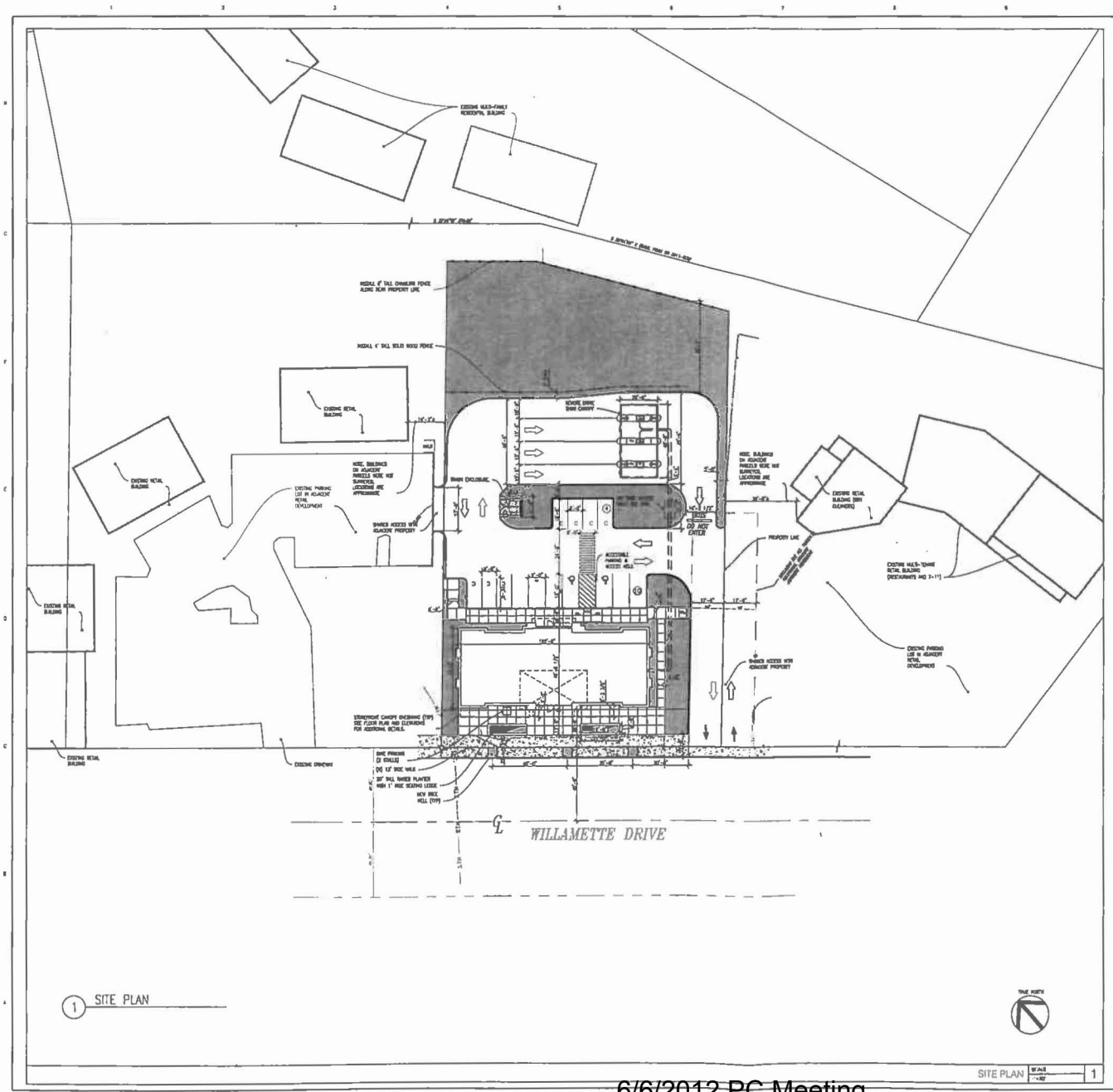
OLSON ENGINEERING

ISS#	DATE	DESCRIPTION
	2/23/2012	DESIGN REVIEW APPLICATION
	4/17/2012	SUBMITTAL REVISIONS

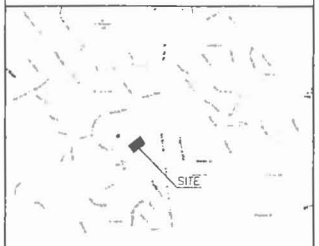
SHEET TITLE
PRELIMINARY DEVELOPED CATCHMENT PLAN

SHEET NUMBER
2 OF 2


SOILS MAP
LEGEND
SCALE: 1"=20'
0
20
-20
10" MAPLE
36" COTTONWOOD
30" COTTONWOOD
6" DECIDUOUS
20" COTTONWOOD
5" DECIDUOUS
INSTALL SEDIMENT FENCE (TYP.)
EXIST. 4" SAN LAT.
EXIST. SAN CO RIM=172.79 IE=170.29
CONNECT TO EXIST 4" SAN LATERAL
3H:1V MAX SLOPE (TYP.)
PROP. 48" STORMFILTER MANHOLE W/ 3 EA FILTER CARTRIDGES.
INSTALL INLET PROTECTION (TYP.)
8" CPP L=18.0'
8" CPP L=7.5'
4" PVC L=82.6'
6" CPP L=108.8'
PROP. SAN CLEANOUT
PROP. ROOF DRAIN CONNECTION (TYP.)
PROPOSED DRIVE THRU
8" CPP L=87.5'
60" CMP DETENTION PIPE (TOTAL LENGTH=160')
PROP. SAWCUT
4" PVC L=100.0'
8" CPP L=89.1'
INSTALL STABILIZED CONSTRUCTION ENTRANCE. TIRE WASH MAY BE REQUIRED DEPENDING ON FIELD CONDITIONS.
EXIST. POWER POLE W/ LIGHT TO BE RELOCATED
PROP. FLOW CONTROL MANHOLE
PROP. STORM CLEANOUT
4" CPP L=23.6'
4" CPP L=78.4'
RECIPROCAL DRIVEWAY EASEMENT AGREEMENT (DOC. FEE 7600038
INSTALL SEDIMENT FENCE (TYP.)
PROP. ROOF DRAIN CONNECTION (TYP.)
8" CPP L=36.8'
PROPOSED BUILDING (FF=181.53)
EXIST. CATCH BASIN RIM=179.14 W=178.98
PROPOSED 1" DOMESTIC WATER SERVICE
CONNECT TO EXIST STORM MANHOLE
NOTE: EXISTING FIRE HYDRANT IS LOCATED APPROXIMATELY 145 LF TO NORTH OF THE SITE BOUNDARY.
NOTE: EXISTING FIRE HYDRANT IS LOCATED APPROXIMATELY 160 LF TO SOUTH OF THE SITE BOUNDARY.
EXIST. CURB
EXIST. 24" DIP
EXIST. STORM MH RIM=183.46 BOTTOM=170.71
EXIST. BOX CULVERT
EXIST. CATCH BASIN RIM=179.69 IE=177.73 (12" CONC. IN)
PROPOSED IRRIGATION SERVICE
WILLAMETTE DRIVE
CLEAR VISION AREA (TYP.)
EXIST. 10" ACP
FULL WIDTH
½ HALF WIDTH
SIDEWALK



VICINITY PARCEL MAP



GENERAL PROJECT INFORMATION

LANDSCAPING

PLAN NORTH

CHASE

CALLISON

CALLISON ARCHITECTS, P.C.
www.callison.com

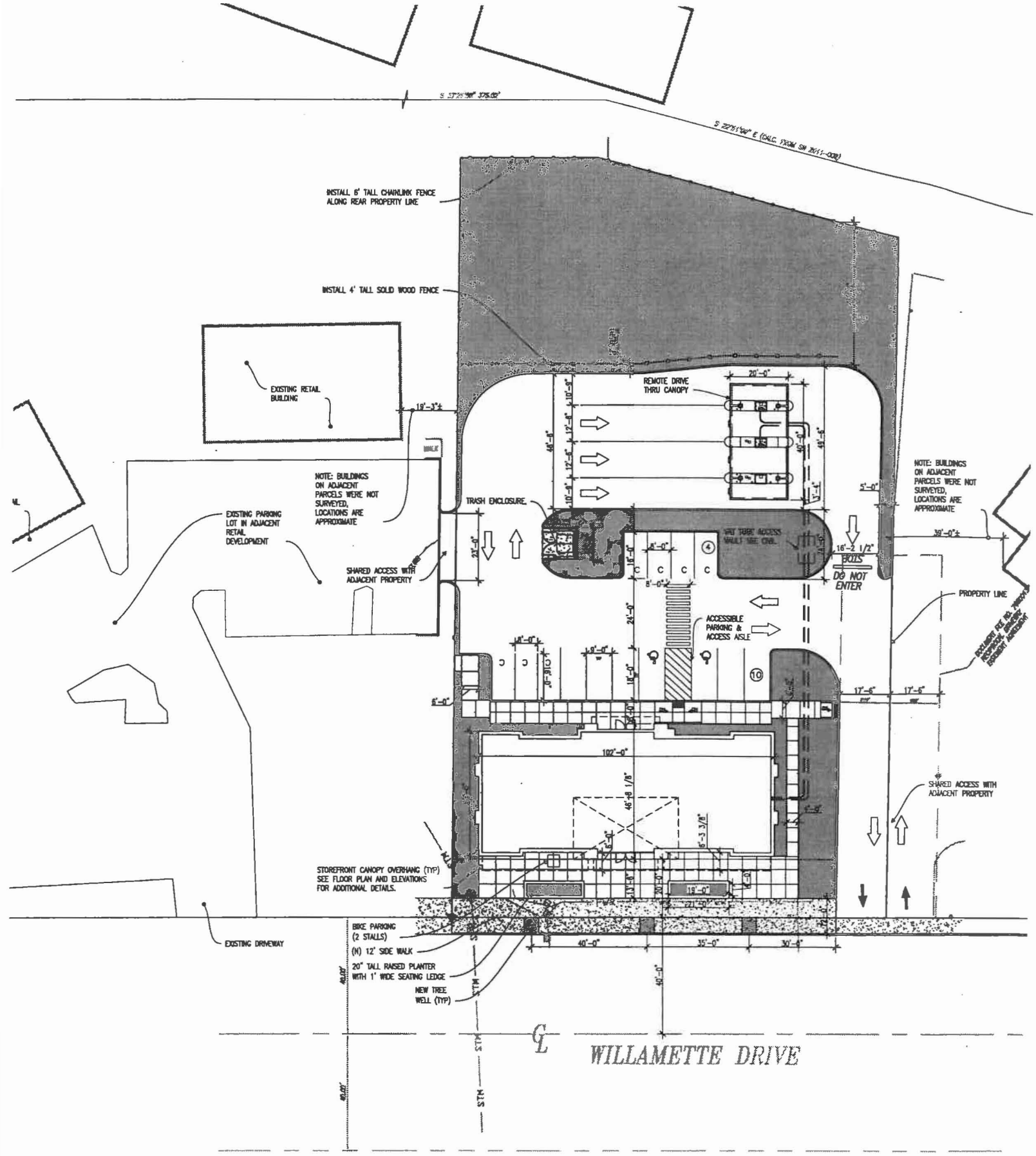
CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
1808O Willamette Dr
West Linn, OR 97068

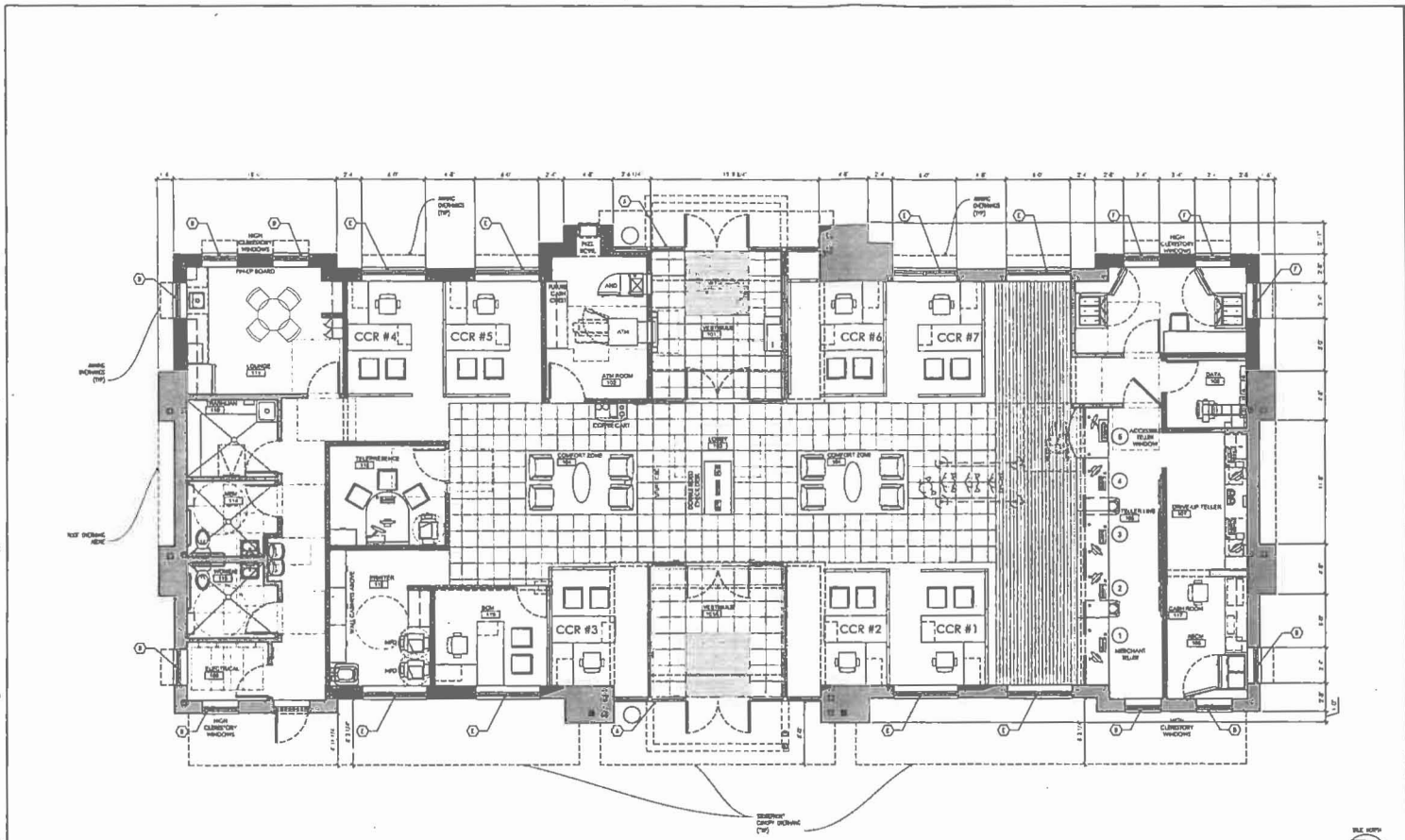
PROJECT #210481.00

ISSUED + REVISED	DATE
PLANNING SUBMITTAL	02/28/12
PLANNING ADD. INFO.	03/29/12
COMPLETENESS REV.	04/11/12

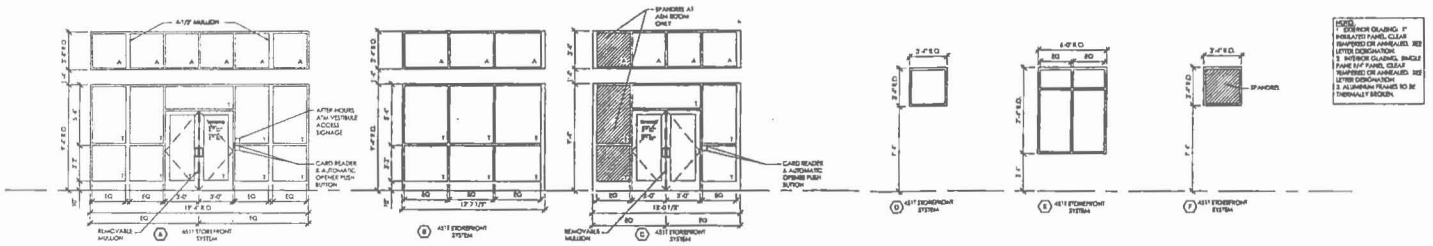
SITE PLAN

A0.1


INSTALL 6' TALL CHAINLINK FENCE ALONG REAR PROPERTY LINE
INSTALL 4' TALL SOLID WOOD FENCE
EXISTING RETAIL BUILDING
NOTE: BUILDINGS ON ADJACENT PARCELS WERE NOT SURVEYED, LOCATIONS ARE APPROXIMATE
EXISTING PARKING LOT IN ADJACENT RETAIL DEVELOPMENT
SHARED ACCESS WITH ADJACENT PROPERTY
TRASH ENCLOSURE
REMOTE DRIVE THRU CANOPY
DO NOT ENTER
ACCESSIBLE PARKING & ACCESS AISLE
NOTE: BUILDINGS ON ADJACENT PARCELS WERE NOT SURVEYED, LOCATIONS ARE APPROXIMATE
PROPERTY LINE
SHARED ACCESS WITH ADJACENT PROPERTY
STOREFRONT CANOPY OVERHANG (TYP) SEE FLOOR PLAN AND ELEVATIONS FOR ADDITIONAL DETAILS.
EXISTING DRIVEWAY
BIKE PARKING (2 STALLS)
(N) 12' SIDE WALK
20" TALL RAISED PLANTER WITH 1' WIDE SEATING LEDGE
NEW TREE WELL (TYP)
WILLAMETTE DRIVE



1 FLOOR PLAN
1/4"=1'-0"



2 WINDOW TYPE
1/4"=1'-0"

SHEET NOTES

SHEET SYMBOLS

FEC LOCATE TOP OF CABINET AT 4'-6" AFF (TOP HANDLE TO BE AT 48" AFF MAX) PROVIDE 2A-10BC EXTINGUISHER
FIRE EXTINGUISHER CABINET

5' CLEAR TURN AROUND

TRUE NORTH

SCALE 1/4" = 1'-0"

CHASE

CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19880 Willamette Dr
West Linn, OR 97068

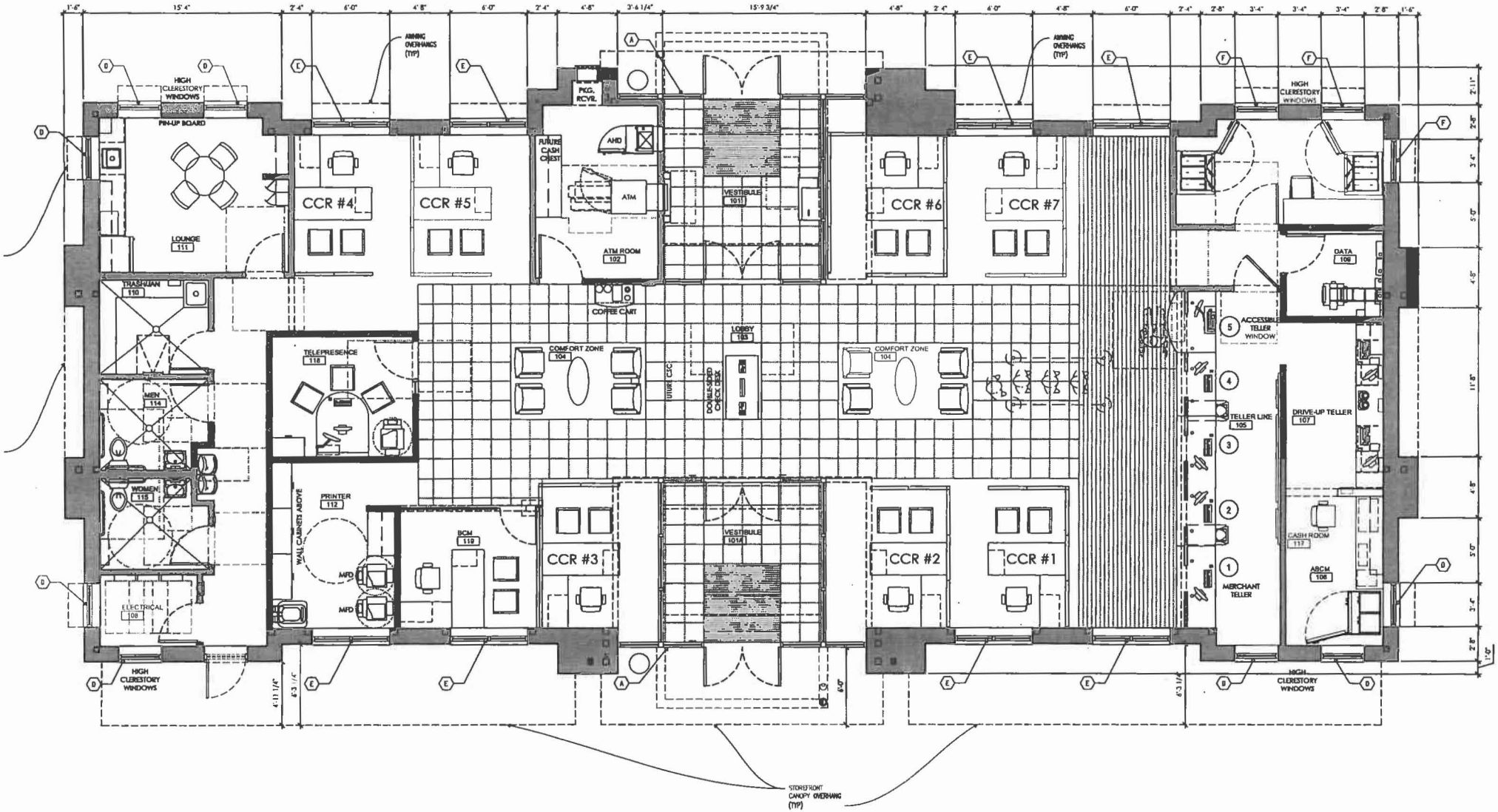
PROJECT #210421.00

ISSUED / REVISED	DATE
PLANNING SUBMITTAL	03/23/12
PLANNING ADD. INFO.	03/30/12
COMPLETENESS REV	04/11/12

CALLISON ARCHITECTS, P.C.
www.callison.com

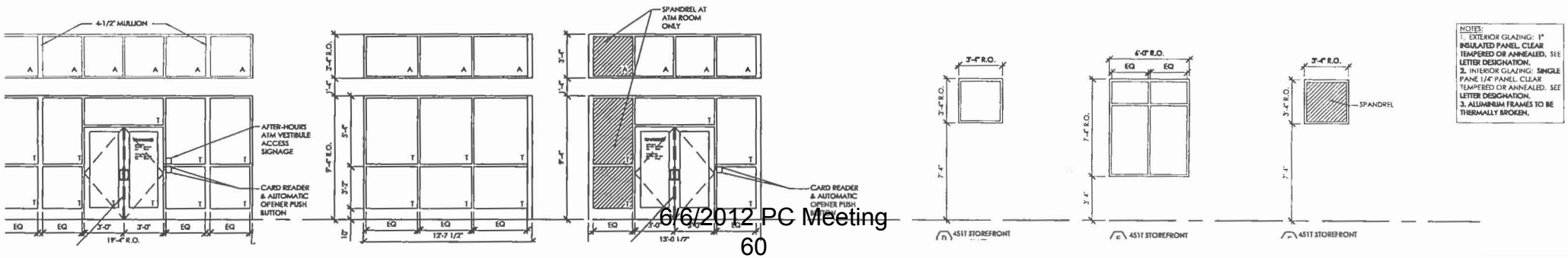
Floor Plan

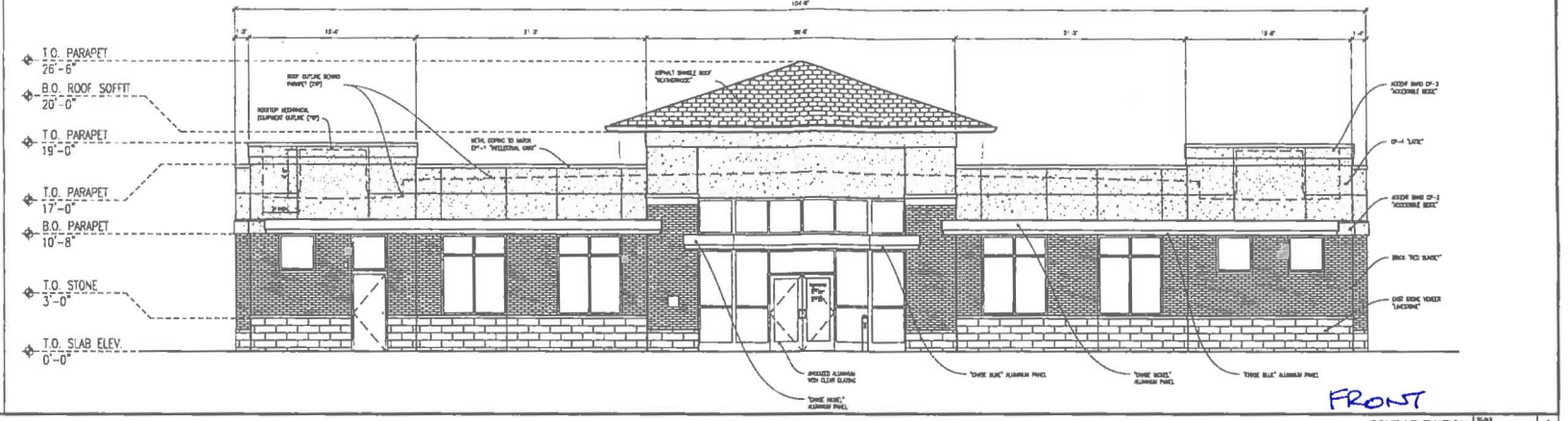
A1.1



FLOOR PLAN

1/4"=1'-0"





SOUTH ELEVATION 1

EXTERIOR FINISH LEGEND

PAINT

EPT-1 APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 7045 (INTELLECTUAL GRAY)
FINISH: SEMI-GLOSS

EPT-2 APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES (CORRESPONDS W/EPS-3)
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 7036 (ACCESSIBLE BEIGE)
FINISH: SEMI-GLOSS

EPT-3 APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES (CORRESPONDS W/EPS-4)
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 8108 (LATTE)
FINISH: SEMI-GLOSS

EPT-4 APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 00366 (CHASE BLUE)
FINISH: SEMI-GLOSS

EPT-5 APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 19881 (CHASE NICKEL)
FINISH: SEMI-GLOSS

EPT-6 APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 18248 (CHASE DARK NICKEL)
FINISH: SEMI-GLOSS

CEMENT PLASTER

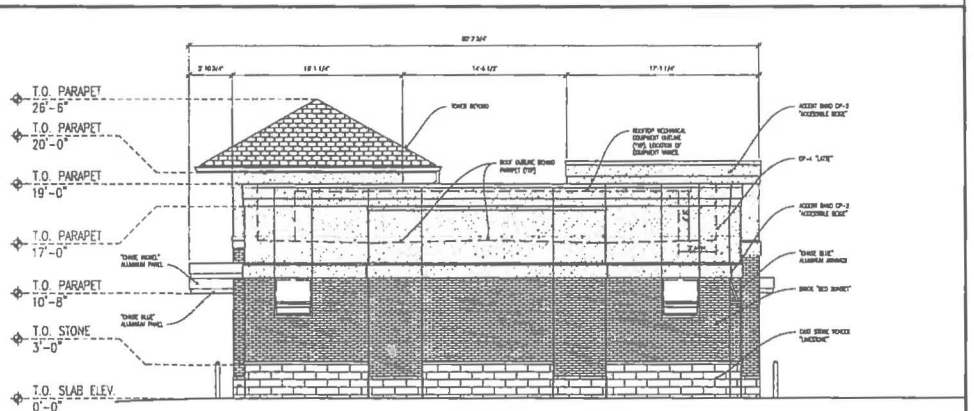
EPT-7 CEMENT PLASTER EXTERIOR CEMENT PLASTER SURFACES (REAR WALLS & SOFFIT SURFACES OF ENTRY TOWER)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 7045 (INTELLECTUAL GRAY)
FINISH: STO SLICO LF 10 (FINE)

EPS-3 CEMENT PLASTER EXTERIOR CEMENT PLASTER SURFACES (EPS ACCENT BANDS)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 7036 (ACCESSIBLE BEIGE)
FINISH: STO SLICO LF 10 (FINE)

EPS-4 CEMENT PLASTER EXTERIOR CEMENT PLASTER SURFACES (EPS PARAPET)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 8108 (LATTE)
FINISH: STO SLICO LF 10 (FINE)

METAL

MT-1 ALUMINUM FLASHING, COPING, GUTTERS, DOWNSPOUTS
MANUFACTURER: AEP SPAN OR EQUAL
PRODUCT: REFER TO SPECIFICATIONS
COLOR: KYNAR-FLUOROPOLYMER



EAST ELEVATION 2

ELEVATION KEYNOTES

C-1 CONCRETE FOOTINGS/FOUNDATIONS. REFER TO STRUCT DWGS FOR ADDL INFO
C-2 CONCRETE CURB & ISLANDS
C-3 CAST STONE STARTER COURSE AS MANUFACTURED BY SAHARA STONE (OR APPROVED EQUAL) NOMINAL SIZE 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.) TEXTURE: SMOOTH COLOR: "LIMESTONE #3"
C-4 CAST STONE VENEER AS MANUFACTURED BY SAHARA STONE (OR APPROVED EQUAL) NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.) STYLE: ROCKFACE COLOR: LIMESTONE #3
C-5 CAST STONE TRIM AS MANUFACTURED BY SAHARA STONE (OR APPROVED EQUAL) SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS TEXTURE: SMOOTH COLOR: LIMESTONE #3
M-1 BRICK VENEER: DENVER 130, "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL) MORTAR COLOR TO BE NATURAL (NO COLOR ADDED)
E-1 BRICK REVEAL: 3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 5/A8.6) FIELD CUT BRICK TO MAINTAIN AIRSPACE.
E-2 "V"-GROOVE 3/4" METAL PLASTER CONTROL JOINT
E-3 EXPANSION JOINT: CONTINUOUS VERTICAL CONTROL JOINT REFER TO DETAIL 4/A8.8 FOR ADDL INFO
E-4 COPING: PRE-FINISHED METAL COPING FINISH MT-1
E-5 ROOFING SHINGLES: ARCHITECTURAL ASPHALT ROOF SHINGLES 'INDEPENDENCE' SHINGLE AS MANUFACTURED BY CERTAINTEED COLOR 'WEATHERWOOD'
E-6 GUTTERS & DOWNSPOUTS: 8" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM "K-STYLE" GUTTERS w/ 4" WIDE x 2 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS FINISH MT-1
E-7 SCUPPER: PRE-FINISHED ALUMINUM OVERFLOW SCUPPER. MT-2 REFER TO DETAIL 13/A8.5 FOR ADDL INFO
E-8 CANOPY FLASHING: PRE-FINISHED ALUMINUM FLASHING TO SPAN GAP BETWEEN CANOPY AND BUILDING. REFER TO DETAIL 18/A8.5 FOR ADDL INFO. FINISH MT-2 VERIFY FINAL FLASHING LENGTH AND CONFIGURATION WITH APPROVED CANOPY SHOP DWGS
E-9 FASCIA PANEL - 'LATTE' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-3 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)
E-10 FASCIA PANEL - 'CHASE NICKEL' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-5 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)
E-11 FASCIA PANEL - 'CHASE BLUE' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)
E-12 CANOPY SUPPORT COLUMN PAINT EPT-6
E-13 DIAGONAL: 1 1/2" DIAMETER PRE-FINISHED ALUMINUM RAIL TO MATCH EPT-1 CORE DRILL & EPOXY GROUT INTO CONCRETE MIN 8" DEPTH
E-14 STOREFRONT SYSTEM CLEAR ANODIZED ALUMINUM FRAMES SEE SHEET A8.1 FOR ADDL INFO
E-15 HOLLOW METAL DOOR & FRAME PAINT TO EPT-1. SEE DOOR SCHEDULE FOR ADDL INFO
E-16 PROVIDE WEATHER TIGHT SHEET ALUM BOX OVER CONDUIT STUB OPENING IN ISLAND
E-17 BOLLARD: PREMOLD AND INSTALLED BY G.C. REFER TO DETAILS ON SHEET A5 FOR ADDL INFO
E-18 KNOX BOX: MOUNTED FLUSH WITH SURROUNDING WALL SURFACE INSTALL AT FRONT ENTRY OR REAR EXIT (ONE LOCATION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO INSURE COMPLIANCE.
E-19 BANK EQUIPMENT TO BE PROVIDED AND INSTALLED BY OWNER'S EQUIPMENT VENDOR. G.C. TO PROVIDE OPENINGS AND ELECTRICAL REQUIREMENTS IN ACCORDANCE WITH FINAL APPROVED BANK EQUIPMENT SHOP DRAWINGS.
E-20 ELECTRICAL SERVICE EQUIPMENT. PAINT COLOR EPT-3, LATTE
E-21 HOSE BIB
E-22 SIGNAGE BACKING: G.C. TO PROVIDE 5/8" THICK "EXPOSURE 1" PLYWOOD SHEATHING FOR SIGN MOUNTING
E-23 ADDRESS NUMBER: 8" TALL WHITE VINYL ADDRESS NUMBER WITH 1/2" THICK STROKE MOUNTED ON INTERIOR FACE OF GLASS TRANSOM
E-24 LIGHT FIXTURE: REFER TO ELEC DWGS FOR ADDL INFO
E-25 CARD READER & OVERRIDE SWITCH: REFER TO SECURITY DWGS FOR ADDL INFO
E-26 WAX TUBE OPENINGS, SEE DETAIL 17/A8.5
E-27 EAST ALUMINUM DUCT VENT. PRE-FINISHED TO MATCH ADJACENT WALL
E-28 OFF-RIDGE ROOF VENT PREFINISHED TO MATCH ROOFING
E-29 MECHANICAL EQUIPMENT BEYOND BY ROOF WELL, SCREENED BEHIND PARAPET
E-30 LINE OF ROOF SURFACE BEYOND
E-31 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED

CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19060 Willamette Dr
West Linn, OR 97068
PROJECT #2104610.00

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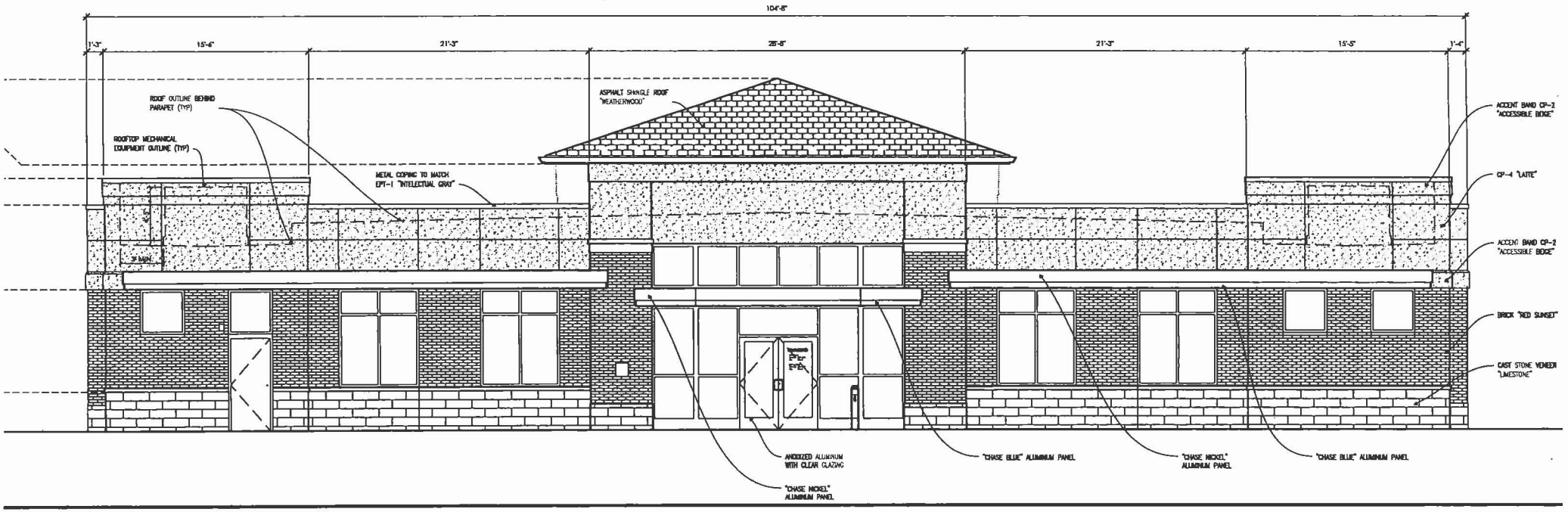
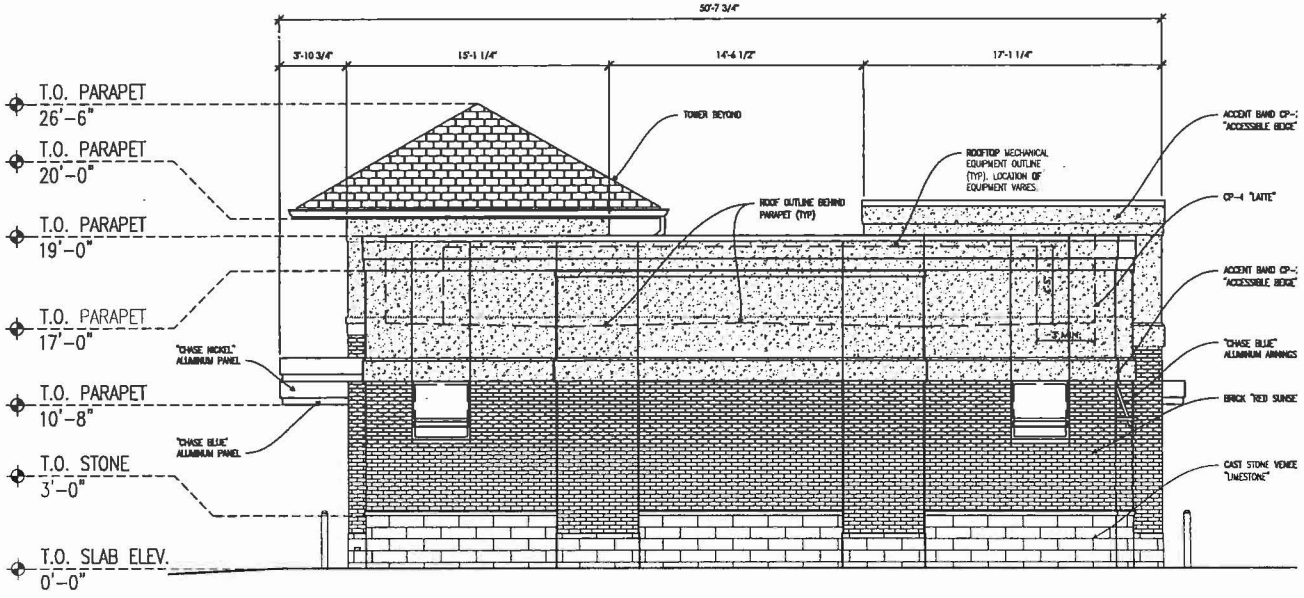
ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/22/13
PLANNING ADD. INFO	07/01/13
COMPLETENESS REV.	09/11/13

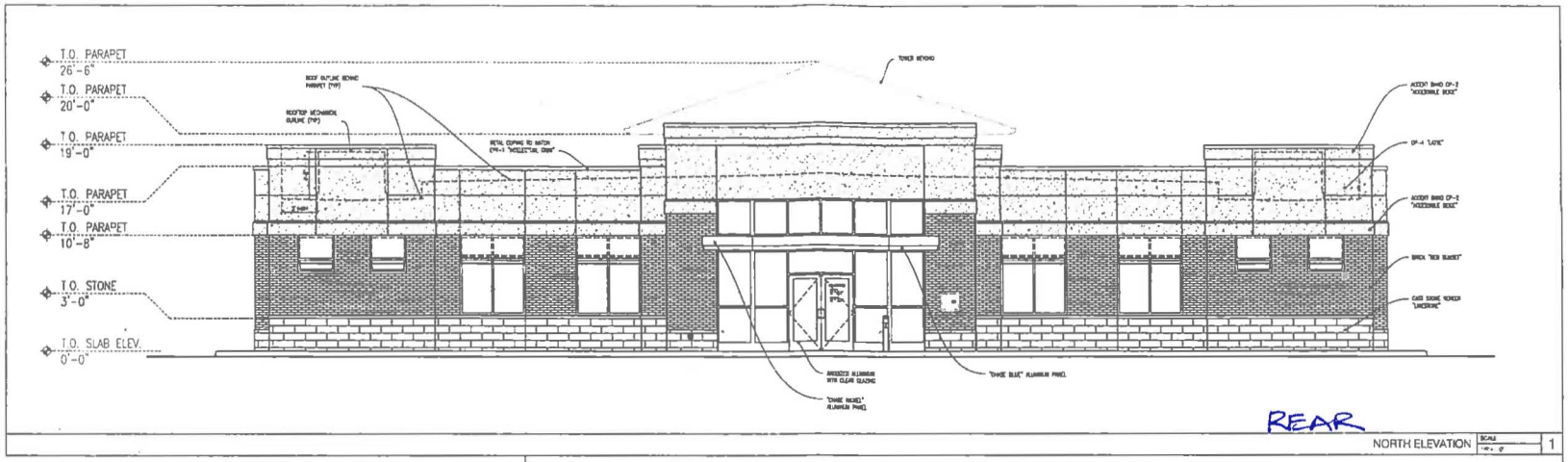
Exterior Elevations

A4.1

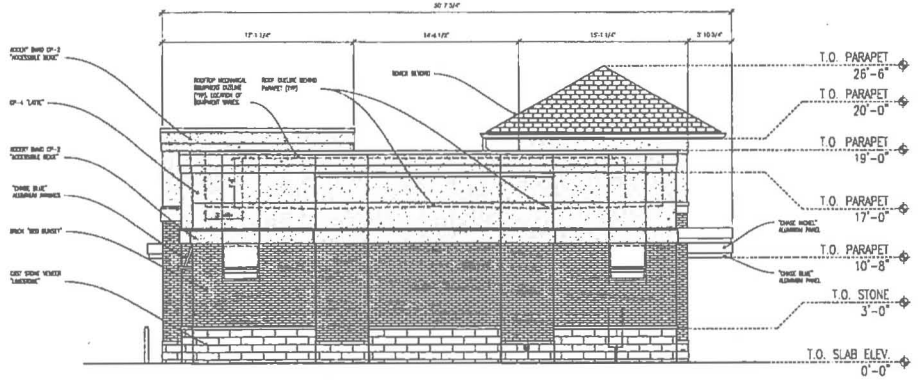


SOUTH ELEVAT





NORTH ELEVATION SCALE 1/8" = 1'-0" 1



WEST ELEVATION SCALE 1/8" = 1'-0" 2

ELEVATION KEYNOTES

E1 CONCRETE FOOTINGS/FOUNDATIONS REFER TO STRUCT DWGS FOR ADDL INFO

E2 CONCRETE CURB @ ISLANDS

E3 CAST STONE STARTER COURSE AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL) NOMINAL SIZE: 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.) TEXTURE: SMOOTH COLOR: "LIMESTONE #3"

E4 CAST STONE VENEER AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL) NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.) TEXTURE: ASHLAR COLOR: "LIMESTONE #3"

E5 CAST STONE "BAND" AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL) SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS TEXTURE: SMOOTH COLOR: "LIMESTONE #3"

E6 BRICK VENEER DENSITY 130 "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL) MORTAR COLOR TO BE NATURAL (NO COLOR ADDED)

E7 BRICK REVEAL 3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 3/A8.8) FIELD CUT BRICK TO MAINTAIN APPEARANCE

E8 "V"-GROOVE 3/4" METAL PLASTER CONTROL JOINT

E9 EXPANSION JOINT CONTINUOUS VERTICAL CONTROL JOINT REFER TO DETAIL 4/A8.8 FOR ADDL INFO

E10 COPING PRE-FINISHED METAL COPING FINISH MT-1

E11 ROOFING SHINGLES ARCHITECTURAL ASPHALT ROOF SHINGLES. PAGE/REFERENCE SHANGLE AS MANUFACTURED BY CERTAINTEED COLOR: WEATHERWOOD

E12 GUTTERS & DOWNSPOUTS 6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM "K-STYLE" GUTTERS w/ 4" WIDE x 2 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS. FINISH MT-1

E13 SCUPPER PREFINISHED ALUMINUM OVERFLOW SCUPPER. MT-2 REFER TO DETAIL 13/A8.5 FOR ADDL INFO

E14 CANOPY FLASHING PRE-FINISHED ALUMINUM FLASHING TO SPAN GAP BETWEEN CANOPY AND BUILDING. REFER TO DETAIL 15/A8.5 FOR ADDL INFO FINISH MT-2 VERIFY FINAL FLASHING LENGTH AND CONFIGURATION WITH APPROVED CANOPY SHOP DWGS

E15 FASCIA PANEL - 'LATTE' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-3 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E16 FASCIA PANEL - 'CHASE NICKEL' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-5 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E17 FASCIA PANEL - 'CHASE BLUE' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E18 CANOPY SUPPORT COLUMN PAINT EPT-6

E19 CHANNEL 1 1/2" DIAMETER PRE-FINISHED ALUMINUM RAIL TO MATCH EPT-1 CORE DRILL & EPOXY GROUT INTO CONCRETE MIN 8" DEPTH

E20 STOREFRONT SYSTEM CLEAR ANODIZED ALUMINUM FRAMES SEE SHEET A8.1 FOR ADDL INFO

E21 HOLLOW METAL DOOR & FRAME PAINT TO EPT-1 SEE DOOR SCHEDULE FOR ADDL INFO

E22 PROVIDE WEATHER TIGHT SHEET ALUM BOX OVER CONDUIT STUB OPENING IN ISLAND

E23 BOLLARD PROVIDED AND INSTALLED BY G.C. REFER TO DETAILS ON SHEET A5 FOR ADDL INFO

E24 KNOX BOX MOUNTED FLUSH WITH SURROUNDING WALL SURFACE INSTALL AT FRONT ENTRY OR REAR EXIT (ONE LOCATION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO INSURE COMPLIANCE

E25 BANK EQUIPMENT TO BE PROVIDED AND INSTALLED BY OWNER'S EQUIPMENT VENDOR G.C. TO PROVIDE OPENINGS AND ELECTRICAL REQUIREMENTS BY ACCORDANCE WITH FINAL APPROVED BANK EQUIPMENT SHOP DRAWINGS

E26 ELECTRICAL SERVICE EQUIPMENT PAINT COLOR EPT-3, LATTE

E27 HOSE BIB

E28 SIGNAGE BACKING G.C. TO PROVIDE 3/8" THICK EXPOSURE 1 PLYWOOD SHEATHING FOR SIGN MOUNTING

E29 ADDRESS NUMBER 8" TALL WHITE VINYL ADDRESS NUMBER WITH 1/2" THICK BRONZE MOUNTED ON INTERIOR FACE OF GLASS TRANSOM

E30 LIGHT FIXTURE REFER TO ELEC DWGS FOR ADDL INFO

E31 CARD READER & OVERRIDE SWITCH REFER TO SECURITY DWGS FOR ADDL INFO

E32 VAT TUBE OPENINGS. SEE DETAIL 17/A8.5

E33 EAST ALUMINUM DUCT VENT. PRE-FINISHED TO MATCH ADJACENT WALL

E34 OFF-RIDGE ROOF VENT PREFINISHED TO MATCH ROOFING

E35 MECHANICAL EQUIPMENT BEYOND IN ROOF WELL, SCREENED BEHIND PARAPET

E37 LINE OF ROOF SURFACE BEYOND

E38 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED

CHASE

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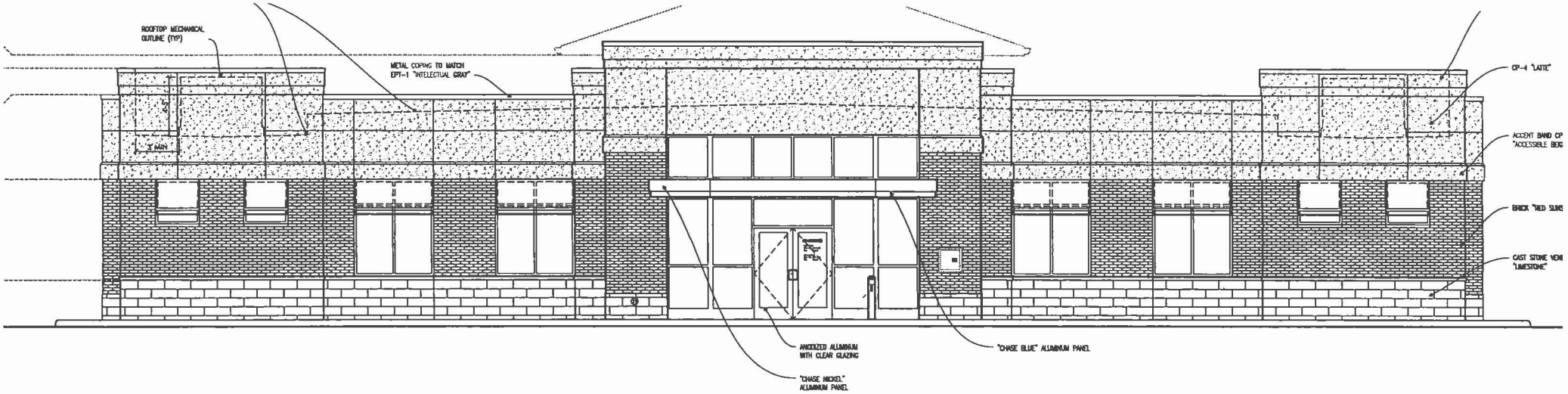
CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
1000 Willamette St.
West Linn, OR 97068

PROJECT #21041.00

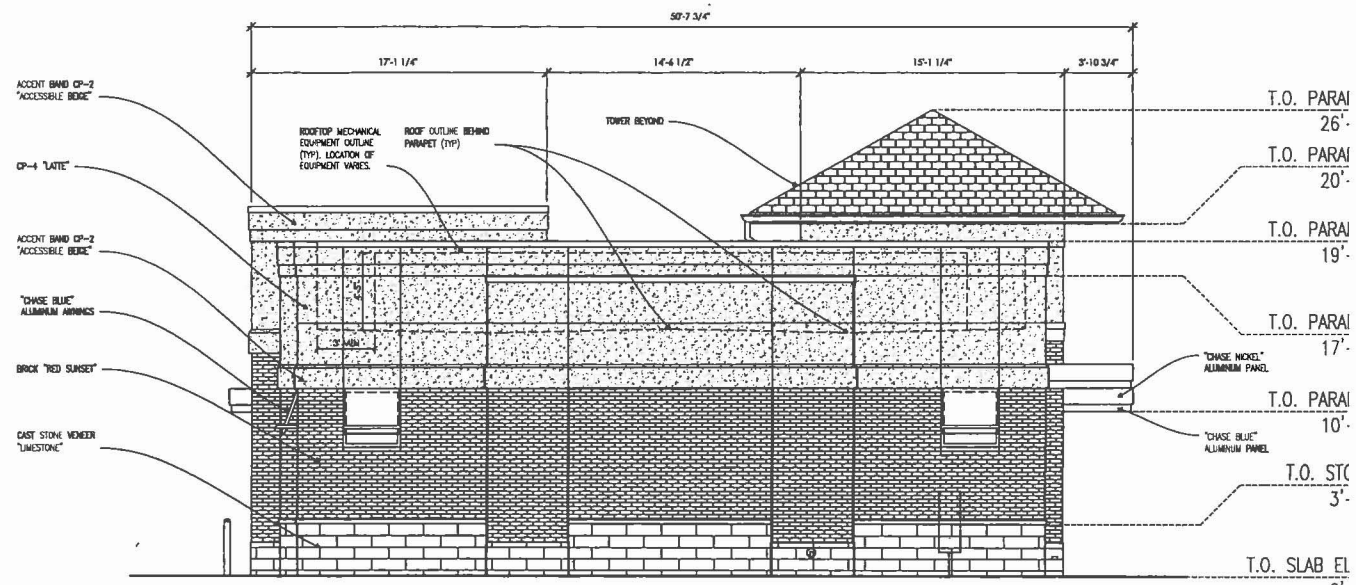
ISSUED / REVISED	DATE
PLANNING SUBMITTAL	03/05/12
PLANNING ADD INFO	03/30/12
COMPLETENESS REV	04/17/12

Exterior Elevations

A4.2



NORTH ELEVATI



WEST ELEVATI

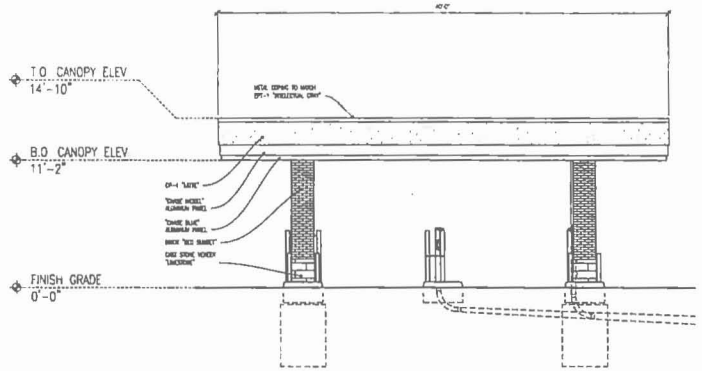
E6 BRICK VENEER:
DENTON 150, "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL) MORTAR COLOR TO BE

E12 GUTTERS & DOWNSPOUTS:
6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM 'K-STYLE' GUTTERS [illegible] PRE-FINISHED ALUMINUM [illegible] TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

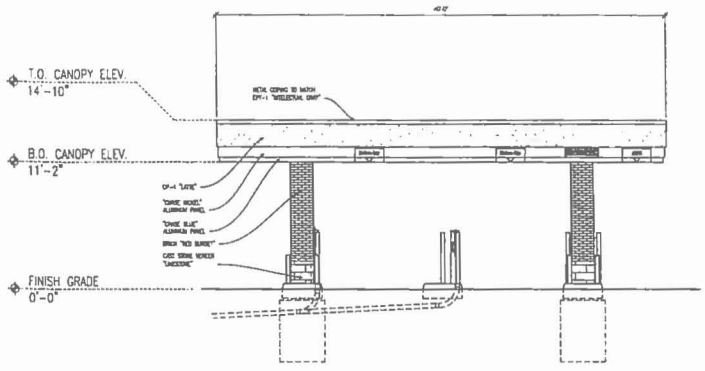
E24 KNOX BOX:
MOUNTED FLUSH WITH SURROUNDING WALL SURFACE. INSTALL AT FRONT ENTRY OR REAR EXIT (ONE LOACTION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO INSURE COMPLIANCE.

E31 CARD READER & OVERRIDE SWITCH:
REFER TO SECURITY DWGS FOR ADDL INFO

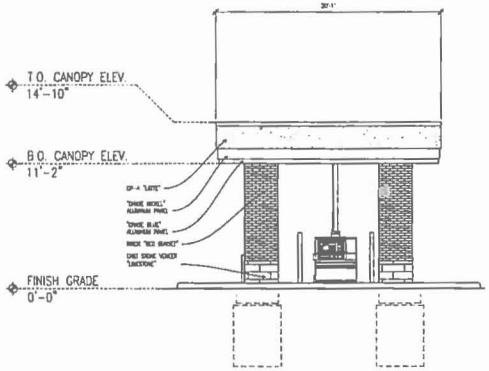
E32 VAT TUBE OPENINGS, SEE DETAIL 17/A6.5.



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



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



4 SOUTH ELEVATION
SCALE 1/4"=1'-0"

ELEVATION KEYNOTES

E1 CONCRETE FOOTINGS/FOUNDATIONS. REFER TO STRUCT DWGS FOR ADDL INFO

E2 CONCRETE CURB @ ISLANDS

E3 CAST STONE STARTER COURSE AS MANUFACTURED BY SAHARA STONE (OR APPROVED EQUAL) NOMINAL SIZE: 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.) TEXTURE: SMOOTH COLOR: "LIMESTONE #3"

E4 CAST STONE VENEER AS MANUFACTURED BY SAHARA STONE (OR APPROVED EQUAL) NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.) TEXTURE: ROCKFACE COLOR: "LIMESTONE #3

E5 CAST STONE TRIM AS MANUFACTURED BY SAHARA STONE (OR APPROVED EQUAL) SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS TEXTURE: SMOOTH COLOR: LIMESTONE #3

E8 BRICK VENEER CENTOR 150 "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL) MORTAR COLOR TO BE NATURAL (NO COLOR ADDED)

E7 BRICK REVEAL 3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 3/A8.6) FIELD CUT BRICK TO MAINTAIN AIRSPACE

E8 "V"-GROOVE 3/4" METAL PLASTER CONTROL JOINT

E9 EXPANSION JOINT CONTINUOUS VERTICAL CONTROL JOINT REFER TO DETAIL 4/A6.6 FOR ADDL INFO

E10 COPING PRE-FINISHED METAL COPING FINISH: MT-1

E11 ROOFING SHINGLES ARCHITECTURAL ASPHALT ROOF SHINGLES. INDEPENDENCE SHINGLE AS MANUFACTURED BY CERTAINTEED. COLOR: "WEATHERWOOD"

E13 GUTTERS & DOWNSPOUTS 6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM "K-STYLE" GUTTERS w/ 4" WIDE x 3 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS. FINISH MT-1

E16 SCUPPER PREFINISHED ALUMINUM OVERFLOW SCUPPER. MT-2 REFER TO DETAIL 12/A8.5 FOR ADDL INFO

E17 CANOPY FLASHING PRE-FINISHED ALUMINUM FLASHING TO SPAN GAP BETWEEN CANOPY AND BUILDING. REFER TO DETAIL 18/A8.3 FOR ADDL INFO. FINISH: MT-2 VERIFY FINAL FLASHING LENGTH AND CONFIGURATION WITH APPROVED CANOPY SHOP DWGS

E18 FASCIA PANEL = 'LATTE' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-3 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E19 FASCIA PANEL = 'CHASE NICKEL' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-5 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E17 FASCIA PANEL = 'CHASE BLUE' PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E18 CANOPY SUPPORT COLUMN PAINT EPT-6

E19 GUARDRAIL 1 1/2" DIAMETER PRE-FINISHED ALUMINUM RAIL TO MATCH EPT-1. CORE DRILL & EPOXY GROUT INTO CONCRETE MIN. 8" DEPTH

E20 STOREFRONT SYSTEM CLEAR ANODIZED ALUMINUM FRAMES. SEE SHEET A8.1 FOR ADDL INFO

E21 HOLLOW METAL DOOR & FRAME PAINT TO EPT-1. SEE DOOR SCHEDULE FOR ADDL INFO

E22 PROVIDE WEATHER TIGHT SHEET ALUM BOX OVER CONDUIT STUB OPENING IN ISLAND

E23 BOLLARD PROVIDED AND INSTALLED BY G.C. REFER TO DETAILS ON SHEET A5 FOR ADDL INFO

E24 KNOX BOX MOUNTED FLUSH WITH SURROUNDING WALL SURFACE. INSTALL AT FRONT ENTRY OR REAR EXIT (ONE LOCATION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO ENSURE COMPLIANCE

E25 BANK EQUIPMENT TO BE PROVIDED AND INSTALLED BY OWNER'S EQUIPMENT VENDOR. G.C. TO PROVIDE OPENINGS AND ELECTRICAL REQUIREMENTS IN ACCORDANCE WITH FINAL APPROVED BANK EQUIPMENT SHOP DRAWINGS.

E26 ELECTRICAL SERVICE EQUIPMENT. PAINT COLOR EPT-3 LATTE

E27 HOSE BIB

E28 SIGNAGE BACKING O.C. TO PROVIDE 5/8" THICK "EXPOSURE 1" PLYWOOD SHEATHING FOR SIGN MOUNTING

E29 ADDRESS NUMBER 8" TALL WHITE VINYL ADDRESS NUMBER WITH 1/2" THICK STROKE MOUNTED ON INTERIOR FACE OF GLASS TRANSOM

E30 LIGHT FIXTURE REFER TO ELEC DWGS FOR ADDL INFO

E31 CARD READER & ENTRANCE SWITCH REFER TO SECURITY DWGS FOR ADDL INFO

E32 VAV TUBE OPENINGS. SEE DETAIL 17/A8.5

E33 CAST ALUMINUM DUCT VENT. PRE-FINISHED TO MATCH ADJACENT WALL

E34 OFF-RIDGE ROOF VENT PREFINISHED TO MATCH ROOFING

E35 MECHANICAL EQUIPMENT BEYOND IN ROOF WELL. SCREENED BEHIND PARAPET.

E37 LINE OF ROOF SURFACE BEYOND

E38 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED

CHASE

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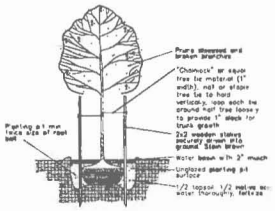
CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19850 Willamette Dr
West Linn, OR 97068

ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/13/12
PLANNING ADD. INFO.	03/09/12
COMPLETENESS REV.	04/11/12

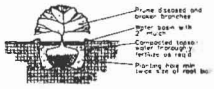
Exterior Elevations

A4.3



DECIDUOUS TREE PLANTING DETAIL
No Scale

LAWN / PLANTING BED DETAIL
No Scale



SHRUB PLANTING DETAIL
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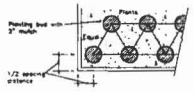


GROUND COVER SPACING DETAIL
No Scale - Transparent Overlay

NOTES

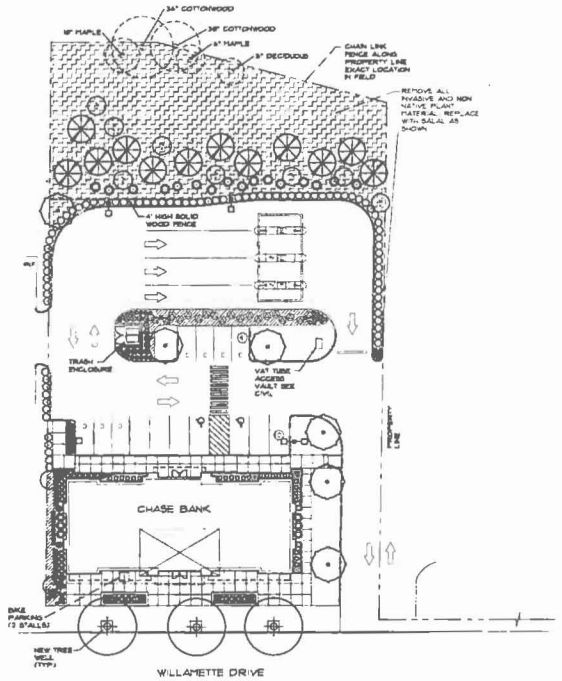
1. Subgrades, including berms, to within 0.10' of finish grade provided by General Contractor unless otherwise noted.
2. Subgrade shall be scarified or rototilled if conditions require.
3. 6" depth 3-way topsoil or equal in all planting areas.
4. 2" depth shredded cedar bark mulch in all planting beds.
5. All plant material shall be healthy, full and conform to USA standard nursery stock, latest edition.
6. Plant material of size or kind not available may be substituted only with approval of Landscape Architect or Owner.
7. All trees plantings shall have triangular spacing.
8. All tree pits shall be inspected to insure proper drainage.
9. Positive drainage shall be maintained around planting areas minimum 6".
10. Landscape Contractor shall maintain site until final inspection and acceptance by Owner. Irrigation system must be fully operational and tested at that time.

PLANT LIST

SYMBOL	BOTANICAL / COMMON	QUANTITY	SIZE	SPACING	CONDITION
	Acer rubrum 'Scarsen' / Scarlet Sentinel Maple	3	3" Caliper	35' o.c.	B&B
	Pyrus calleryana 'Chanticleer' / Chanticleer Pear	6	3" Caliper	per plan	B&B
	Thuja plicata 'Excelsa' / Excelsa Red Cedar	3	6'-7'	per plan	B&B
	Acer circinatum / Vine Maple	18	6'-7'	per plan	B&B
	Euonymus alata 'Compacta' / Compact Burning Bush	16	5 gallon	per plan	full & bushy
	Berberis thunbergii atro / Red Barberry	25	5 gallon	per plan	full & bushy
	Rhododendron undulatum / Unique Rhododendron	6	5 gallon	per plan	full & bushy
	Viburnum tinus'Spring Bouquet' / Spring Bouquet Viburnum	82	5 gallon	4' o.c.	full & bushy
	Thuja O. 'Emerald Green' / Emerald green arborvitae	23	6'	3' o.c.	B&B
	Prunus L. 'Otto Luyken' / Otto Luyken Laurel	43	2ft	3' o.c.	full & bushy
	Erica Camea 'Kramers Red' / Heather	84	2 gallon	2 ft	B&B
	Hemerocallis 'Bela de Ore' / Daylily	71	1 gallon	per plan	full
	Festuca Cinerea 'Elijah' / Blue Silver Fescue	56	1 gallon	per plan	full
	Gaultheria shallon / Salal		1 gallon	36"	full
	Arctostaphylos uva-ursi / Kinnikinnik		4" pots	18"	full
	Seeded lawn - locally grown				

* CONFIRM ALL QUANTITIES

Existing trees - all existing trees to remain: 18" Maple, 6" Maple, 8" deciduous, 36" Cottonwood, 38" Cottonwood



LANDSCAPE PLAN
SCALE: 1"=30'

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

ARCHITECT OF RECORD
CALLISON
CALLISON ARCHITECTS, P.C.
www.callison.com

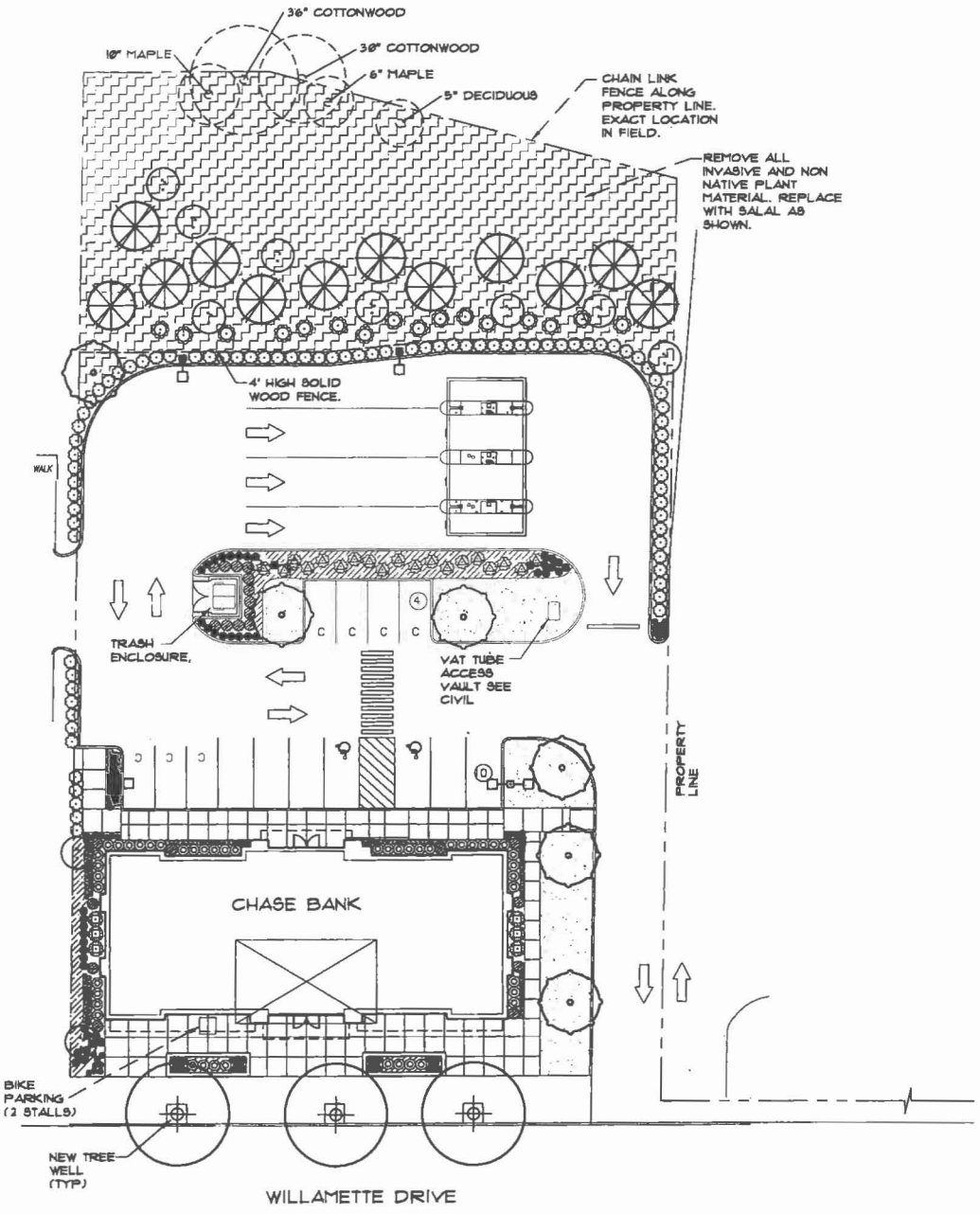
LANDSCAPE OF RECORD
MAIN STREET DESIGN
LANDSCAPE ARCHITECTURE
(360) 943-7988

SEAL

ISSUE DATE	DESCRIPTION
2/29/2012	DESIGN REVIEW APPLICATION
4/25/2012	COMPLETENESS RESPONSE

SHEET TITLE
LANDSCAPE PLAN

SHEET NUMBER
L-1



LANDSCAPE PLAN

SCALE: 1"=20'

NORTH

0 10' 20' 40'

CEDAR OAK & WILLAMETTE RETAIL BANKING CENTER

19080 WILLAMETTE DRIVE
WEST LINN, OR 97068

ARCHITECT OF RECORD

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ENGINEER OF RECORD

MAIN STREET DE
LANDSCAPE ARCHITECT
9402 Tidal Court
Bainbridge Is., WA 98110
(206) 842

SEAL

REGISTERED 744 Kenneth E. Loney OREGON LANDSCAPE ARCHITECT

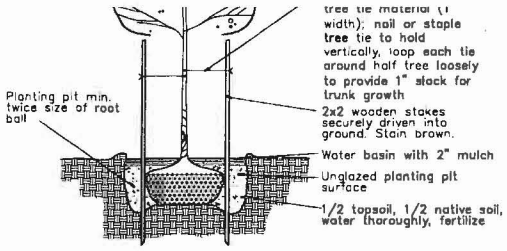
ISSUE	DATE	DESCRIPTION
	2/23/2012	DESIGN REVIEW AP
	4/23/2012	COMPLETENESS RE

SHEET TITLE

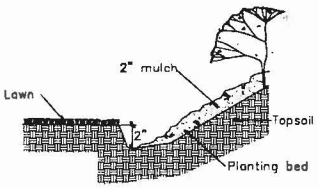
LANDSCAPE PLAN

SHEET NUMBER

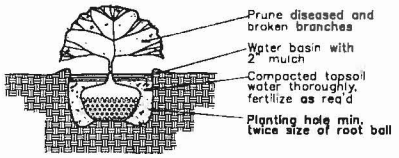
L-1



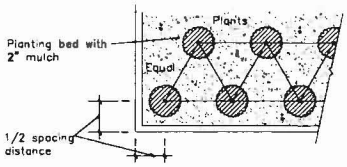
DECIDUOUS TREE PLANTING DETAIL
No Scale



LAWN / PLANTING BED DETAIL
No Scale



SHRUB PLANTING DETAIL
No Scale



GROUND COVER SPACING DETAIL
No Scale– Triangular Spacing

NOTES

1. Subgrades, including berms, to within 1 1/10th foot provided by General Contractor unless otherwise noted.
2. Subgrade shall be scarified or rototilled if conditions require.
3. 6" depth 3-way topsoil or equal in all planting areas.
4. 2" depth shredded cedar bark mulch in all planting beds.
5. All plant material shall be healthy, full and conform to USA standard nursery stock, latest edition.
6. Plant material or size or kind not available may be substituted only with approval of Landscape Architect or Owner.
7. All mass plantings shall have triangular spacing.
8. All tree pits shall be inspected to insure proper drainage.
9. Positive drainage shall be maintained. Mound planting areas minimum 6".
10. Landscape Contractor shall maintain site until final inspection and acceptance by Owner. Irrigation system shall be fully operational and turned on.

PLANT LIST

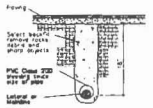
SYMBOL	BOTANICAL / COMMON	QUANTITY*	SIZE	SPACING	CONDITION
	Acer rubrum 'Scarsen'/ Scarlet Sentinal Maple,	3	2" Caliper	35' o.c.	B&B
	Pyrus calleryana 'Chanticleer' / Chanticleer Pear	6	2" Caliper	per plan	B&B
	Thuja plicata 'Excelsa' / Excelsa Red Cedar	12	6'-7'	per plan	B&B
	Acer circinatum / Vine Maple	10	6'-7'	per plan	B&B
	Euonymus alata 'Compacta' / Compact Burning Bush	16	5 gallon	per plan	full & bushy
	Berberis thunbergii atro. / Red Barberry	25	5 gallon	per plan	full & bushy
	Rhododendron Unique / Unique Rhododendron	6	5 gallon	per plan	full & bushy
	Viburnum tinus'Spring Bouquet'/ Spring Bouquet Viburnum	82	5 gallon	4' o.c.	full & bushy
	Thuja O. 'Emerald Green' / Emerald green arborvitae	22	6'	3' o.c.	B&B
	Prunus L. 'Otto Luyken' / Otto Luyken Laurel	42	21"	3' o.c.	full & bushy
	Erica Carnea 'Kramers Red' / Heather	54	2 gallon	2.5'	B&B
	Hemerocallis 'Stella de Oro' / Daylily,	71	1 gallon	per plan	full
	Festuca cinerea 'Blausilber' / Blue-Silver Fescue	96	1 gallon	per plan	full
	Galtheria shallon / Salal		1 gallon	36"	full
	Arctostaphylos uva-ursi / kinnickinnik		4" pots	18"	full
	Sodded lawn - locally grown				

* CONFIRM ALL QUANTITIES

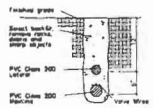
Existing trees - all existing trees to remain: 10" Maple
6" Maple
5" deciduous
36" Cottonwood
30" Cottonwood

POP-UP SPRAY SPRINKLER
No Scale

WALL MOUNT CONTROLLER
No Scale



SLEEVING DETAIL
No Scale



TRENCHING DETAIL
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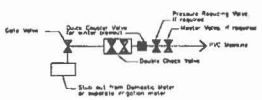


POINT OF CONNECTION
No Scale

IRRIGATION SCHEDULE

SYMBOL	DESCRIPTION	RADIUS	GPM	PSI
	RAINBIRD 5000 SERIES POP-UP, 3 Ø NOZZLE	37'	1.69M	30
	RAINBIRD 1800 PRS 15' SERIES POP-UP, 4" LAWN, 6" G.C.	15'	1.89M	30
	RAINBIRD 1800 PRS 13' SERIES POP-UP, 4" LAWN, 6" G.C.	13'	1.36M	30
	RAINBIRD 1800 PRS 11' SERIES POP-UP, 4" LAWN, 6" G.C.	11'	0.79M	30
	RAINBIRD 1800 PRS 8' SERIES POP-UP, 4" LAWN, 6" G.C.	8'	0.53M	30
	RAINBIRD 1800 PRS 5' SERIES POP-UP, 4" LAWN, 6" G.C.	5'	0.3M	30
	RAINBIRD 1800 PRS SIDE STRIP POP-UP, 4" LAWN, 6" G.C.	15'x5'	1.73	30
	RAINBIRD 1800 PRS SIDE STRIP POP-UP, 4" LAWN, 6" G.C.	47'x5'	1.21	30
	RAINBIRD 1800 PRS END STRIP POP-UP, 4" LAWN, 6" G.C.	47'x5'	0.61	30
	RAINBIRD PEB SERIES PLASTIC VALVES			
	RAINBIRD ESP-LN MODULAR SERIES 12 STATION CONTROLLER			
	POINT OF CONNECTION 3/4" IRRIGATION METER			
	3/4" PEBCO AND DOUBLE CHECK VALVE			
	F QUICK COUPLER VALVE			

STATION / GPM

1-1/4" MAINLINE PVC SCHEDULE 40

LATERAL LINE PVC CLASS 200

SLEEVING, PVC CLASS 200

IRRIGATION SCHEDULE - DRIP

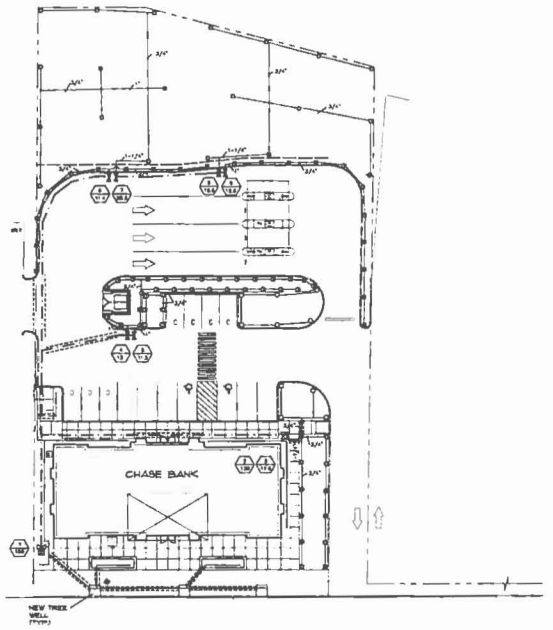
RAINBIRD LOW FLOW VALVE P-VALVE 12
INLINE 100 FILTER 1 INLINE PRESSURE REGULATOR

RAINBIRD BLACK STRIP TUBING - COIL LENGTH AS NEEDED
TIE DOWN STAKES EVERY 24"

NOTE: EMITTERS = NETAFIM DARD INLET, 10 GPH
ONE PER SMALL SHRUB, TWO PER LARGE SHRUB, 6 PER TREE
NUMBER MAY BE ADJUSTED IN FIELD

STATION / GPM

1. CONFIRM EXACT LOCATION OF P.O.C., CONTROLLER, AND WATER PRESSURE AT P.O.C.
2. ALL VALVES IN "ARMTEC OR "CARSON" BOXES, OR EQUAL, SET AT FINISHED GRADE
3. ALL WORK PER PLANS, LOCAL CODES AND MANUFACTURER'S SPECS.
4. PRESSURE TEST BEFORE BACKFILLING
5. PLAN IS DIAGRAMMATIC. ADJUST LINE AND HEAD LOCATIONS AS NECESSARY TO ASSURE PROPER COVERAGE AND CONFORM WITH ACCEPTED CONSTRUCTION PRACTICES



IRRIGATION PLAN
SCALE 1"=20'

NORTH

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

ARCHITECT OF RECORD
CALLISON
CALLISON ARCHITECTS, P.C.

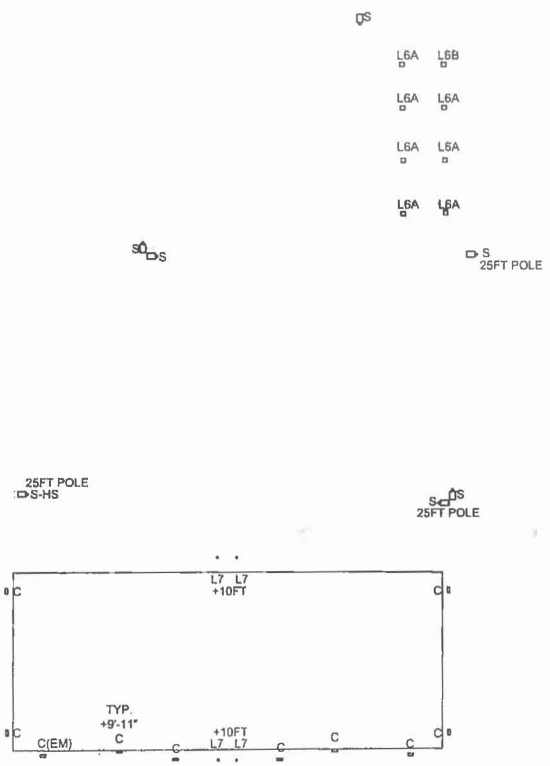
ENGINEER OF RECORD
MAIN STREET DESIGN
LANDSCAPE ARCHITECTURE

SEAL

ISSUE DATE	DESCRIPTION
2/23/2012	DESIGN REVIEW APPLICATION
4/11/2012	COMPLETENESS REVISIONS

SHEET TITLE
IRRIGATION PLAN

SHEET NUMBER
L-2



(1) SITE ELECTRICAL PLAN

N

PLAN NOTES

1. ELECTRICAL CONTRACTOR TO COORDINATE UTILITY SERVICE (FROM UTILITY TRANSFORMER) IN ACCORDANCE WITH THE UTILITY COMPANY SPECIFICATIONS
2. PROVIDE CONDUIT/ FEEDER FROM UTILITY SERVICE BOX TO SERVICE METER. COORDINATE AND PROVIDE AS REQUIRED BY UTILITY
3. (1) 4" CONDUITS EACH WITH 4#600MCM FROM UTILITY SERVICE BOX TO 400AMP 120/208V 3 PH 4 W C/T CABINET ON EXTERIOR WALL
4. 400AMP C/T AND METER CABINET MOUNTED ON FACE OF BUILDING. REFER TO ELECTRICAL SERVICE DIAGRAM ON SHEET #E5.C FOR ADDITIONAL INFORMATION.
5. SITE SIGN: FIELD VERIFY EXACT LOCATION. PROVIDE DISCONNECT AS REQUIRED AND ROUTE THROUGH CONTACTOR C1-(B)
6. PROVIDE 2-4"C.D. WITH PULL WIRE FOR TELEPHONE /COMMUNICATION UTILITY SERVICE. COORDINATE WITH UTILITY AND PROVIDE REQUIREMENTS PER UTILITY STANDARDS

SITE LIGHTING FIXTURE SCHEDULE

S (S-HS)	(1) SPAULDING #CK3-ARM-L13-H4-F-G-DB-PR2, 135 WATT LOW PRESSURE SODIUM LUMINAIRE, WITH FLAT POLYCARBONATE LENS AND HORIZONTAL TYPE IV DISTRIBUTION OPTICS. FIXTURES MOUNTED AT 90° ON A 22'-6" HIGH, 5" SQUARE STRAIGHT STEEL POLE #SSS-22.5-50-3-BX-DB WITH 6" RIGID ARM. FINISH TO BE DARK BRONZE, VERIFY COLOR SELECTION W/ARCHITECT PRIOR TO ORDERING. LUMINAIRES TO HAVE MULTI-TAP BALLAST WIRED FOR 208V. PROVIDE POLE BASE COVER. NOTE "-HS" INDICATES HOUSE SHIELD
A	KIM LIGHTING #WD18 WALL DIRECTOR. DIE CAST ALUMINUM AND LENS FRAME FABRICATED ALZAK REFLECTOR, WALL MOUNTED, 250 WATT, MH BT-28. MOUNT AT 16.5' CENTERLINE OF FIXTURE
B	KIM LIGHTING #WD18 WALL DIRECTOR, DIE CAST ALUMINUM AND LENS FRAME FABRICATED ALZAK REFLECTOR, WALL MOUNTED. 400 WATT, SMH ED-28. MOUNT AT 16.5' CENTERLINE OF FIXTURE
C	LITHONIA LIGHTING #WSR-2/42-MD-120-ELDWR-LP1 FULL CUTOFF WALL MOUNTED FIXTURE W/(2)42W CFL LAMP. PROVIDE FIXTURE WITH BODINE B30 BATTERY PACK
L6A	#CR02-S-LED-50-CW-UE. FABRICATED WHITE PAINTED METAL HOUSING,ONE CIRCUIT BOARD WITH 50 LEDS, FORMED WHITE PAINTED METAL PLATE BETWEEN REFLECTOR AND CIRCUIT BOARD, FORMED PREMIUM SPECULAR METAL REFLECTOR WITH OEN CONICAL APERTURE BELOW EACH LED, CLEAR FLAT GLASS LENS IN FABRICATED WHITE PAINTED METAL LENS FRAME
L6B	SIMILAR TO "L6A" CRD-FO-LED-30-CW-UE. CROSSOVER FOCUS, NICHIA
L7	LIGHTOLIER C4X4L100L-CL-*-EM LED WITH LENS FIXTURE. INTEGRAL EMERGENCY BATTERY (90 MIN.) PACK

NOTE: POLE AND POLE BASES ARE TO BE FINISHED WITH NON- REFLECTIVE, BLACK POWDER COATING.

CHASE LIGHTING STANDARDS

STANDARDS FOR CHASE ATM AND ND LOCATIONS ARE DETAILED IN THE CHASE CORPORATION PHYSICAL SECURITY STANDARDS, WHICH HAVE BEEN ADOPTED BY EACH STATE'S BOARD OF DIRECTORS

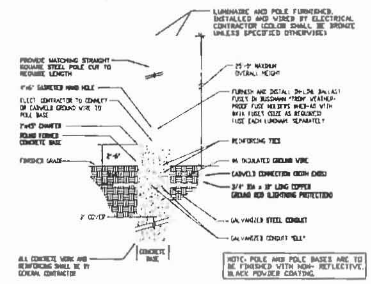
LIGHTING STANDARDS ARE SUMMARIZED AS FOLLOWS.

- CHASE WILL MEET ALL COUNTY/PARISH, CITY AND STATE REGULATIONS FOR ATM AND ND LOCATIONS.
- IN THOSE LOCATIONS WHERE STANDARDS ARE NOT MANDATED BY LOCAL OR STATE LEGISLATION, CHASE HAS ESTABLISHED THE FOLLOWING LIGHTING STANDARDS DURING THE HOURS OF DARKNESS (30 MINUTES AFTER SUNSET AND 30 MINUTES BEFORE SUNRISE)

SITE LOCATION	REQUIRED LIGHTING (IN FOOT-CANDLES)
AT THE FACE OF THE ATM AND ND, EXTENDING OUTWARD 5 FEET	10
WITHIN 50 FEET OF THE ATM AND ND	2
WITHIN THE ACCESS AREA	1
ALL PARKING AREAS WITHIN 50 FEET OF THE WALK-UP ATM AND THE WALK-UP ND	1
ALONG THE FIRST 40 UNOBSTRUCTED FEET OF THE ADJACENT SIDE OF THE BUILDING (IF THE ATM OR ND IS WITHIN 10 FEET OF THE CORNER OF THE BUILDING AND THE ATM OR ND IS GENERALLY ACCESSIBLE FROM THE ADJACENT SIDE)	1

VISIBILITY AND ACCESS STANDARDS ARE SUMMARIZED AS FOLLOWS

- CHASE WILL MEET ALL COUNTY/PARISH, CITY AND STATE REGULATIONS FOR ATM AND ND LOCATIONS
- IN THOSE LOCATIONS WHERE STANDARDS ARE NOT MANDATED BY LOCAL OR STATE LEGISLATION, CHASE HAS ESTABLISHED THE FOLLOWING STANDARDS AS THEY PERTAIN TO VISIBILITY AND ACCESS
  - ATMS AND NDS MUST BE LOCATED IN AREAS WITH HIGH VISIBILITY
  - LANDSCAPING, LIGHTING, VEGETATION, AND OTHER OBSTRUCTIONS MUST BE CONSIDERED



(2) POLE DETAIL

CHASE

ENCON

DATE:
Apr 10, 2012

REGISTERED PROFESSIONAL ENGINEER
10863
OREGON
EXP. DATE: 06/30/12

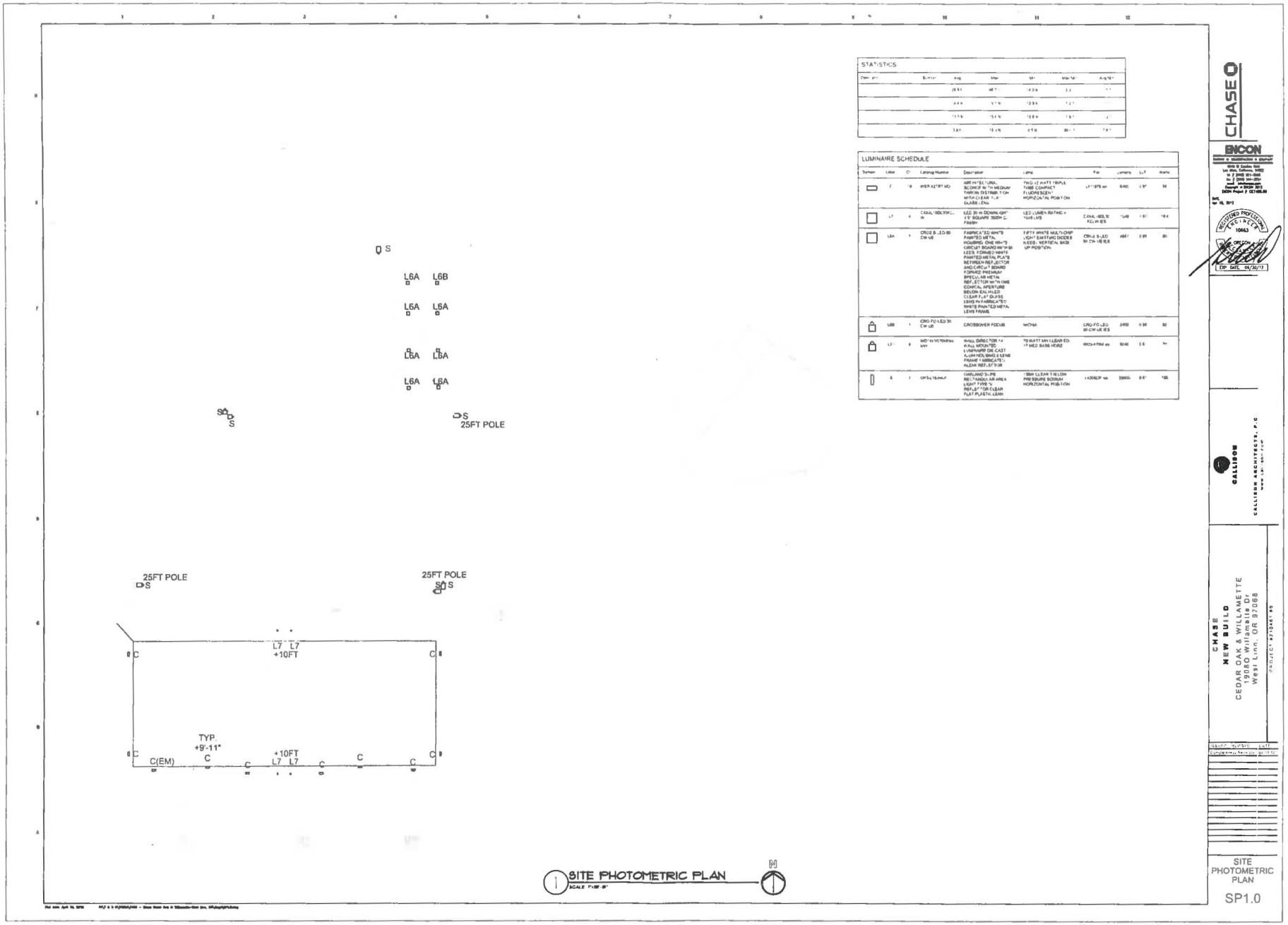
CALLISON

CALLISON ARCHITECTS, P.C.

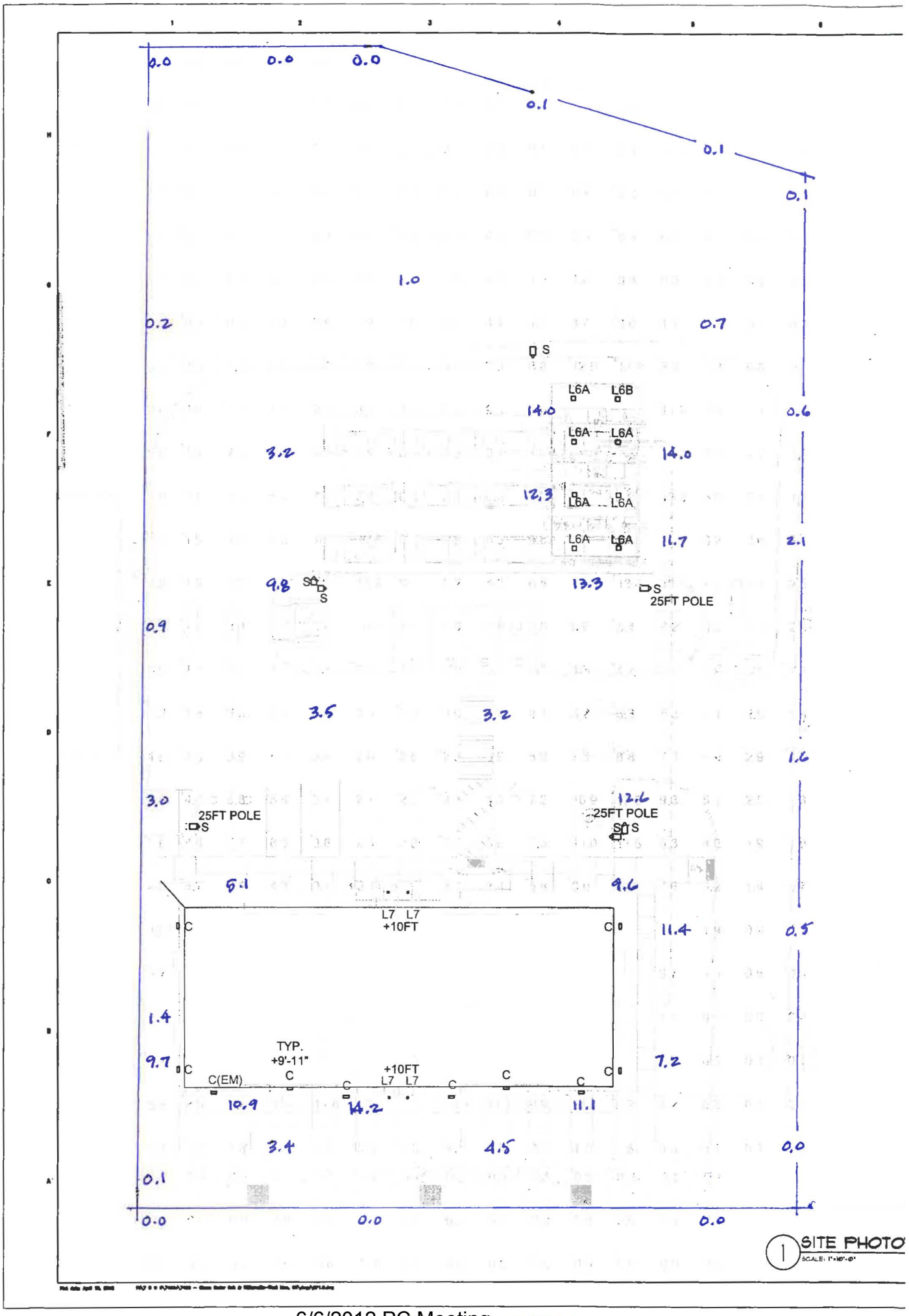
CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068

SITE ELECTRICAL PLAN

SE1.0



SEE ENLARGEMENT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L6B
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25FT POLE
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9.6
L7 L7
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C
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TYP.
+9'-11"
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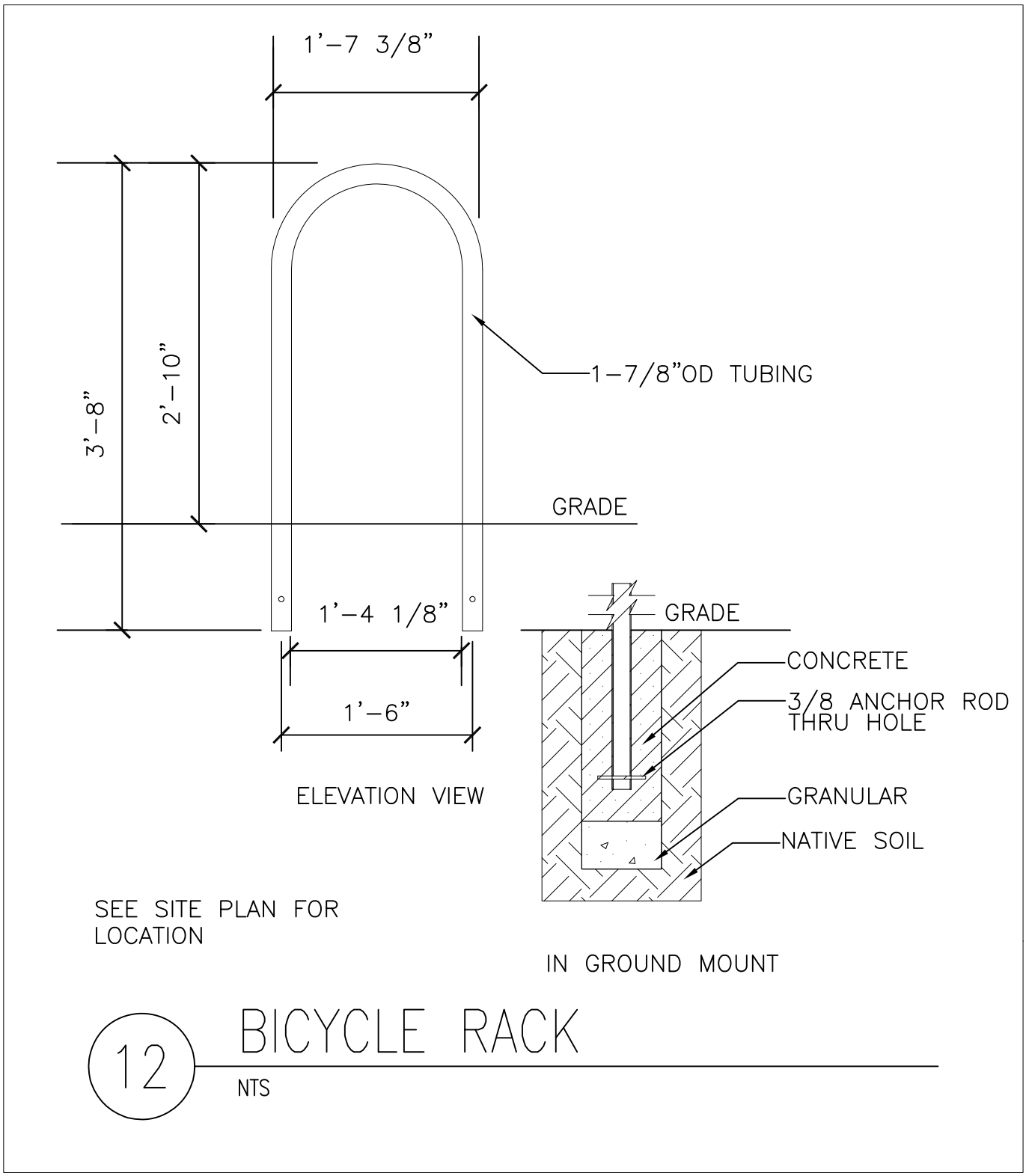
SITE PHOTO
SCALE: 1"=10'-0"



12 BICYCLE RACK

NTS

Chase Bank Drainage Analysis

Project Overview:

The proposed Chase Bank development consists of a 4,324 SF commercial building, associated concrete sidewalk, paved parking area, and landscape. Frontage improvements are proposed along Willamette Drive (Highway 43). These improvements include new concrete vertical curb with a 12' wide attached concrete sidewalk. The site is approximately 0.873 acres in size and located in West Linn, OR at 19080 Willamette Drive (NE quarter of Section 23, Township 2 South, Range 1 East of the Willamette Meridian). The site is bounded on the west by Willamette Drive (Highway 43), on the north by tax parcels #700 and 702, on the south by tax parcel #704, and on the east by the Cedar Oak Apartment Complex.

All stormwater runoff from Willamette Drive and the associated sidewalk area will continue to drain to the existing storm sewer system located within that road. Stormwater runoff from the new building roof, parking lot, and sidewalks is to be collected and treated in a StormFilter manhole and then detained in a subsurface detention structure prior to being conveyed via pipe to the existing storm sewer system located at the northwest corner of the site. The existing storm system currently conveys stormwater runoff in the northeast direction from Willamette Drive to an existing stream located north of the commercial site on tax parcel #700. This existing storm sewer system is comprised of a 5' x 5' box culvert located under Willamette Drive which transitions into 24" and 36" culverts beneath the existing commercial site on tax parcel #700. This transition is made at an existing vault located at the northwest corner of the Chase Bank site. It is proposed that the connection to the existing storm sewer system be made at this vault. The proposed storm sewer system has been designed per the requirements set forth in the 2010 City of West Linn Public Works Design Standards and the 2008 City of Portland Stormwater Management Manual.

Existing Conditions:

The site was previously occupied by Kasch's Nursery which included a 5,630 SF (footprint area) building, a 14,630 SF parking lot, grass landscape areas, and an existing retaining wall, which are all to be completely removed as part of the proposed development. The existing topography falls generally from southwest to northeast with slopes ranging from 1% to 20%. Stormwater runoff from the site either drains to the existing storm system or flows overland off the site in the northeast direction.

For purposes of the stormwater calculations, the site was assumed to be in its undeveloped condition (forested), as required in Section 1.3.2 in the 2008 City of Portland Stormwater Management Manual.

The following table is a summary of the pre-developed catchment area:

Pre-developed Catchment Area:

Catchment	Area (AC)	CN*	Description	Type of Flow	Length (Ft.)	Slope (%)
1SP	0.573	70	Woods, Good, HSG "C"	Sheet Flow Shallow Conc. Flow	167 30	1.1 11.0

Table 1: Hydrologic parameters used in stormwater analysis.

- **See Appendix A for Table C-2 Runoff Curve Numbers from C.O.P. Stormwater Management Manual.**
- **See Appendix L for the Pre-developed Catchment Plan.**

Proposed Land Use:

With Hydrologic Group "C", the following CN values were used:

Description	Group "C"
Roofs	CN=98
Paved parking	CN=98
Sidewalk	CN=98
>75% Grass cover, Good, HSG C	CN=74

Approximately 0.573 AC of the 0.873 AC site is to be disturbed for construction of the proposed building, parking area, sidewalks, and landscape areas. This development will result in a total of 0.523 AC of new impervious surface. This includes 0.101 AC of new building roof area, 0.351 AC of new pavement, and 0.071 AC of new sidewalk. In addition, there is 0.113 AC of new grass/landscape. The following table is a summary of the developed catchments:

Developed Catchment Areas:

Catchment	Area (AC)	CN*	Description	Type of Flow	Length (Ft.)	Slope (%)
1SD	0.127 0.022	98 74	Paved parking >75% Grass cover, Good, HSG C	Direct entry (5.0 Min.)	-	-
2SD	0.105 0.058	98 74	Paved parking >75% Grass cover, Good, HSG C	Direct entry (5.0 Min.)	-	-
3SD	0.110 0.016 0.034	98 98 74	Paved parking Sidewalk >75% Grass cover, Good, HSG C	Direct entry (5.0 Min.)	-	-
4SD	0.101	98	Roof	Direct entry (5.0 Min.)	- -	- -

Table 2: Hydrologic parameters used in stormwater analysis.

- **See Appendix A for Table C-2 Runoff Curve Numbers from City of Portland Stormwater Management Manual.**
- **See Appendix L for Developed Catchment Plan.**

Stormwater Design:

All stormwater runoff from Willamette Drive and the associated sidewalk area will continue to drain to the existing storm sewer system located within that road. Stormwater runoff from the new building roof, parking lot, and sidewalks is to be collected and treated in a StormFilter manhole and then detained in a subsurface detention structure prior to being conveyed via pipe to the existing storm sewer system located at the northwest corner of the site. The proposed storm sewer system has been designed per the requirements set forth in the 2010 City of West Linn Public Works Design Standards and the 2008 City of Portland Stormwater Management Manual.

According to the USDA Soil Survey of Clackamas County, the soil within the proposed development area is classified as:

1. Cascade Silt Loam (13C).

2. Permeability (from Table 12):

   Cascade Silt Loam (13C) –
   0-11 inch depth 0.6-2.0 inches/hour
   11-21 inch depth 0.6-2.0 inches/hour
   21-60 inch depth 0.06-0.2 inches/hour

3. Soil hydrologic groups:

   Cascade Silt Loam (13C) –
   Soil group C

- **See Appendix B for Soils Map and associated data.**
- **See Appendix C for Geotechnical Engineering Report by Terracon.**

The water quality design storm for this project was determined per Section 1.3.3 of the 2008 City of Portland Stormwater Management Manual. The 2-year through 100-year design storms were taken from the 24-Hour Rainfall Depths Table provided Appendix A of this report. The design storms are tabulated as follows:

Water Quality	0.83 in / 24 hrs
2-year	2.40 in / 24 hrs
5-year	2.90 in / 24 hrs
10-year	3.40 in / 24 hrs
25-year	3.90 in / 24 hrs
100-year	4.40 in / 24 hrs

- **See Appendix A for Table C-1 Design Storms from City of Portland Stormwater Management Manual.**

Quantity Control:

Section 2.0013 of the 2010 City of West Linn Public Works Design Standards and Section 1.3.2 of the 2008 City of Portland Stormwater Management Manual both specify that release rates for the developed sites shall not exceed the respective runoff rates from the pre-developed site in the 2-year, 5-year, 10-year, and 25-year storms. In addition, the stormwater facility must provide safe overflow conveyance for the 100-year storm if it exceeds the pre-developed 100-year rate. A subsurface detention facility with flow control manhole is proposed to provide sufficient detention storage for the development and maintain the allowed developed discharge rates. More specifically, the detention facility is to be comprised of 160 LF of 60" diameter corrugated metal pipe. For the purpose of the calculations, the base elevation of the detention facility is assumed to be at 0 FT elevation and, therefore, the top of the storage facility is at an elevation of 5 FT. The following table summarizes the pre-developed and developed flows from the Chase Bank site:

Design Storms	Pre-developed Flow From Site (Reach 1SP) (CFS)	Allowable Flow From Site (CFS)	Developed Flow From Site (Reach 1RD) (CFS)
2-yr (2.40")	0.02	0.02	0.04
5-yr (2.90")	0.03	0.03	0.05
10-yr (3.40")	0.05	0.05	0.05
25-yr (3.90")	0.07	0.07	0.07
100-yr (4.40")	0.10	0.10	0.09

Table 3: Pre-developed and developed flows from the site.

It can be seen from the table above that the developed flows for each of the design storms meets the specified requirements, with the exception of the 2-year and 5-year storms. The developed flows for these two storms slightly exceed the pre-developed flows from the site because Section 2.0013 of the 2010 City of West Linn Public Works Design Standards prohibits the use of any flow control orifice smaller than 1 inch in diameter and states that the allowable rate provided by a 1 inch orifice will be considered adequate as approved by the City Engineer. A summary of the developed flows and stormwater facility storage volumes and stage elevations is shown in the following table:

Design Storms	Developed Flow From The Site (Reach 1RD) (CFS)	Detention Volume (Pond 1P) (CF)	Detention Stage Elevation (Pond 1P) (CF)
2-yr (2.40")	0.04	1,425	2.32
5-yr (2.90")	0.05	1,963	2.99
10-yr (3.40")	0.05	2,541	3.77
25-yr (3.90")	0.07	2,755	4.10
100-yr (4.40")	0.09	3,018	4.59

Table 4: Developed flows and stormwater facility storage volumes.

It can be seen from the table above that the detention facility has sufficient detention volume to meet the specified quantity control requirements.

- **See Appendices F, G, H, I, & J for a detailed analysis for the 2, 5, 10, 25, and 100-year design storms.**

Water Quality:

Water quality treatment for stormwater runoff from the proposed site is to be provided by a 48 inch diameter StormFilter manhole with 3 replaceable filter cartridges. The StormFilter manhole was sized to treat the water quality storm which was determined to be 0.83 inches per Section 1.3.3 of the 2008 City of Portland Stormwater Management Manual. The StormFilter manhole was sized according to Stormwater Management specifications using the following equation:

$$\text{Number of Cartridges} = \frac{\text{Qtreat X 449 gpm/cfs}}{\text{15gpm/cartridge}}$$

The following table summarizes the flow that will be treated by the stormwater treatment facility for the water quality design storm of 0.83 inches. It also indicates the number of cartridge filters that are required to treat the flow and the model of StormFilter required:

Design Storm	Node Number	Flow to Stormfilter (CFS)	Filter Cartridges Required (EA)	Stormfilter Model Required
WQ (0.83")	2RD	0.07	3	48" StormFilter manhole-3 Cart.

Table 5: Stormwater treatment facility sizing.

From the table above, it can be seen that 3 filter cartridges are required to treat the water quality flow from the proposed development. Maintenance for the Stormfilter manhole will be performed by the property owner.

- **See Appendix D for stormwater facility details, specifications, and operations and maintenance guidelines.**
- **See Appendix E for a detailed analysis of the water quality storm.**

Conveyance System Analysis:

The behavior of the conveyance system was analyzed using HydroCAD to verify capacity requirements. The capacities of the pipes were determined using nomographs provided by the manufacturer. The table below summarizes the characteristics of the conveyance system for the 100-year design storm:

Reach	Description	Diameter (in.)	Length (ft.)	Slope (%)	Capacity (cfs)	Peak Q (cfs)	Peak Depth (ft.)	Peak Velocity (fps)
1RD	Pipe (CPP)	8	96.6	1.00	1.21	0.09	0.13	2.06
2RD	StormFilter	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3RD	Pipe (CPP)	8	16.0	1.00	1.21	0.53	0.31	3.33
4RD	Pipe (CPP)	6	108.2	1.00	0.56	0.13	0.17	2.33
5RD	Pipe (CPP)	8	67.5	1.00	1.21	0.25	0.20	2.73
6RD	Pipe (CPP)	6	39.1	1.00	0.56	0.10	0.15	2.18

Table 6: Characteristics of the conveyance system for the 100-year design storm.

- **See Appendix J for a detailed analysis of the 100-year design storm.**

Downstream Capacity Analysis:

All developed stormwater flows from the site will be less than or equal to the pre-developed rates and, therefore, a downstream analysis should not be required.

BOOK 411 PAGE 392

RESERVATIONS AND RESTRICTIONS IN CEDAROAK PARK
and CEDAROAK PARK Plat 2.

KNOW ALL MEN BY THESE PRESENTS, That L.A.Henderson and Edna C. Henderson, his wife; and Willard G. Deardorff and Betty Jane Deardorff, his wife, do hereby certify and declare that the following reservations, conditions, covenants and agreements shall become and hereby are made a part of all conveyances of property owned by the parties herein, within the plats of CEDAROAK PARK and CEDAROAK PARK Plat 2, as the same appear in Plats recorded in book 16 at page 8, and book 25 at page 1, record of Town Plats of Clackamas County, Oregon, of which conveyances the following reservations, conditions, covenants and agreements shall become a part by reference hereto and to which they shall thereupon apply as fully and with the same effect as if set forth at large therein, during the period of twenty-five years from date thereof.

These covenants are to run with the land and shall be binding on all parties and all persons claiming under them until the end of said term, at which time said covenants shall be automatically extended for successive periods of ten years unless by vote of a majority of the then owners of the lots it is agreed to change said covenants in whole or in part.

1. All parcels of land therein shall be used exclusively for residential purposes, except, those parcels fronting on the Pacific Highway; and on the West side of the Oswego County road from the South line of the plat to Walling Road, which said parcels fronting the Pacific Highway aforesaid and that part of the County road aforesaid may be used for business purposes.

2. No residential buildings including dwelling houses and or apartment houses shall exceed two and one-half stories in height; they may have family garages attached or detached.

3. Minimum set back lines as follows:

Fronting Pacific Highway 60 feet from center line, all other roads 45 feet from center lines; 20 feet from side lines of the old Southern Pacific Right of way; and 10 feet from side lot lines.

4. All out buildings shall be in the rear of the main buildings and no detached garage shall be in front of any building. No out buildings or other structures shall be so obnoxious or offensive in character and exterior thereof shall be so constructed and decorated to conform with the general plan of the other buildings, except that said out buildings need not be of concrete or masonry construction. Play houses or family green houses shall be permitted along the same general plan in the rear of the main buildings.

5. No obnoxious or offensive trade or pursuit shall be carried on upon any tract therein, nor shall anything be done thereon which may be an annoyance or a nuisance to the neighborhood.

6. No trailer, basement, tent, shack, garage, barn or other out buildings shall be at any time used for residential purposes, either temporarily or otherwise.

7. Business structures shall not be of wood walls or foundations, but shall be of concrete, masonry, or other fire proof material, only as regards walls and foundations.

8. No buildings of any kind shall be placed upon an area of less than 75 feet front by 100 feet in depth, as the same applies to dwellings and business structures.

9. No dwellings costing less than $7500.00 shall be erected on any part of the land West of the West side of the Oswego County Road. And no dwellings costing less than $10,000.00 shall be erected on any part of the land East of the East line of the Oswego County Road. (The said Oswego County Road being designated as that certain 60 foot County Road running North and South through the center part of said plat); and no business structure shall be erected at a cost of less than $5000.00

10. No fence or wall shall be erected to a greater height than four feet, except that suitable fences may be erected on the rear portion of Tracts for confining pets or poultry. All hedges shall be kept pruned back to reasonable heights not exceeding four feet.

11. No persons of other than the Caucasian race shall use or occupy any buildings therein, except that persons of other races may be employed by the owner or tenant as domestic servants.

12. No cows, horses, colts, pigs, rabbits or any other animals except household pets shall be kept on any parcel thereof, except that poultry may be kept in the back of each of said parcels in reasonable numbers for family uses. And except that not to exceed three riding horses per family may be kept for family use in suitable quarters on any tract therein lying East of said Oswego County Road.

13. Until such time as a sanitary sewer system has been installed all sewage disposal shall be by means of septic tanks of a type and in structure, constructions and outlets in accordance with recommendations of the Oregon State Board of Health; and if and when a sanitary sewer has been installed, that means of sewage disposal shall be used exclusively. In no event shall any overflow or drainage from such be permitted to appear above ground or drain onto any street or road or any adjoining property.

14. Any restrictions covering that part of Cedarcrest Park lying West of the said Oswego County Road, may be changed or modified by the signed petition or agreement of 75% of the owners therein, and any restrictions covering that part of Cedarcrest Park lying east of said Oswego County Road may be changed or modified by the signed petition or agreement of 75% of the owners therein, duly placed of record in the deed records of Clackamas County, Oregon.

15. Invalidation of any one of these covenants by judgment or court order shall in no wise affect any of the other provision which shall remain in full force and effect.

16. Any breach of any covenant herein shall not work a forfeiture of the land conveyed in fee simple, but such breach shall give the grantor, any owner of land in said plat the right to compel performance of these covenants, and to abate or remove any structure erected in violation thereof, or any other violation through any court having jurisdiction thereof.

DATED at Oregon City, Oregon, this 7th day of February, 1948.

IN WITNESS our hands and seal the date above mentioned.

Harland D. Dunshee

Betty Jane Dunshee

Edward E. Henderson

BOOK 411 PAGE 394

State of Oregon)
) ss
County of Clackamas)

BE IT REMEMBERED, That on this 27th day of July, 1948, before me the undersigned, A Notary Public in and for said County and State, personally appeared the within named L.A. Henderson and Edna O. Henderson, his wife; and Willard G. Deardorff and Betty Jane Deardorff, his wife, who are known to me to be the identical individuals described in and who executed the within instrument, and acknowledged to me that they executed the same freely and voluntarily.

Kenneth R. Ellsworth
NOTARY PUBLIC FOR OREGON
My Commission Expires: June 10, 1952

STATE OF OREGON
County of Clackamas } ss

I, Guy H. Page, County Clerk, Ex-Officio Recorder of Conveyances and Ex-Officio Clerk of the Circuit Court of the State of Oregon, for the County of Clackamas, do hereby certify that the within instrument of writing was received for record and recorded in the records of said County

1948 SEP 20 AM 10 35

DEED

Book

Witness my hand and seal of said County affixed

GUY H. PAGE
County Clerk

By Deputy

Recording Certificate

DEED

CALLISON

March 5, 2012

Mr. Peter Spir
Associate Planner
City of West Linn
22500 Salamo Rd.
West Linn, OR 97068

Re: Chase – Cedar Oak & Willamette, 19080 Willamette Drive, West Linn, OR
210461.89
Class II Design Review Application – Additional Information Submittal

Dear Mr. Peter Spir:

In our original submittal letter dated February 23, 2012 we indicated that we would be submitting the following materials under separate cover. Additionally, a CD with all of our Class II Design Review Application materials was requested. We also have updated our site plan drawing to include approximate locations of buildings and property lines for adjacent properties. Please find the following enclosed:

CLASS II DESIGN REVIEW APPLICATION:

3-copies	Preliminary Signage Package
3-copies	Traffic Impact Analysis
3-copies	Neighborhood Meeting Minutes (Robinwood Neighborhood Association)
1-CD	Class II Design Review Application Materials – Electronic Files
3-copies	Site Plan, A0.1, revision date 2/29/12

With regard to the preliminary signage morph, it should be noted that the night time view of the front elevation includes blue awnings underneath the storefront canopy. The night time elevations were for lighting representational purposes only. Please refer to the building elevations originally submitted with the application for accurate building elevation information. Please also note that the illuminated chevrons shown at either side of the front and rear elevations in the night time view are only intended to be raised embellishments in the cement plaster, as shown on page 2 of the signage morph

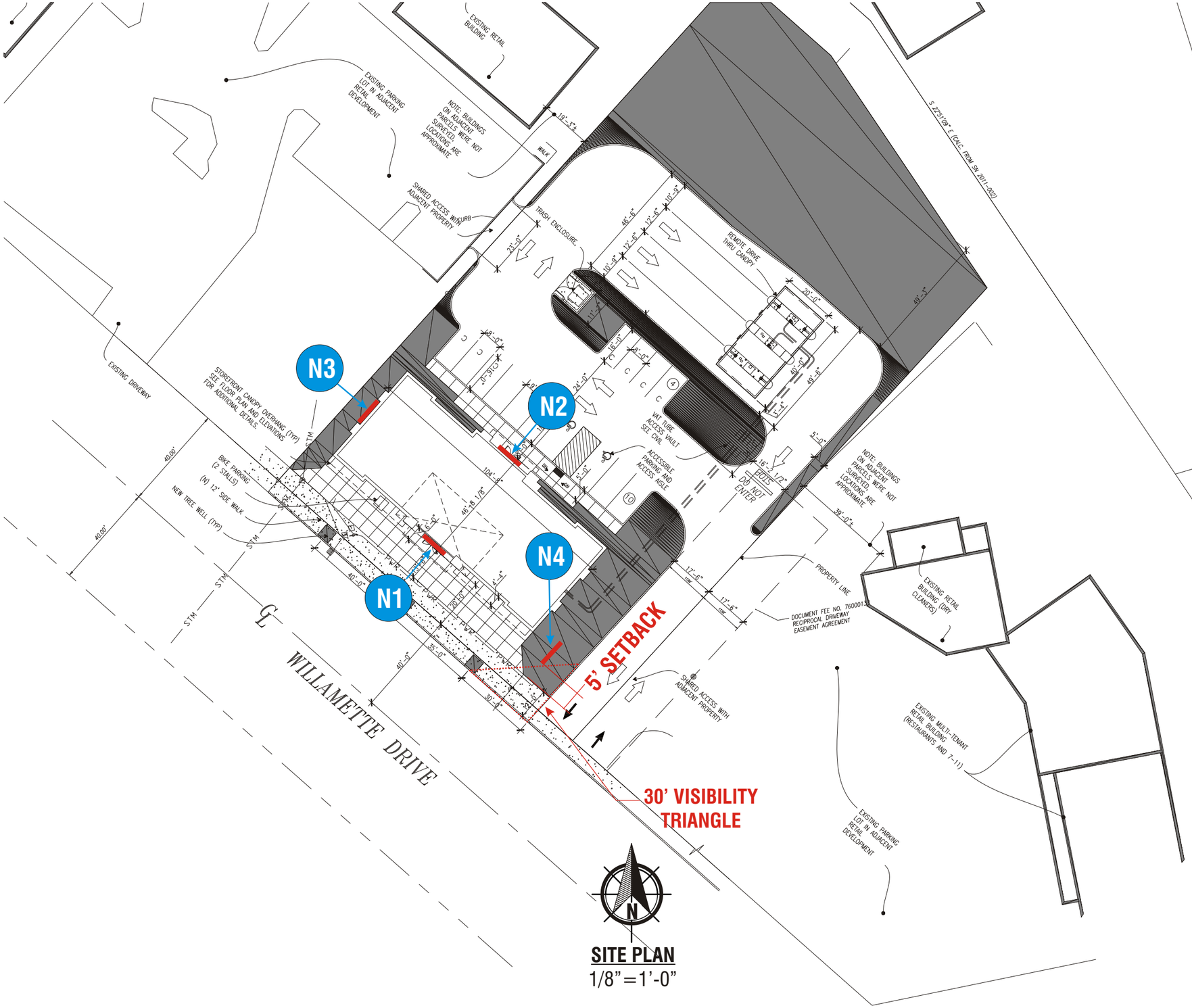
If any additional materials or information are required for the review of this application please do not hesitate to let me know.

Sincerely,

Hans Christiansen
Associate

Enclosure

1420 FIFTH AVENUE #2400 SEATTLE, WASHINGTON 98101-2343
T 206 623 4646 F 206 623 4625 www.callison.com



SITE PLAN
1/8"=1'-0"

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MEMBER OF CESA
CALIFORNIA ELECTRIC SIGN ASSOCIATION

JP Morgan Chase Bank #26668

Cedar Oak Dr and Wilamette Dr
SW Cedar Oak Drive and Wilamette Drive
West Linn, OR. 97068

Date: 3/1/12
Salesperson: Arthur Navarro
Coordinator: Lisa Brevard
Designer: Scott Moller
Scale: As noted

Revisions

CUSTOMER APPROVAL

Customer Signature Date

COPY, COLORS & SIZES

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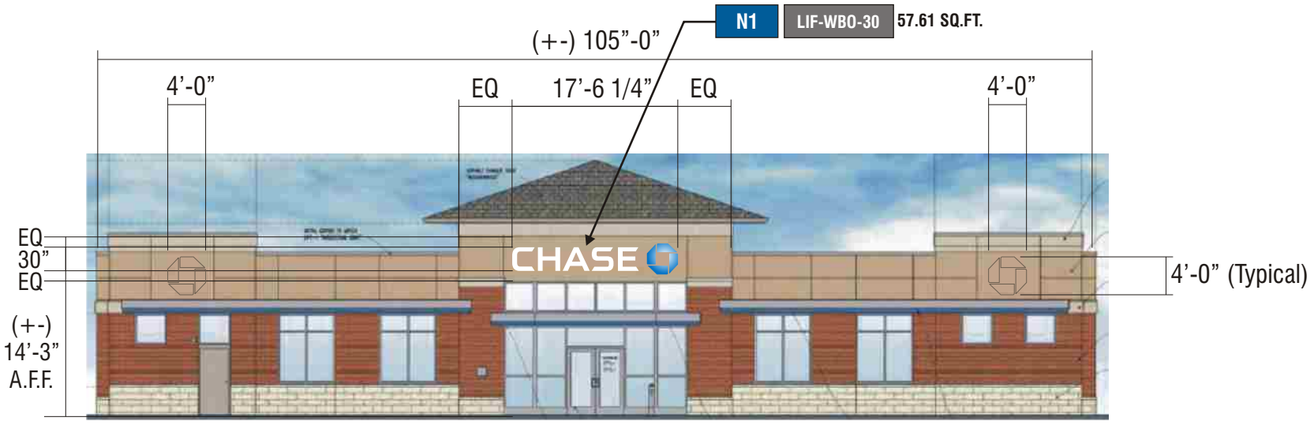
Customer Signature Date

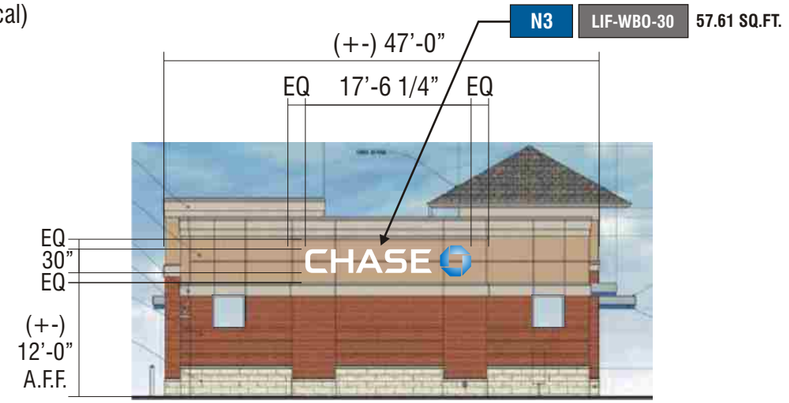
Drawing Number: Building Signage
Work Order Number: 52474

Page No. 1

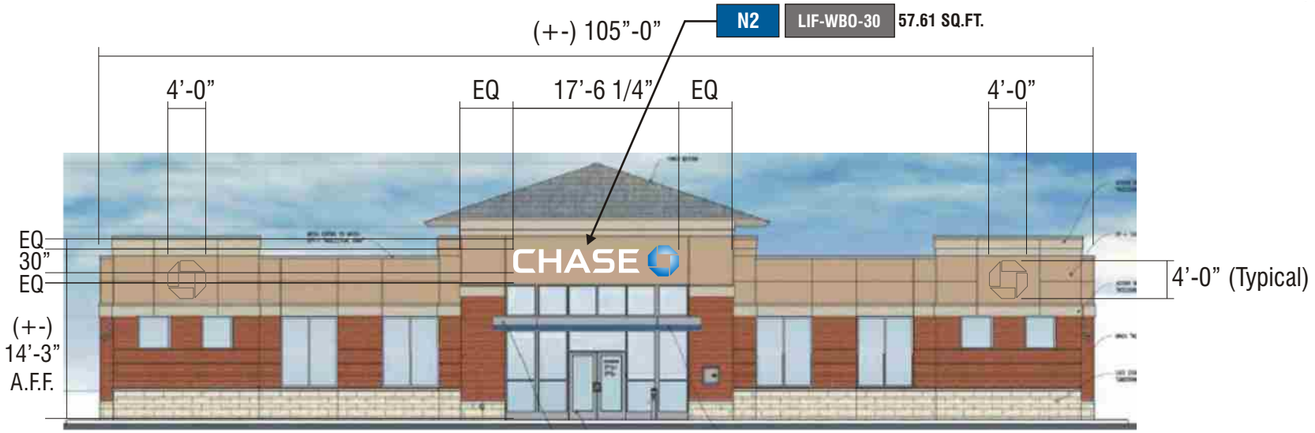
SIGNAGE OVERVIEW



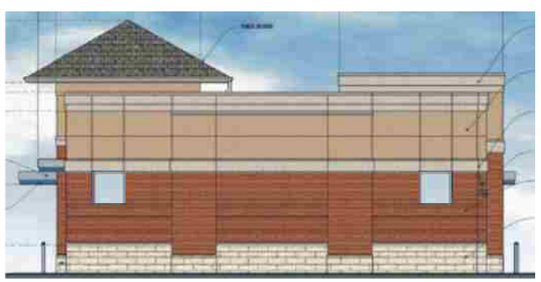
SOUTH ELEVATION **SCALE: 1/16”=1’-0”**



WEST ELEVATION **SCALE: 1/16”=1’-0”**



NORTH ELEVATION **SCALE: 1/16”=1’-0”**



EAST ELEVATION **SCALE: 1/16”=1’-0”**

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JP Morgan Chase Bank #26668

Cedar Oak Dr and Wilamette Dr
SW Cedar Oak Drive and Wilamette Drive
West Linn, OR. 97068

Date: 3/1/12
Salesperson: Arthur Navarro
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Designer: Scott Moller
Scale: As noted

Revisions

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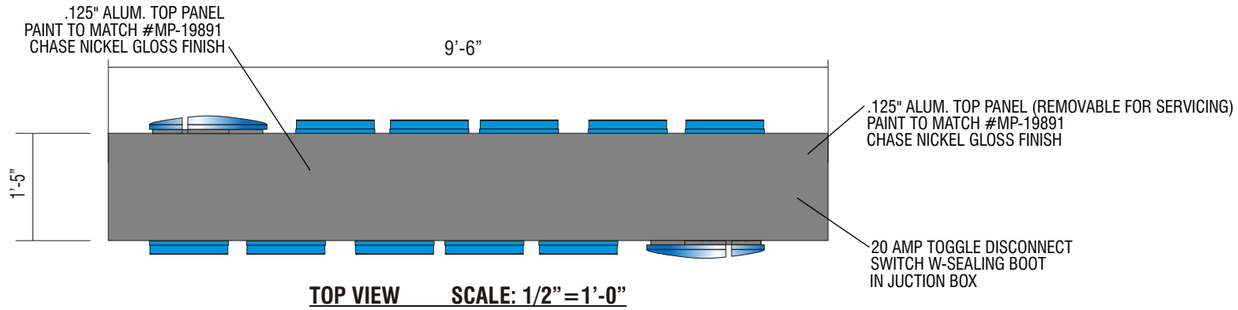
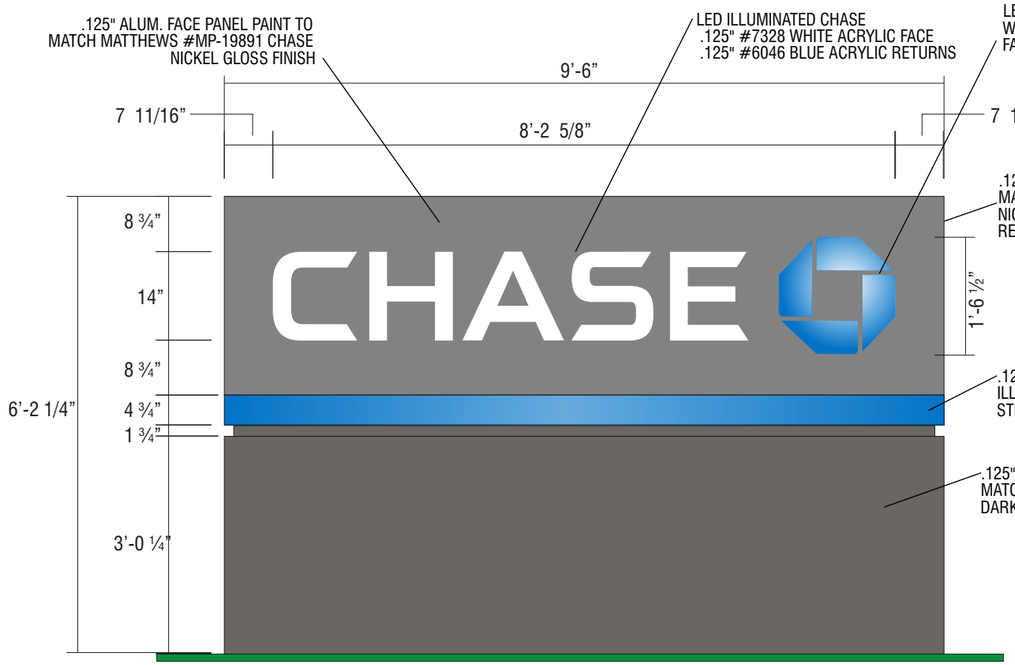
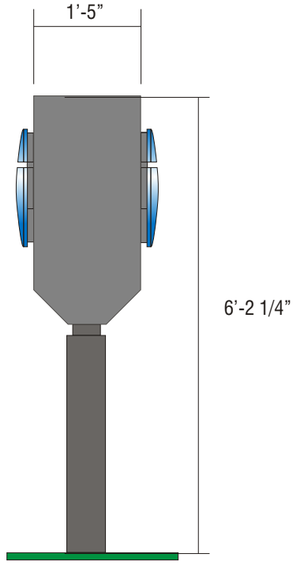
Page No. 2



TOP VIEW SCALE: 1/2"=1'-0"



FRONT VIEW SCALE: 1/2"=1'-0"



END VIEW SCALE: 1/2"=1'-0"

NOTES:

1. Design is based on 90 mph 3 sec gust design wind speed per IBC 2006. Exposure C.
2. Caisson & vertical foundations are based on a safe lateral soil bearing pressure minimum of 300 psf per foot of depth. Soil report was not furnished. Allowable bearing pressure should be verified prior to placement of concrete. Do not place foundation in fill.
3. Concrete shall be mixed to attain a minimum compressive strength of 3000 psi in 28 days.
4. Steel support members shall be free from defects and shall meet ASTM A500 grade B with a minimum yield strength of 46000 psi for tube. Steel plate and angle shall meet ASTM A36. Aluminum shapes be extruded from 6061-T6 alloy. Aluminum sheet shall be 3003-H14 alloy. Aluminum plate shall be 5052-H34 alloy.
5. Structural bolts shall be zinc coated A325 unless otherwise noted. All other fasteners shall be stainless steel or otherwise coated to prevent corrosion.
6. Anchor bolts shall be cut from A36 round stock. Exposed surfaces shall be galvanized or coated to prevent corrosion.
7. All voids between column base plate and foundation surface shall be completely filled with high strength, non-shrink grout.
8. Welds shall be made with E70xx electrodes for steel and a 4000 series filler for aluminum by persons qualified in accordance with AWS standards within the past two years.
9. Steel reinforcing bars shall conform to ASTM 615 grade 60 with deformations in accordance with ASTM A-305. Welding of reinforcing bars is prohibited.
10. This design is prototypical and should not be used for site specific applications unless deemed suitable by a competent Professional Engineer.

ALL EXPOSED FASTENER HEADS SHALL BE PAINTED TO MATCH THE EXTERIOR CABINET FINISH

N4 **SIGN TYPE** M-25 **25 SQ.FT.**

MANUFACTURE AND INSTALL ONE (1) ILLUMINATED MONUMENT SIGN

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Page No. 3

ARCHITECTURAL NIGHT ILLUMINATION

FRONT ELEVATION

REAR ELEVATION

RIGHT ELEVATION

LEFT ELEVATION

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MEMBER MEMBER OF CESA

JP Morgan Chase Bank #26668

Cedar Oak Dr and Wilamette Dr SW Cedar Oak Drive and Wilamette Drive West Linn, OR. 97068

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Page No. 4

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

February 28, 2012 Project #: 12149

Hans Christiansen
CALLISON
1420 Fifth Avenue #2400
Seattle, WA 98101-2343

RE: Transportation Impact Analysis Report for the Proposed West Linn Chase Bank - West Linn, Oregon

Dear Mr. Christiansen,

This letter report presents the results of the transportation impact analysis prepared for the proposed Chase Bank in West Linn, Oregon. This study concludes that the proposed bank can be developed while maintaining acceptable traffic operations and safety at the study intersections. Additional details of the methodology, findings and recommendations are provided herein.

INTRODUCTION

Chase Bank is proposing to construct a 4,324 square foot drive-in bank on a parcel previously occupied by a nursery/garden store. The site is located on the east side of OR 43 in West Linn, north of the OR 43/Cedar Oak Drive. The site is bound by other commercial developments to the north and south, and backs to residential parcels to the east. Figure 1 shows the site vicinity map.

Estimated full build-out of the development is expected by 2013. Access to the site is proposed via a single existing full movement driveway on OR 43. This driveway is shared with adjacent land uses. Alternative access to OR 43 and to Cedar Oak Drive is provided via existing shared access with the retail development north and south of the site. Figure 2 shows the proposed development plan and access locations.

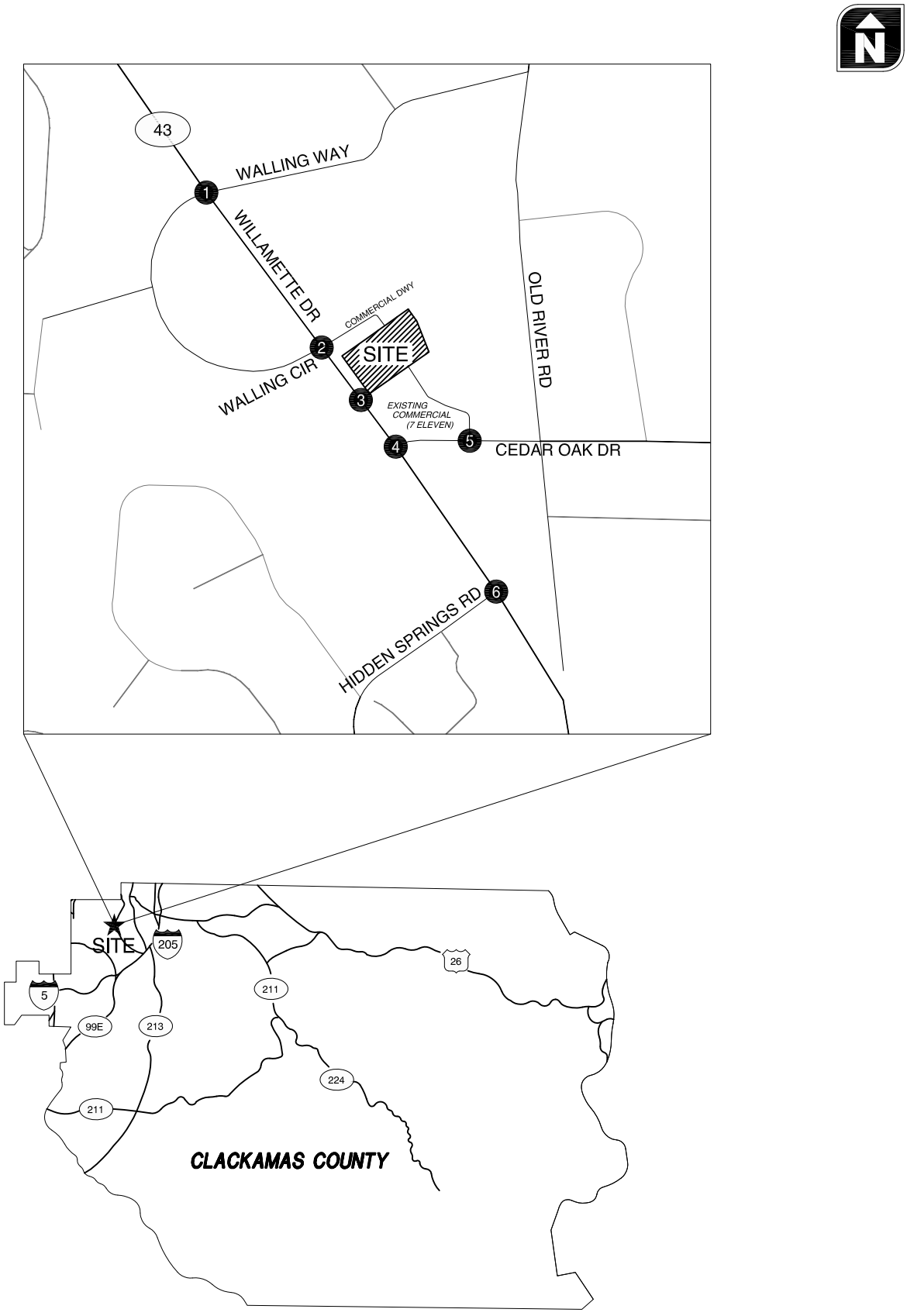
Findings

- Under year 2012 existing traffic conditions, all of the study intersections operate within Oregon Department of Transportation (ODOT) mobility standards during the weekday a.m. and p.m. peak hours.
- Under year 2013 background traffic conditions, all of the study intersections operate within ODOT mobility standards during the weekday a.m. and p.m. peak hours.
- The proposed development is estimated to generate approximately 640 weekday daily trips of which approximately 55 trips (30 inbound, 25 outbound) will occur during the weekday a.m. peak hour and approximately 110 trips (55 inbound, 55 outbound) during the weekday p.m. peak hour.

- Adequate intersection sight distance is available at the existing site access driveway.
- The estimated City of West Linn street System Development Charge (SDC) for this project is $34,048.

Recommendations

- It is recommended that landscaping, signage and any new above ground utilities along the site frontage be located and maintained to provide a clear sight line to the north and south from the site driveway. Intersection sight distance should be verified once the project is constructed.
- It is recommended that cross access locations between the adjacent commercial properties be maintained.



SITE VICINITY MAP
WEST LINN, OREGON

FIGURE 1

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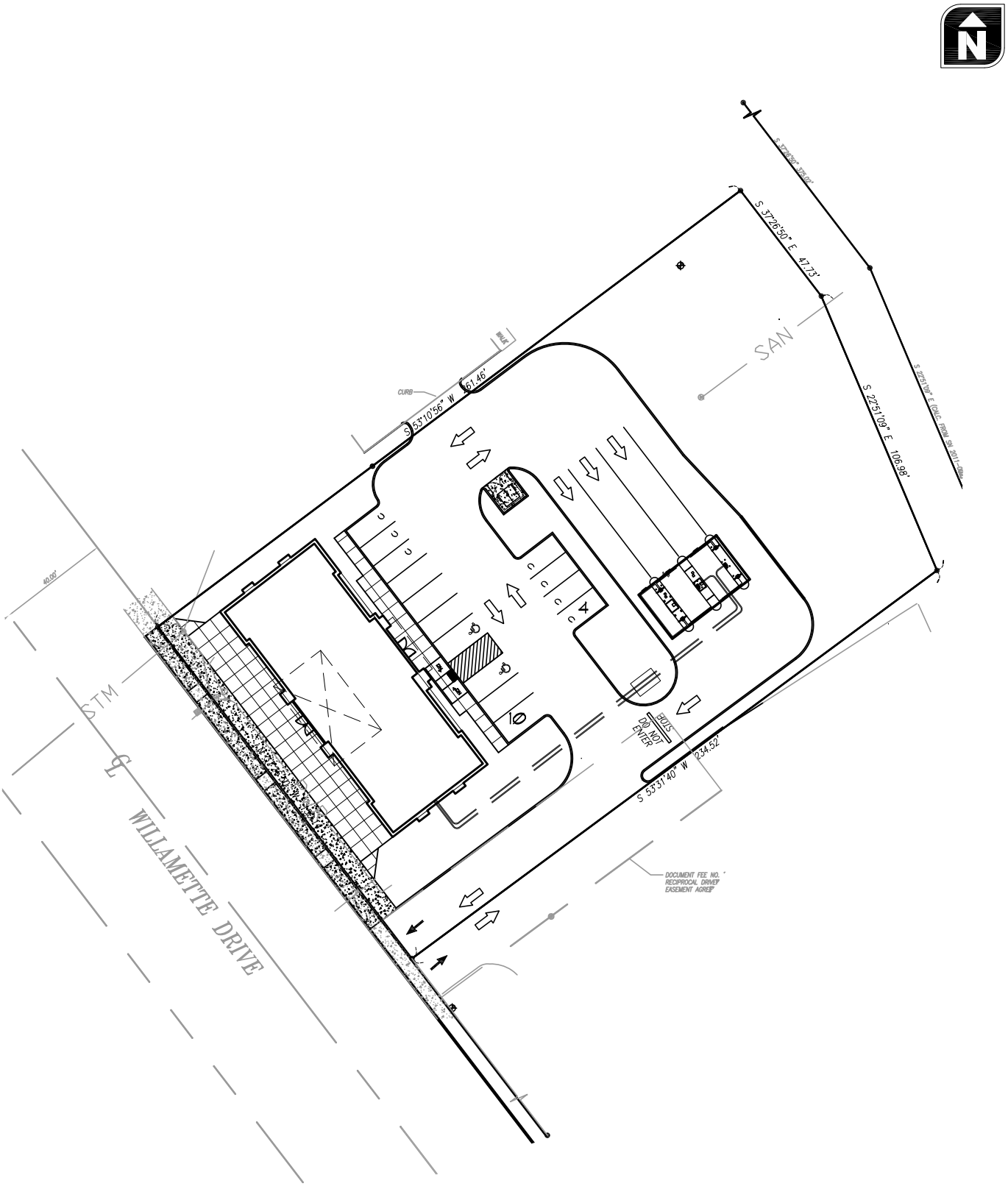

SITE PLAN PROVIDED BY OLSON ENGINEERING (2/8/2012)

PROPOSED SITE PLAN
WEST LINN, OREGON

FIGURE **2**

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Recommendations

- It is recommended that landscaping, signage and any new above ground utilities along the site frontage be located and maintained to provide a clear sight line to the north and south from the site driveway. Intersection sight distance should be verified once the project is constructed.
- It is recommended that cross access locations between the adjacent commercial properties be maintained.

Scope of the Letter

This analysis determines the transportation-related impacts associated with the proposed Chase Bank development. The study intersections and overall project scope were developed based on discussions with the ODOT and City of West Linn staff. Operational analyses were performed at the following intersections:

- OR 43/Walling Circle (north intersection)
- OR 43/Walling Circle (south intersection)
- OR 43/Cedar Oak Drive
- OR 43/Future Chase Bank Driveway (site-access driveway)
- Cedar Oak Drive/South Commercial Driveway (7-11 Driveway)
- OR 43/Hidden Spring Road

This report addresses the following transportation issues:

- Year 2012 base traffic conditions during the weekday a.m. and p.m. peak hours;
- Crash data analysis for a 5-year period within the study area;
- Trip generation and distribution estimates for the proposed development;
- Year 2013 background traffic conditions during the weekday a.m. and p.m. peak hours, including traffic from expected regional growth in the site vicinity and any other in-process/approved developments but not the proposed development.
- Build-out year 2013 total traffic conditions, including traffic from the proposed development and expected regional growth in the site vicinity during the weekday a.m. and p.m. peak hours;
- Intersection sight distance at the proposed access driveway to OR 43;
- Oregon Highway Design Manual (HDM) turn lane warrant analysis for the proposed site access driveway;
- 95th percentile queue estimates; and,
- Conclusions and recommendations.

2012 EXISTING TRAFFIC CONDITIONS

The 2012 existing traffic conditions analysis identifies site conditions and the current operational and geometric characteristics of roadways within the study area. The purpose of this section is to establish a base condition to compare with future conditions.

Transportation Facilities

As indicated in Figure 1, the study site is located adjacent to OR 43, a three-lane principal arterial running north-south along the western property line. Cedar Oak Drive, a two-lane collector, is located 250 feet south of the site. Table 1 provides a summary of adjacent roadway facilities and regional roadway facilities that are specifically included in the operations analysis of this report.

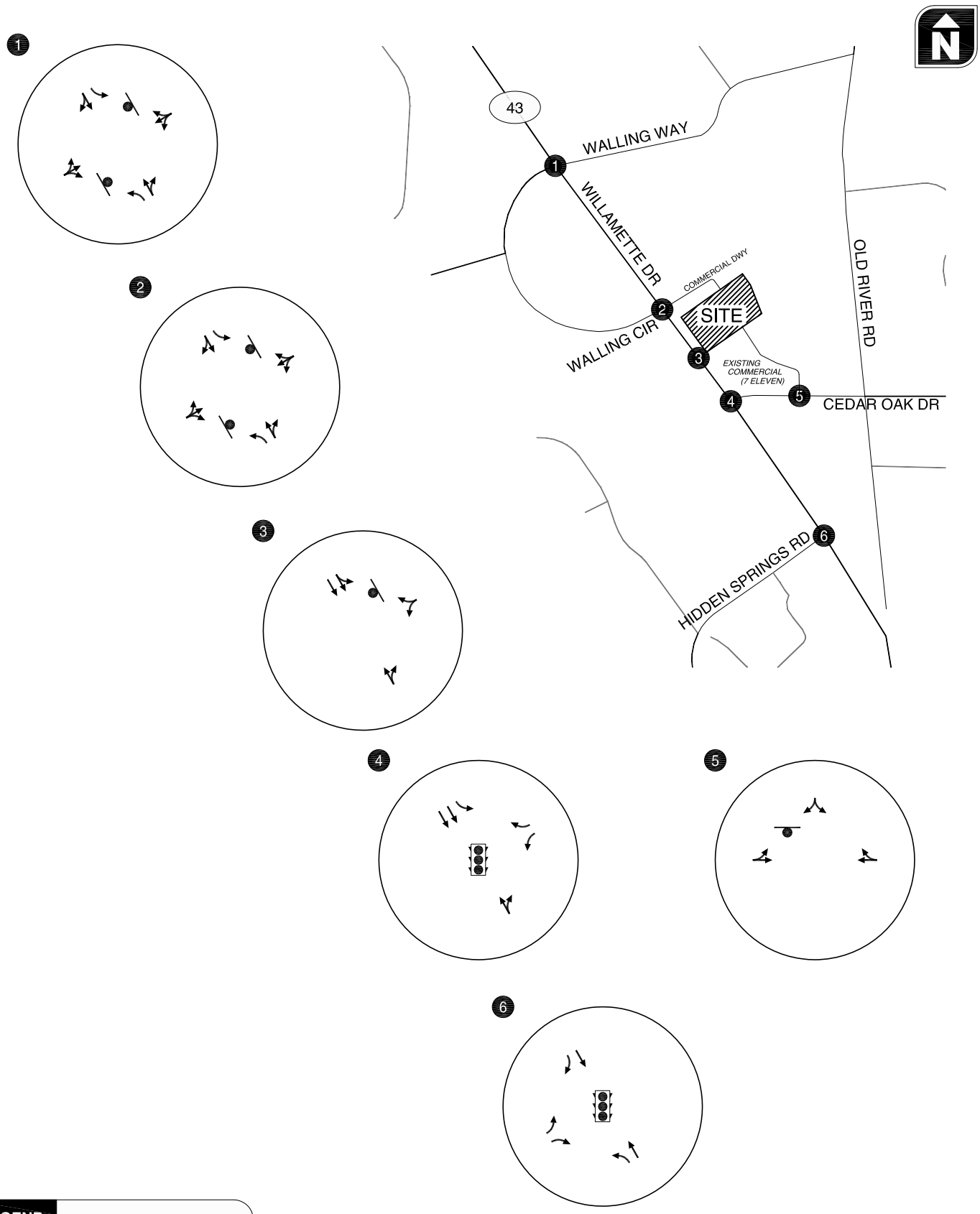
Table 1 Existing Transportation Facilities and Roadway Designations

Roadway	Classification[1]	Cross Section	Posted Speed	Side-walks?	Bicycle Lanes?	On-Street Parking?
OR 43	Principal Arterial	3/4[2]	35 mph	Partial	Yes	Partial
Walling Circle	Local Roadway	2	25 mph	Partial	No	Partial
Cedar Oak Drive	Collector	2	25 mph	Partial	No	Partial
Hidden Springs Road	Arterial	2	25 mph	Yes	No	No

[1] Per West Linn, OR 2008 Transportation System Plan – Figure 3-5, Existing Functional Classification (Reference 1)

[2] OR 43 is a three-lane road (one travel in each direction with a two-way left-turn lane) within the study area, except for the section between Cedar Oak Drive and Hidden Springs Road, where an additional southbound right-turn lane is added.

Figure 3 illustrates the location of the study intersections, as well as existing lane configurations and traffic control devices associated with each study intersection.



LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

EXISTING LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES WEST LINN, OREGON

FIGURE 3

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Pedestrian and Bicycle Facilities

Sidewalks are available on the east side of OR 43 throughout the study area. Sidewalks are present on both sides of Walling Circle, Cedar Oak Drive and Hidden Springs Road within 200 feet of OR 43, and on at least one side of those three streets to within a minimum an additional 100 feet. Bicycle lanes are present on OR 43 within the study area. No bicycle facilities are present on Walling Circle, Cedar Oak Drive and Hidden Springs Road.

Transit Service

Trimet bus route 35: *Macadam* operates seven days a week on OR 43. This route provides service between Oregon City, West Linn, Lake Oswego, and Portland on weekdays during the morning peak period at approximately 25-minute headways, during the weekday mid-day peak period at approximately 30-minute headways, the weekday evening at approximately 30-minute headways, on Saturdays at approximately 40-minute headways, and on Sunday at approximately 50-minute headways.

Traffic Volumes and Peak Hour Operations

Based on available traffic information, the types of land uses in the area, and typical commuter traffic patterns, the weekday a.m. and p.m. peak time periods represent the most critical time periods for analysis. The traffic operations analysis focused on the average weekday a.m. and p.m. peak hours of commuter traffic on the adjacent street system.

To evaluate the current transportation system conditions within the site vicinity, manual turning movement counts were obtained for the study intersections on a mid-week day in January 2012. These counts were conducted during the weekday morning (7:00 - 9:00 a.m.) and evening (4:00 - 6:00 p.m.) hours. The turning movement counts from the weekday a.m. and p.m. peak hours were summarized and rounded to the nearest five vehicles per hour. The weekday morning peak hour was found to occur between 7:30 and 8:30 a.m. while the evening peak hour was found to occur between 4:40 and 5:40 p.m.

Design Hour Volumes

Per the procedures identified in the ODOT Analysis Procedures Manual (AMP), seasonal growth factors were applied to the existing volumes to determine the 30 Highest Design Hour Volumes (DHV) on OR 43. There are no Automatic Traffic Recorders (ATR) within the study area, as such the Characteristic ATR method in the ODOT Analysis Procedures Manual was used. Based upon this methodology, a seasonal factor of 1.18 was added to the raw traffic volumes to arrive at the 30 DHV. Attachment *"A" contains the traffic count sheets and characteristic ATR methodology calculations used in this study.*

Current Levels of Service

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the 2000 *Highway Capacity Manual* (Reference 2). A description of level of

service and the criteria by which they are determined is presented in *Attachment "B."* Attachment "B" also indicates how level of service is measured and what is generally considered the acceptable range of level of service.

To ensure that this analysis was based on a reasonable worst-case scenario, the peak 15-minute flow rate during the weekday a.m. and p.m. peak hours was used in the evaluation of all intersection levels of service. For this reason, the analysis reflects conditions that are only likely to occur for fifteen minutes out of each average peak hour. The traffic conditions during all other weekday hours will likely operate under better conditions than those described in this report.

Signalized Intersections

The OR 43/Cedar Oak Drive and OR 43/Hidden Springs Road intersections are signalized. OR 43 is owned and operated by ODOT. For ODOT controlled intersections, the amended *1999 Oregon Highway Plan* (Reference 3) requires a volume-to-capacity (v/c) ratio of 0.99 during the peak hour traffic condition.

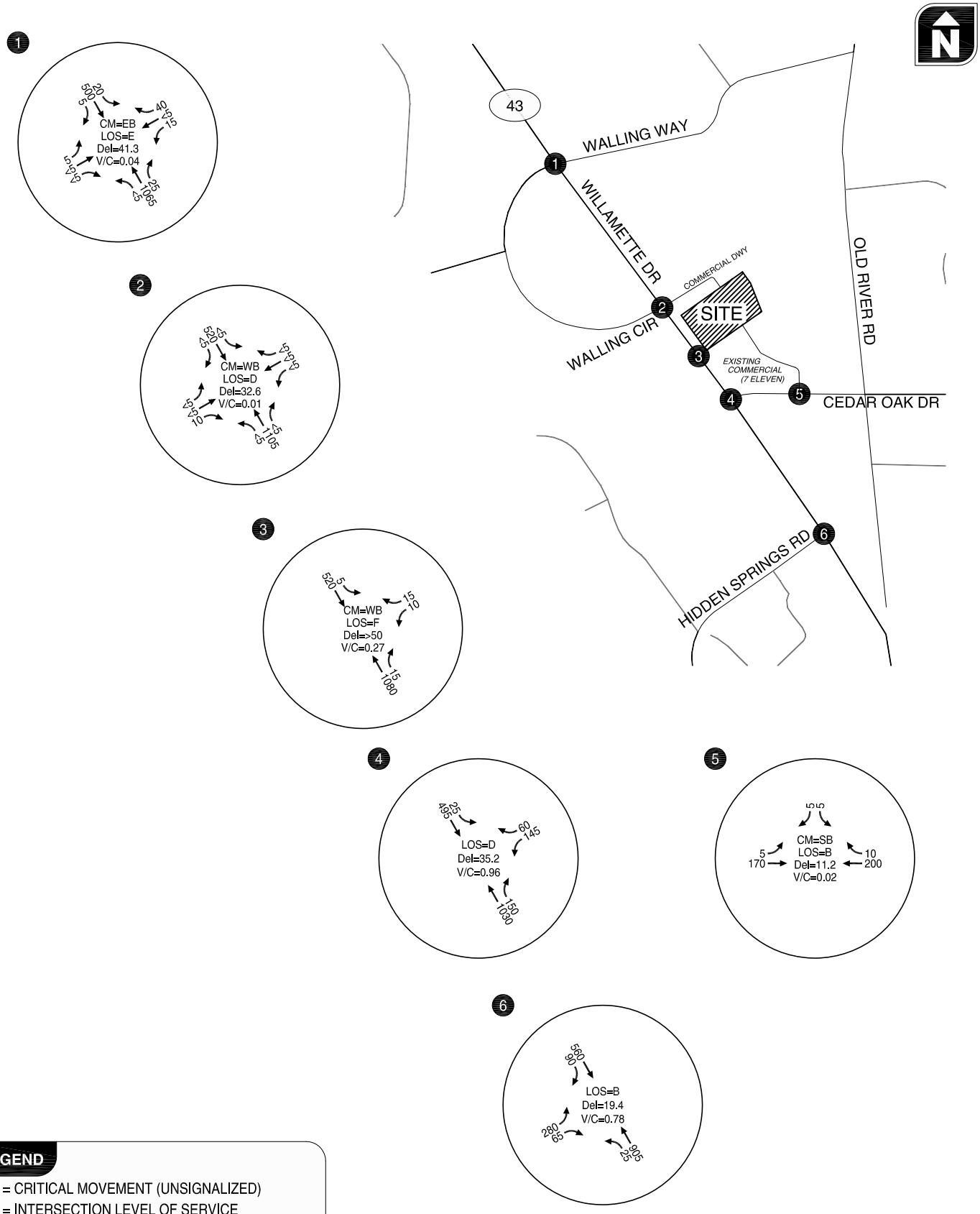
Using the weekday a.m. and p.m. peak hour traffic volumes, v/c ratios, average delays, and levels of service (LOS) were calculated for the signalized study intersections as shown in Figure 3. As indicated in the figure, the signalized study intersections all currently operate acceptably during the weekday a.m. and p.m. peak hours.

Unsignalized Intersections

The remaining study intersections are unsignalized, including the existing site driveway. For ODOT controlled intersections, the amended *1999 Oregon Highway Plan* (Reference 3) requires a v/c ratio of 0.99 for the major movements and a volume-to-capacity ratio of 0.90 for the minor movements during the peak hour traffic condition.

The critical movements at each of the unsignalized study intersections currently operate acceptably during the weekday a.m. and p.m. peak hours.

Figure 4 and Figure 5 illustrate the existing conditions weekday a.m. and p.m. peak hour level of service results at each of the study intersections. For unsignalized intersections the results shown represent the critical movement v/c and LOS. *Attachment "C" includes the existing conditions traffic operations worksheets.*



LEGEND

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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

EXISTING TRAFFIC CONDITIONS
WEEKDAY AM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE 4

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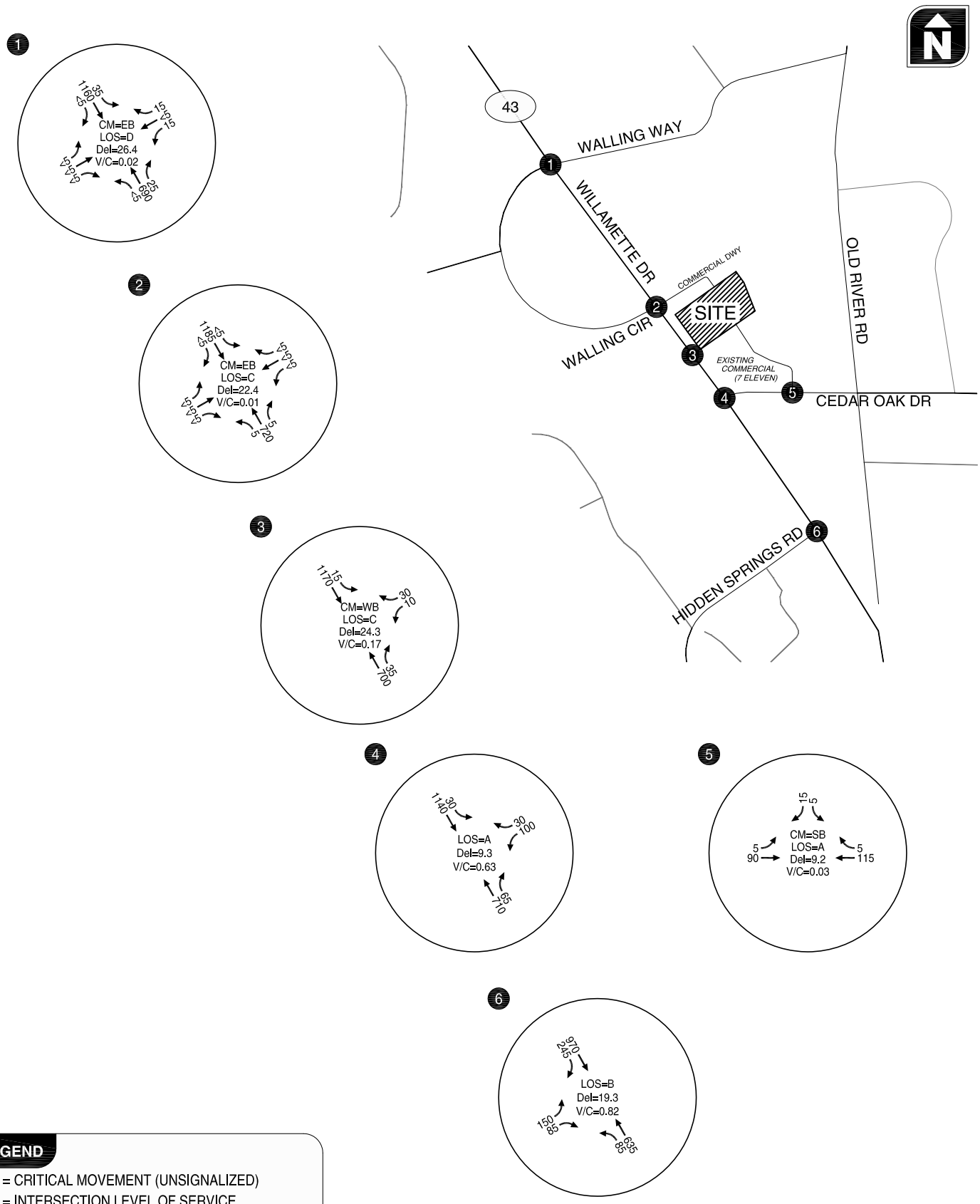

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EXISTING TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE 5

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Traffic Safety

Crash data from each of the study intersections was reviewed in an effort to identify potential intersection safety issues. Crash records from January 1, 2006 to December 31, 2010 were obtained from ODOT. A summary of the crash data is provided in Table 2.

Table 2 Study Intersection Crash Histories (2006-2010)

Intersection	Number of Crashes	Collision Type				Severity	
		Turn/Side-Swipe	Angle	Rear End	Fixed Object/ Other	Property Damage Only	Personal Injury
OR 43/Walling Circle North	2	1	0	1	0	1	1
OR 43/Cedar Oak Drive	28	8	0	20	0	17	11
OR 43/Hidden Springs Road	35	6	1	28	0	23	12

Crash rates of intersections are often expressed in crashes per million entering vehicles (MEV) for evaluation purposes. Typically, a crash rate exceeding 1.0 indicates a location requiring further investigation retailed to traffic safety. Crash rate calculations are presented in Table 3.

Table 3 Study Intersection Crash Rates (2006-2010)

Intersection	Number of Crashes	Crashes per Year	Peak Hour TEV	MEV / Year	Crashes / MEV
OR 43/Walling Circle North	2	0.4	1,959	7.15	0.06
OR 43/Cedar Oak Drive	28	5.6	2,111	7.71	0.73
OR 43/Hidden Springs Road	35	7	2,269	8.28	0.85

TEV = Total Entering Volumes
MEV = Million Entering Vehicles

The crash data were evaluated to determine if there are any operational or geometric deficiencies that are potentially contributing to the crash patterns. The OR 43/Cedar Oak Drive and OR 43/Hidden Springs Road intersections have a high proportion of turning movement and rear-end collisions. A close inspection of the collisions did not reveal any specific directional patterns or other variables that would require mitigation. The crash history at each of the study intersections does not indicate inherent safety issues requiring mitigation. It is important to note that our review of crash data in the study area did not reveal any crashes occurring at the existing site access driveway to OR 43.

A review of the ODOT Safety Priority Index System (SPIS) revealed that the OR 43/Cedar Oak Drive intersection is identified as a SPIS intersections. Conversations with ODOT staff indicated that there is currently no formal plan for mitigation of this intersection. *Attachment "D" includes the crash data summary worksheets.*

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate with the development of the subject property in the bank's opening year. The impact of traffic generated by the proposed development during typical weekday a.m. and p.m. peak hour was examined and summarized in the remainder of this report.

Planned Transportation Improvements and Developments

A review of the City of *West Linn 2008 Transportation System Plan* (TSP) and the *Highway 43 Conceptual Design Plan (Reference 4)* were reviewed to determine if there are any future plans to increase capacity on OR 43 in the site vicinity. While opportunities to widen OR 43 to a five-lane cross section along the corridor were considered in the TSP and Design Plan, both documents maintain the existing three-lane cross section for the corridor to maintain the roadway character, meet concerns of the community and due to existing right-of-way constraints.

Currently the only long range project identified within the study area includes realigning the existing shopping center driveway on the west side of OR 43 to become the west leg of the OR 43/Cedar Oak Drive intersection. Conversations with City of West Linn staff have revealed that there are no current in process developments in the vicinity of this project.

2013 Background Traffic Conditions

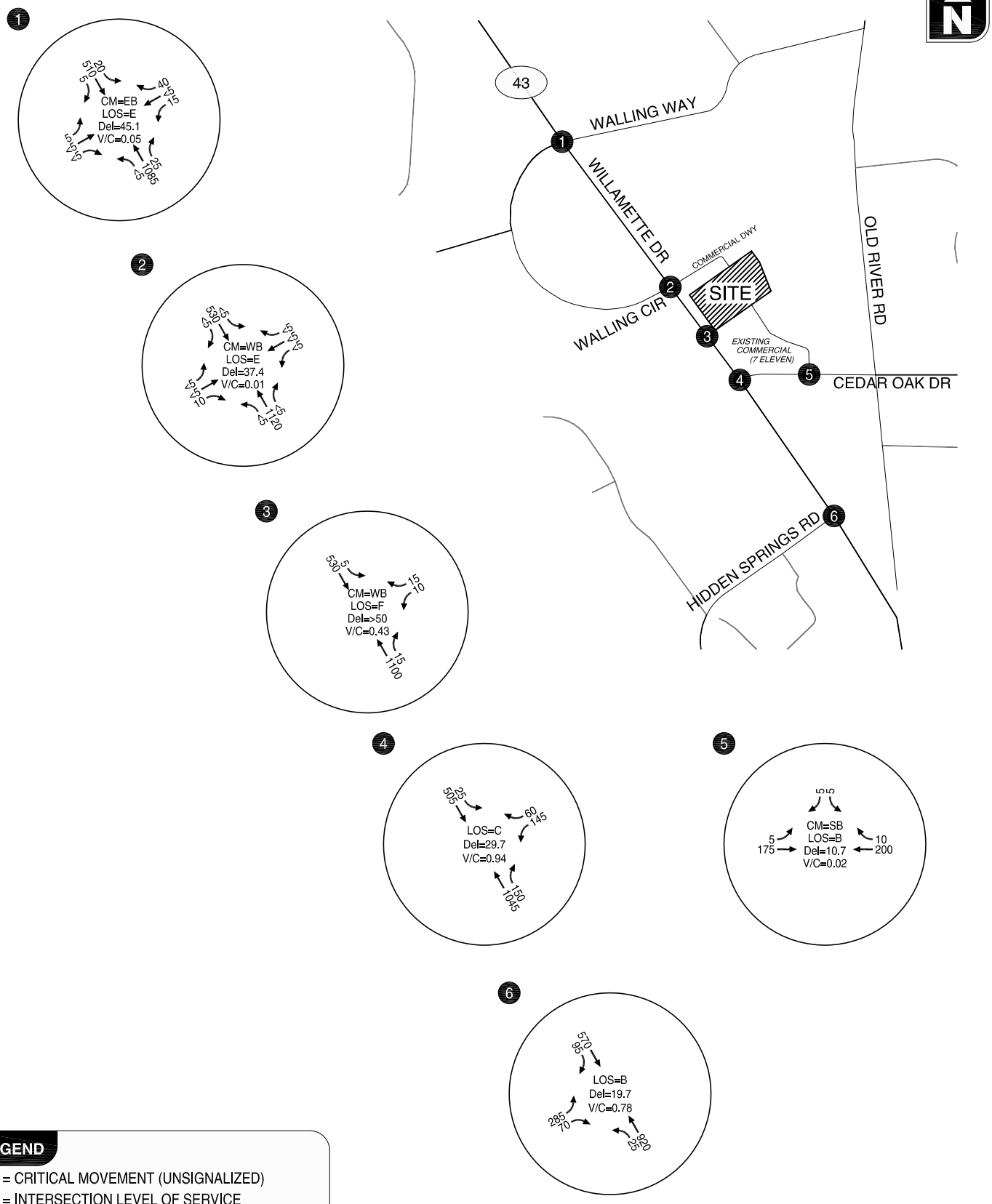
The background traffic analysis identifies how the study area's transportation system will operate in the year the development is expected to be completed and occupied. This analysis includes traffic growth due to development within the study area and from general growth in the region, but does not include traffic from the proposed bank.

Traffic Volumes

Year 2013 background traffic volumes were developed by applying an annual growth factor to the 2012 base traffic volumes. The growth factor on OR 43 was derived using ODOT's 2030 Future Year Volume Table. Comparing the base year (2009) and future year (2030) forecasted volumes for the nearest two locations within the site vicinity, traffic volumes on OR 43 are projected to grow at an average annual growth rate of 1.6 percent. As such, base year 2012 volumes were grown by 1.6 percent to arrive at 2013 background traffic volumes.

Level of Service Analysis

During the 2013 background traffic conditions, all study intersections are forecast to operate at acceptable levels during the weekday a.m. and p.m. peak hours. Figure 6 and Figure 7 illustrate the year 2013 background traffic operations at each study intersection. *Attachment "E" contains the year 2013 background traffic conditions analysis worksheets.*



LEGEND

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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

BACKGROUND TRAFFIC CONDITIONS
WEEKDAY AM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE 6

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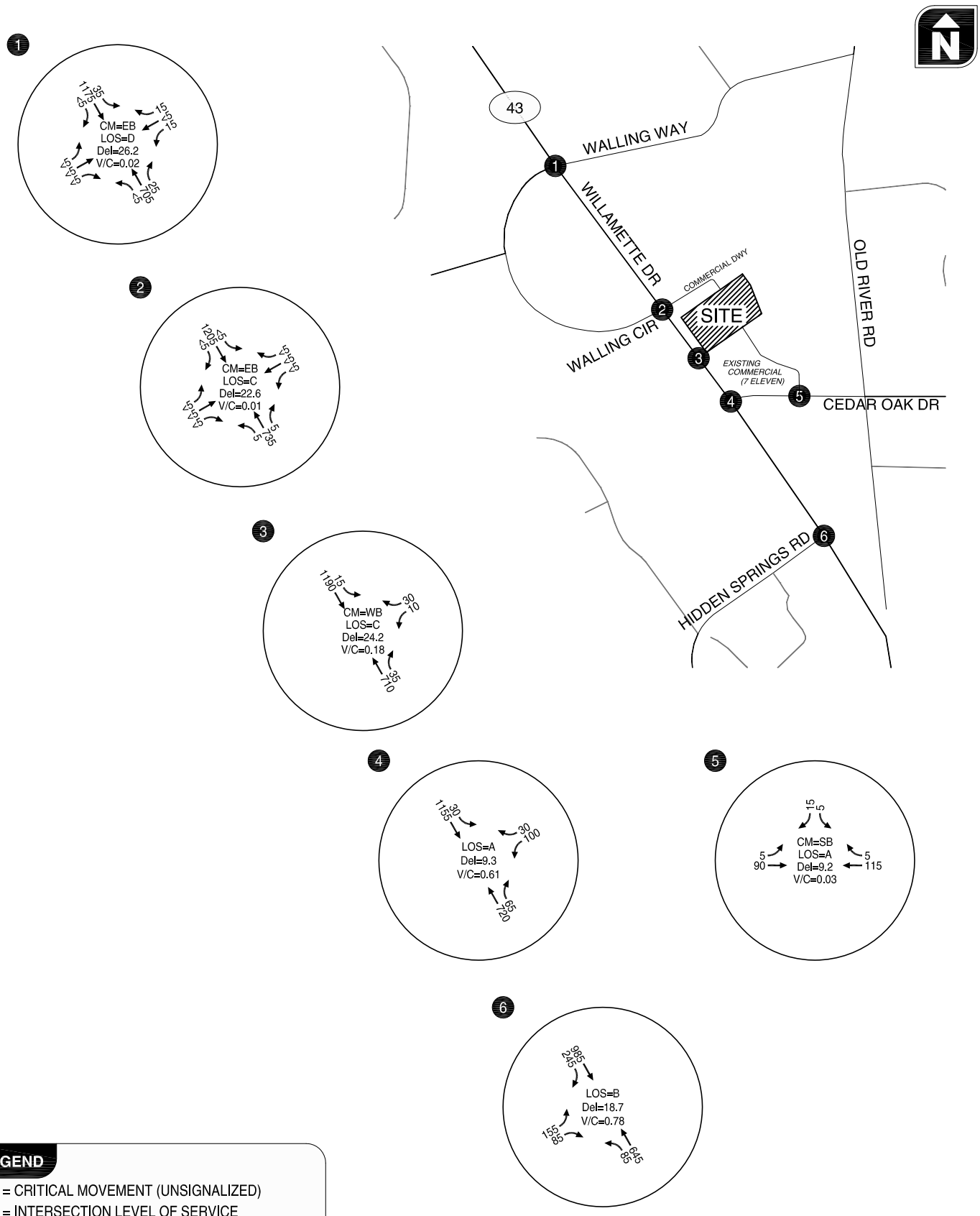

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BACKGROUND TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE 7

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Proposed Development Plan

Chase Bank is proposing to construct a 4,324 square foot drive-in bank on a parcel previously occupied by a garden store. The site is located on the east side of OR 43 in West Linn, north of the OR 43/Cedar Oak Drive.

Trip Generation

Estimates of weekday daily, weekday a.m. and p.m. peak hour vehicle trip ends for the proposed bank were calculated from empirical observations made at other similar developments. These observations were obtained from the standard reference, *Trip Generation: 8th Edition*, published by the Institute of Transportation Engineers (ITE) (Reference 5). It is important to note that the average trip rates provided in ITE Trip Generation represent a conservative estimate of traffic associated with banks based on a review of actual bank trip generation data for other locations around the Pacific Northwest.

A portion of the traffic generated by the proposed bank will be pass-by trips from OR 43. The pass-by trip rates used in for the bank were obtained from the ITE *Trip Generation Handbook (Reference 6).* The Handbook specifies a pass-by rate of approximately 47-percent.

Table 4 summarizes the estimated number of trips that will be generated during a typical weekday as well as during the weekday a.m. and p.m. peak hours. Also shown is the reduction taken to account for pass-by traffic at the site.

Table 4 Estimated Trip Generation

Land Use	ITE Code	Size (Sq. ft.)	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Drive-in Bank	912	4,324	640	55	30	25	110	55	55
- Pass-by reduction (47%)			*(300)*	*(20)*	*(10)*	*(10)*	*(50)*	*(25)*	*(25)*
Net new trips			**340**	**35**	**20**	**15**	**60**	**30**	**30**

As shown in Table 4, the proposed development is estimated to generate approximately 640 weekday daily trips of which approximately 55 trips (30 inbound, 25 outbound) will occur during the weekday a.m. peak hour and approximately 110 trips (55 inbound, 55 outbound) during the weekday p.m. peak hour.

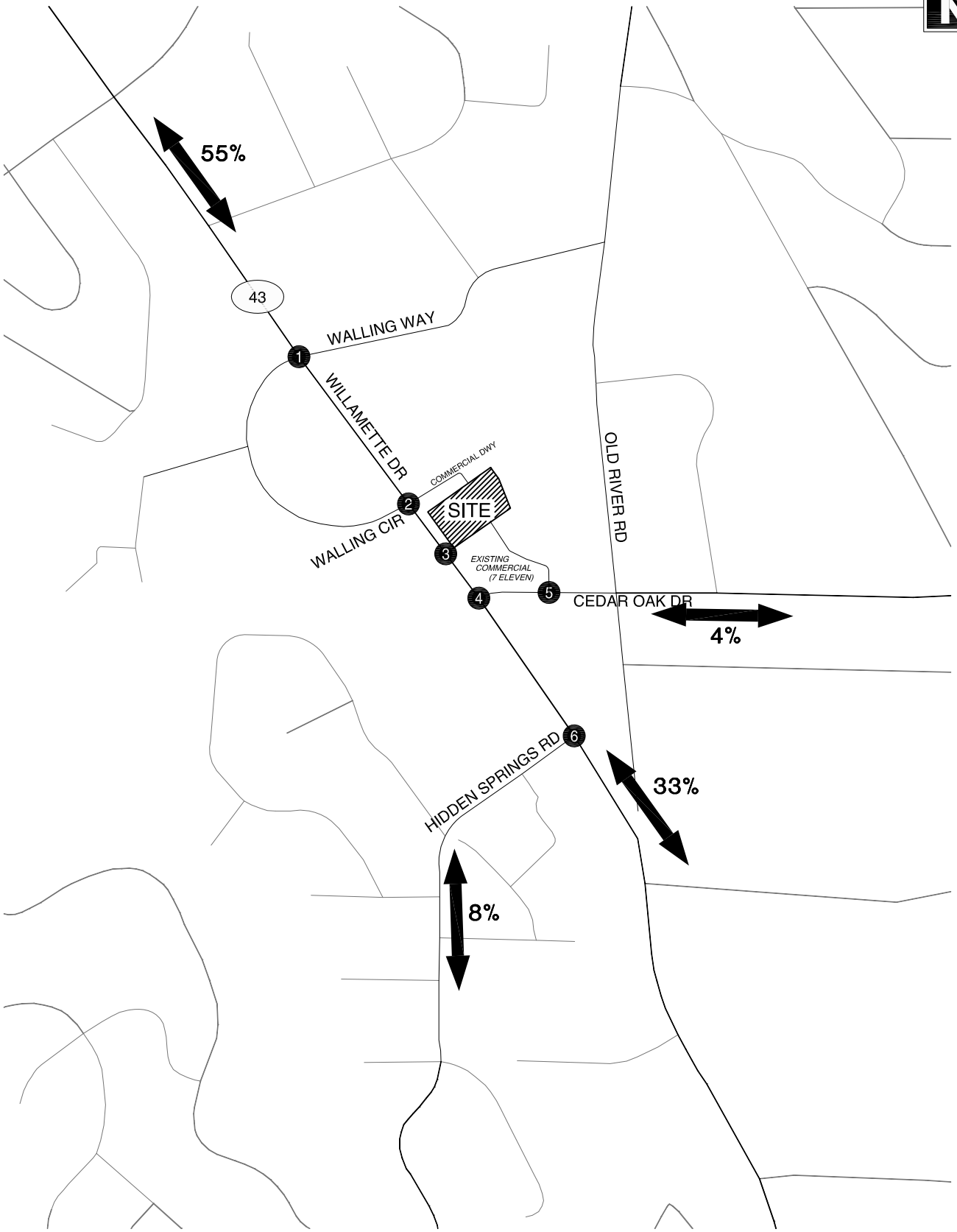
Note that no trip credit was assumed in the analysis for capacity assessment purposes; provision of the trip credit for the previous use will be considered for calculation of the City's System Development Charges (SDC's) and is discussed later in this letter.

Trip Distribution and Assignment

The distribution of site-generated trips onto the study area roadway system was analyzed by evaluating existing peak hour directional travel characteristics in the site vicinity. These characteristics are based on existing turning movement counts at the study intersections and a

select link analysis prepared using Metro's regional transportation planning model. Figure 8 illustrates the resulting estimated trip distribution pattern.

The estimated site-generated traffic was assigned to the surrounding transportation system based on the trip distribution pattern. The weekday a.m. and p.m. site generated traffic assignments at the study area intersections are shown in Figure 9 and 10, respectively. It was assumed that a portion of traffic with southbound OR 43 destinations would exit the site via the signal at the OR 43/Cedar Oak Drive intersection.



ESTIMATED TRIP DISTRIBUTION PATTERN
WEST LINN, OREGON

FIGURE 8

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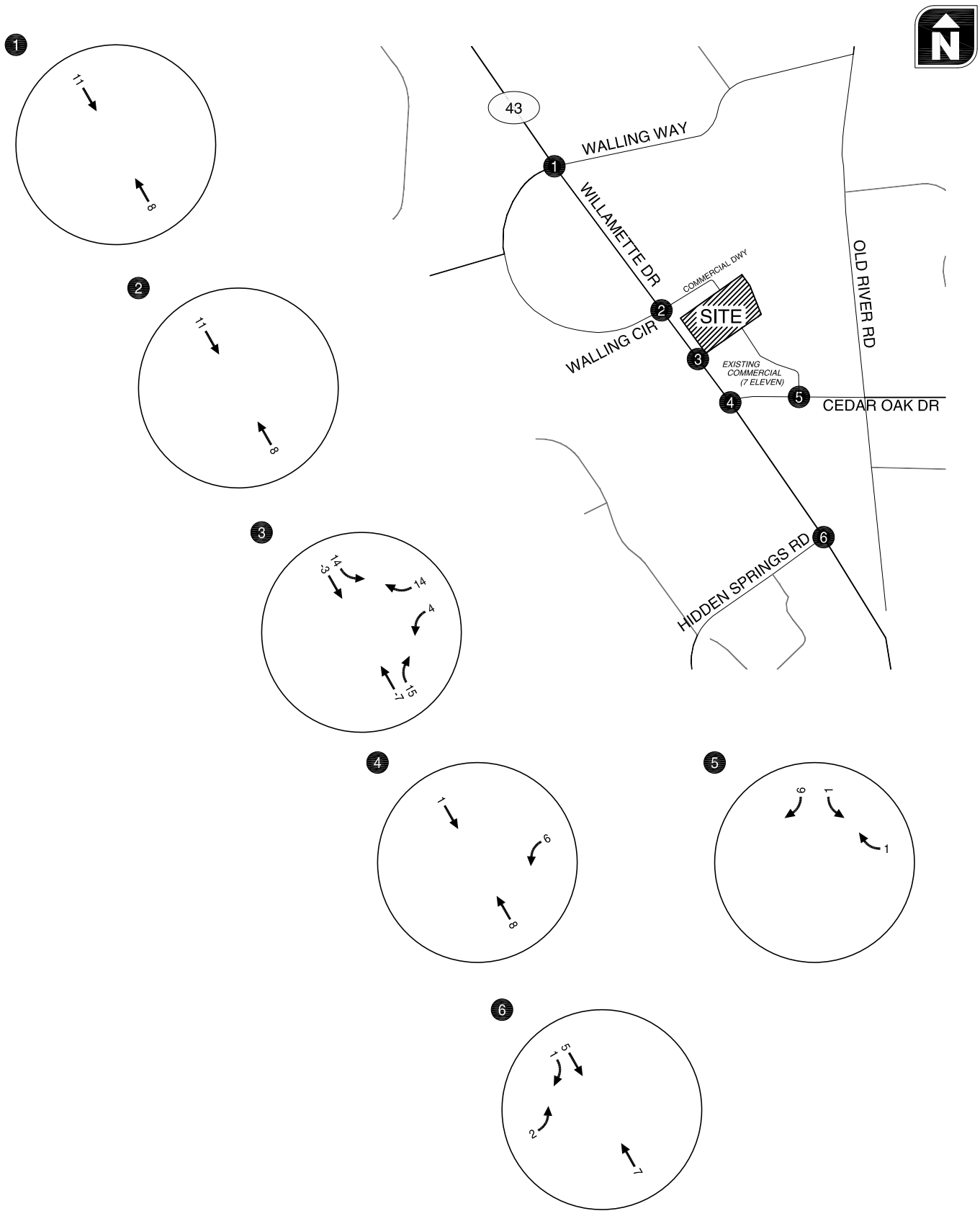

NOTE: NEGATIVE VOLUMES REPRESENT PASS-BY TRIPS

SITE-GENERATED TRAFFIC
WEEKDAY AM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE 9

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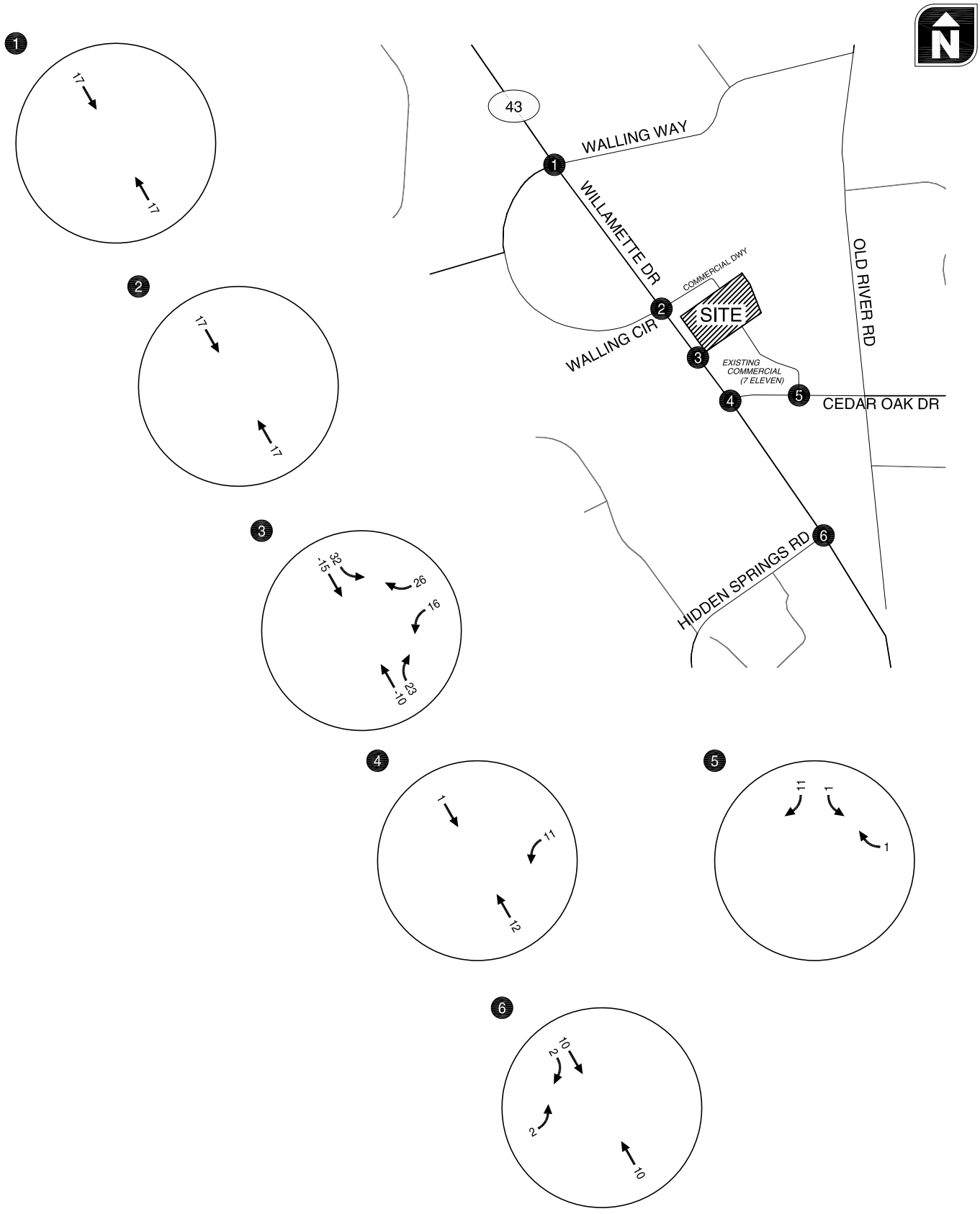

NOTE: NEGATIVE VOLUMES REPRESENT PASS-BY TRIPS

SITE-GENERATED TRAFFIC
WEEKDAY PM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE **10**

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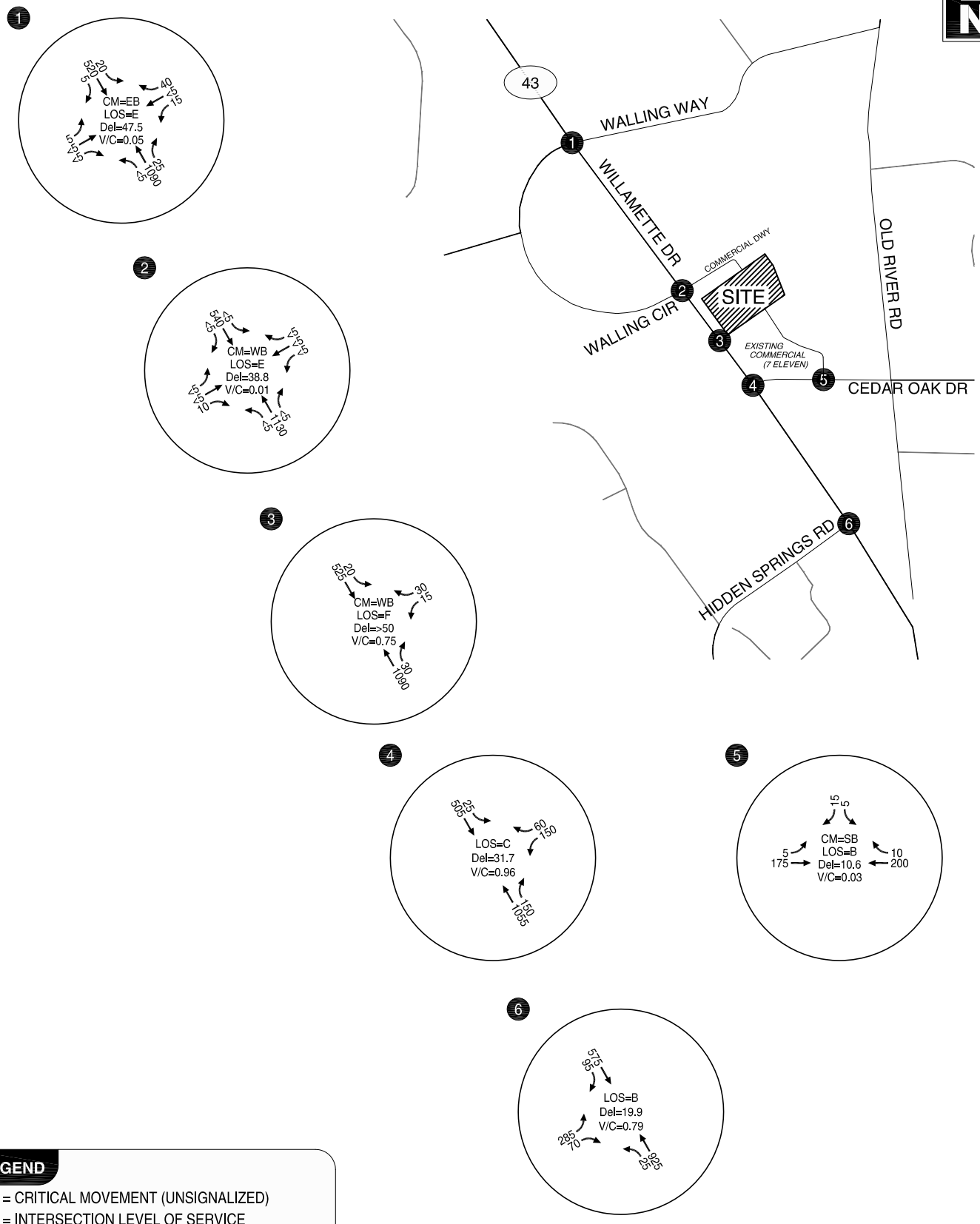
Year 2013 Total Traffic Conditions

The year 2013 total traffic volumes include traffic from the development of the proposed bank. The estimated site-generated traffic shown in Figures 9 and 10 were added to the 2013 background traffic shown in Figures 6 and 7 to arrive at the year 2013 total traffic volumes shown in Figure 11 and 12.

Figures 11 and 12 summarize the operational analysis results for the study intersections during the 2013 total weekday a.m. and p.m. peak hours. As shown in the figures, all study intersections are forecast to operate at acceptable levels during the weekday a.m. and p.m. peak with inclusion of the proposed bank. *Attachment "F" contains the year 2012 total traffic conditions analysis worksheets.*



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TOTAL TRAFFIC CONDITIONS
WEEKDAY AM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE 11

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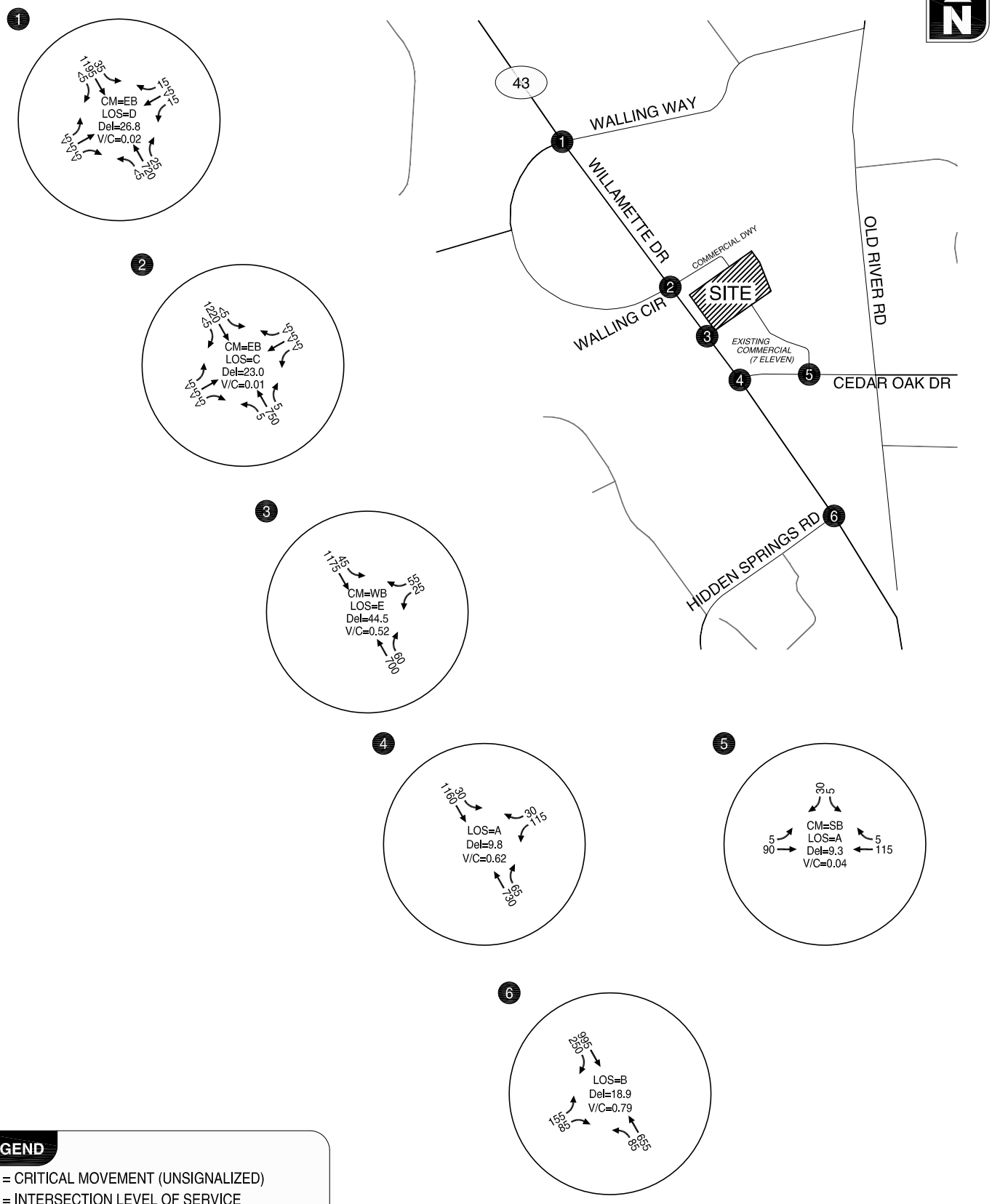

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TOTAL TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR VOLUMES
WEST LINN, OREGON

FIGURE **12**

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QUEUEING ANALYSIS

A 95th percentile vehicle queuing analysis based on Synchro was performed at the signalized study intersections to further evaluate background levels of congestion and ensure that adequate vehicle storage space is available with full build out of the proposed bank. Table 5 provides a summary of the queuing analysis.

Table 5 Background and Total Traffic Conditions Queuing Analysis

Intersection	Movement	95th Percentile Queue Length (feet)						Available Storage (feet)
		Background Conditions		Total Conditions				
		AM Peak Hour	PM Peak Hour	AM Peak Hour	Change[5]	PM Peak Hour	Change[5]	
OR 43/Cedar Oak Drive	WB Right	35	35	35	-	35	-	30[1]
	WB Left	165	125	175	+10	135	+10	100
	SB Through	60	190	60	-	190	-	140[2]
	SB Left	40	50	40	-	50	-	100
	NB Through	1,195	500	1,210	+15	500	-	450[3]
OR 43/Hidden Springs Road	EB Right	35	45	35	-	45	-	165
	EB Left	280	180	280	-	180	-	165
	SB Through	430	960	435	+5	980	+20	450[3]
	NB Left	40	110	40	-	110	-	150
	NB Through	620	235	630	+10	240	+5	515[4]
	SB Right	10	10	10	-	10	-	450[3]

All lengths have been rounded to the nearest 5 feet.

1 – Distance from the stop bar to access driveway.

2 – Distance to the bank access driveway.

3 – Distance between the OR 43/Cedar Oak and OR 43 Hidden Springs intersections.

4 – Distance to the nearest intersection.

5 – Indicates difference in 95th percentile queue length as a result of development.

As shown in Table 5, the background levels of traffic on OR 43 produce 95th percentile vehicle queues that exceed available storage in some locations, predominantly for the northbound and southbound movements on OR 43 during the respective weekday a.m. and p.m. peak hours. It is important to note that the proposed bank development results in a negligible increase to the background condition vehicle queues at these intersections.

95th percentile queues for the westbound movements at the site access driveway were reviewed to determine the potential level of on-site congestion. During the weekday p.m. peak hour the forecast 95th percentile queue for this movement is approximately 75 feet. Based on a review of the site plan adequate storage space exists for this queue.

As discussed earlier in this letter, access to the site is proposed via one full access driveway to OR 43. In addition, access to the OR 43/Cedar Oak Drive traffic signal is available via cross access between the proposed bank site and the adjacent commercial property to the south. It is

recommended that cross access locations be maintained to provide drivers access to the traffic signal at the OR 43/Cedar Oak Drive intersection.

INTERSECTION SIGHT DISTANCE

A site visit was conducted in February 2012 to determine intersection sight distance at the proposed site driveway. OR 43 has a posted speed limit of 35 mph in this section. The guidebook, *Geometric Design of Highways and Streets, 2011, 6th Edition*, published by the American Association of State Highway and Transportation Officials (AASHTO) (Reference 7) was used to determine the necessary intersection sight distance. Based on the posted speed of 35 mph, 390 feet of sight distance is necessary at the intersection. These standards entail that measurements be based on an estimated driver eye height of 3.5 feet and an object height based on a vehicle height of 4.35 feet above the road; and is assumed to be 10 feet from the near edge of pavement to the front of a stopped vehicle. (Actual measurements are taken 15 feet from the edge of travel way).

Photos were taken to show the sight distances from the proposed driveways as follows in Exhibit 1 and Exhibit 2.

Exhibit-1 Site Driveway

Site Driveway Looking South on OR 43

Site Driveway Looking North on OR 43

Existing intersection sight distance was field measured to be greater than 600 feet facing north and south direction on OR 43. Based on a review of the site plan, it appears that the building setback will be sufficient to maintain a clear line of site from the driveway to the north and south. It is recommended that landscaping, signage and any new above ground utilities along the site frontage be carefully selected to maintain a clear sight line to the north and south from the site driveway. It is also recommended that sight distance be verified once the project is constructed.

TURN LANE ANALYSIS

Warrants for a right turn lane were evaluated at the site driveway to OR 43. The analysis was based on criterion provided in the ODOT Highway Design Manual Appendix F (Reference 8) during the weekday p.m. peak hour, the combination of right-turn volume, coupled with the approaching Design Hour Volume (DHV) in the outside lane meets the volume criteria for installation of a right turn lane at this location.

The proximity of the site access driveway to the OR 43/Cedar Oak Drive intersection limits the ability to develop a standard right turn per the ODOT Highway Design Manual. Potential interaction with the existing bike lane would complicate installation of a right turn lane. Providing a right turn lane at the site driveway is not consistent with the character of OR 43 in the site vicinity and as such, provision of a right turn lane is not recommended at this time. *Attachment "G" contains the turn lane warrant analysis worksheets.*

CITY OF WEST LINN SYSTEM DEVELOPMENT CHARGES (SDC's)

For the purposes of calculating the City's SDC for this project, supplemental trip generation for other bank developments around the Pacific Northwest was reviewed. In April 2012, Jake Traffic Engineering (JTE) prepared the *Marylhurst Key Bank Trip Generation and System Development Charge Letter,* documenting trip generation data and the SDC calculation for this site. The JTE study concluded that similar drive-in banks in the Pacific Northwest generate 10.17 to 14.90 weekday p.m. peak hour trips per thousand square feet. *Attachment H contains a copy of the JTE Trip generation and SDC study.*

Assuming these average trip generation rates, and assuming the ITE pass-by rate of 47% the proposed Chase Bank generates 34 net new weekday p.m. peak hour trips (4,324 s.f./1,000 s.f. x 14.90 x 53%).

The previous use on the site included a 9,400 Nursery Garden Center. The *Trip Generation Handbook* does not supply data for pass-by trips associated with the Nursery Garden Center; however, information provided in the JTE study indicated that a 10% pass-by factor would be appropriate. Assuming the rates provided in ITE Trip Generation, the trip generation estimate for the previous Nursery Garden Center is 32 net new weekday p.m. peak hour trips (9,400 s.f./1,000 s.f. x 3.80 x 90%).

Comparing trips associated with the prior and proposed land uses, the proposed Chase Bank is estimated to generate approximately 2 additional net new weekday p.m. peak hour trips.

The City of West Linn Street SDC table (effective January 26, 2012) indicates a retail SDC rate of $17,024 per net new trip. Based on the proposed Chase bank trip generation and credit described above, the total street SDC for this project is estimated to be $34,048. The City of West Linn will make the final street SDC determination.

FINDINGS AND RECOMMENDATIONS

Based on the results of this analysis the proposed West Linn Chase Bank development can be accommodated on the surrounding roadway network. Pertinent findings are as follows:

Findings

- Under year 2012 existing traffic conditions, all of the study intersections operate within ODOT mobility standards during the weekday a.m. and p.m. peak hours.
- Under year 2013 background traffic conditions, all of the study intersections operate within ODOT mobility standards during the weekday a.m. and p.m. peak hours.
- The proposed development is estimated to generate approximately 640 weekday daily trips of which approximately 55 trips (30 inbound, 25 outbound) will occur during the weekday a.m. peak hour and approximately 110 trips (55 inbound, 55 outbound) during the weekday p.m. peak hour.
- Adequate intersection sight distance is available at the existing site access driveway.
- The estimated City of West Linn Street SDC for this project is $34,048.

Recommendations

- It is recommended that landscaping, signage and any new above ground utilities along the site frontage be located and maintained to provide a clear sight line to the north and south from the site driveway. Intersection sight distance should be verified once the project is constructed.
- It is recommended that cross access locations between the adjacent commercial properties be maintained.

We trust this letter adequately addresses the transportation related impact associated with the proposed West Linn Chase Bank development. If you have any questions or comments regarding this letter, please call us at (503) 228-5230.

Sincerely,
KITTELSON & ASSOCIATES, INC.

Dave Daly, P.E.
Engineer

Chris Brehmer, P.E.
Principal Engineer

References

1. City of West Linn, 2008 Transportation System Plan. 2008.
2. Transportation Research Board. *Highway Capacity Manual*. 2000.
3. Oregon Department of Transportation. *Oregon Highway Plan 1999.* 2011.
4. City of West Linn, *OR 43 Concept Design Plan*. 2008
5. Institute of Transportation Engineers. *Trip Generation, Eighth Edition.* 2008.
6. Institute of Transportation Engineers. *Trip Generation Handbook, Second Edition.* 2004.
7. American Association of State Highway Transportation Officials, *Geometric Design of Highways and Streets, 6th Edition.* 2011
8. Oregon Department of Transportation, *Highway Design Manual*. 2010

Attachments

Attachment A – Traffic Count Worksheets

Attachment B – Level of Service Description and Criteria

Attachment C – 2012 Existing Traffic Conditions Worksheets

Attachment D – Crash Data

Attachment E – 2013 Background Traffic Conditions Worksheets

Attachment F – 2013 Total Traffic Conditions Worksheets

Attachment G –Turn Lane Warrant Worksheets

Attachment H – April 2010 JTE Key Bank Trip Generation and SDC Letter

Attachment A
Traffic Count Worksheets

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

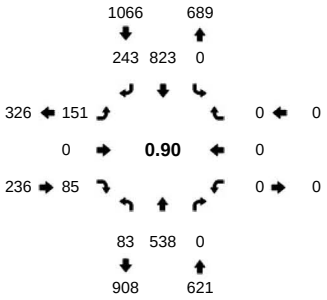
LOCATION: OR 43 -- Hidden Springs Rd

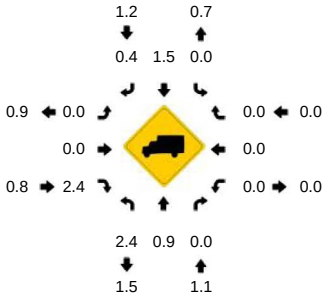
QC JOB #: 10706612

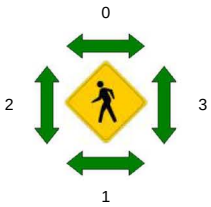
CITY/STATE: West Linn, OR

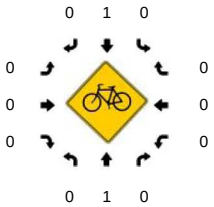
DATE: Tue, Jan 31 2012

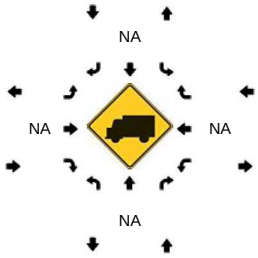
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

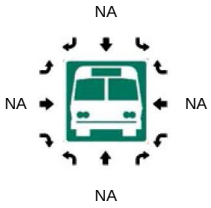












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Hidden Springs Rd (Eastbound)				Hidden Springs Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	33	0	0	0	44	13	0	14	0	10	0	0	0	0	0	118	
4:05 PM	9	50	0	0	0	45	18	0	17	0	3	0	0	0	0	0	142	
4:10 PM	6	47	0	0	0	68	20	0	13	0	6	0	0	0	0	0	160	
4:15 PM	5	50	0	0	0	65	15	0	11	0	8	0	0	0	0	0	154	
4:20 PM	9	33	0	0	0	64	11	0	11	0	3	0	0	0	0	0	131	
4:25 PM	8	42	0	0	0	49	8	0	18	0	4	0	0	0	0	0	129	
4:30 PM	8	36	0	0	0	66	15	0	11	0	6	0	0	0	0	0	142	
4:35 PM	9	34	0	0	0	66	12	0	18	0	7	0	0	0	0	0	146	
4:40 PM	9	46	0	0	0	56	18	0	15	0	10	0	0	0	0	0	154	
4:45 PM	9	42	0	0	0	57	12	0	15	0	8	0	0	0	0	0	143	
4:50 PM	8	46	0	0	0	74	24	0	12	0	7	0	0	0	0	0	171	
4:55 PM	7	45	0	0	0	62	14	0	13	0	6	0	0	0	0	0	147	1737
5:00 PM	5	38	0	0	0	54	20	0	10	0	7	0	0	0	0	0	134	1753
5:05 PM	6	52	0	0	0	66	19	0	6	0	8	0	0	0	0	0	157	1768
5:10 PM	11	47	0	0	0	78	21	0	11	0	4	0	0	0	0	0	172	1780
5:15 PM	8	57	0	0	0	84	25	0	14	0	5	0	0	0	0	0	193	1819
5:20 PM	5	52	0	0	0	72	18	0	14	0	11	0	0	0	0	0	172	1860
5:25 PM	2	40	0	0	0	78	24	0	8	0	7	0	0	0	0	0	159	1890
5:30 PM	5	28	0	0	0	77	28	0	15	0	2	0	0	0	0	0	155	1903
5:35 PM	8	45	0	0	0	65	20	0	18	0	10	0	0	0	0	0	166	1923
5:40 PM	3	39	0	0	0	56	14	0	16	0	10	0	0	0	0	0	138	1907
5:45 PM	2	49	0	0	0	50	19	0	10	0	2	0	0	0	0	0	132	1896
5:50 PM	8	46	0	0	0	64	28	0	19	0	2	0	0	0	0	0	167	1892
5:55 PM	6	39	0	0	0	55	19	0	9	0	8	0	0	0	0	0	136	1881

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	96	624	0	0	0	936	256	0	156	0	80	0	0	0	0	0	2148
Heavy Trucks	0	4	0		0	4	0		0	0	8		0	0	0		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 10:47 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

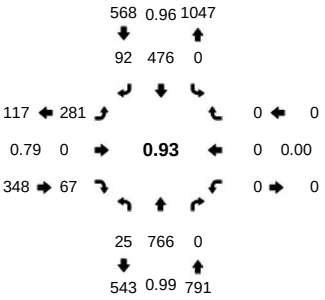
LOCATION: OR 43 -- Hidden Springs Rd

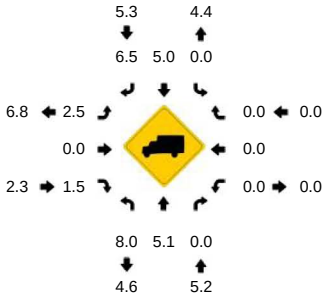
CITY/STATE: West Linn, OR

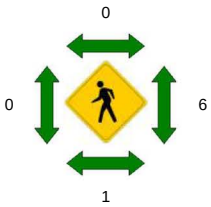
QC JOB #: 10706611

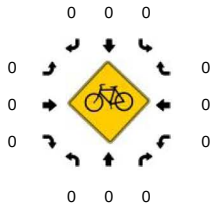
DATE: Tue, Jan 31 2012

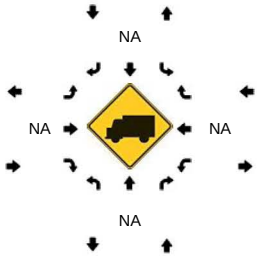
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

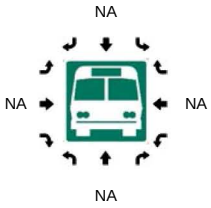












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Hidden Springs Rd (Eastbound)				Hidden Springs Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	28	0	0	0	25	6	0	19	0	3	0	0	0	0	0	81	
7:05 AM	1	56	0	0	0	26	3	0	14	0	2	0	0	0	0	0	102	
7:10 AM	1	68	0	0	0	38	2	0	21	0	1	0	0	0	0	0	131	
7:15 AM	0	54	0	0	0	26	2	0	33	0	3	0	0	0	0	0	118	
7:20 AM	2	76	0	0	0	37	2	0	16	0	5	0	0	0	0	0	138	
7:25 AM	3	65	0	0	0	32	2	0	32	0	5	0	0	0	0	0	139	
7:30 AM	1	72	0	0	0	34	2	0	28	0	7	0	0	0	0	0	144	
7:35 AM	1	65	0	0	0	30	4	0	34	0	6	0	0	0	0	0	140	
7:40 AM	2	68	0	0	0	38	12	0	29	0	3	0	0	0	0	0	152	
7:45 AM	3	65	0	0	0	33	4	0	41	0	4	0	0	0	0	0	150	
7:50 AM	3	59	0	0	0	41	20	0	25	0	8	0	0	0	0	0	156	
7:55 AM	4	53	0	0	0	38	14	0	22	0	4	0	0	0	0	0	135	1586
8:00 AM	0	47	0	0	0	48	13	0	24	0	6	0	0	0	0	0	138	1643
8:05 AM	3	63	0	0	0	38	4	0	13	0	12	0	0	0	0	0	133	1674
8:10 AM	3	72	0	0	0	58	6	0	13	0	7	0	0	0	0	0	159	1702
8:15 AM	3	57	0	0	0	41	3	0	14	0	4	0	0	0	0	0	122	1706
8:20 AM	0	64	0	0	0	33	7	0	22	0	3	0	0	0	0	0	129	1697
8:25 AM	2	81	0	0	0	44	3	0	16	0	3	0	0	0	0	0	149	1707
8:30 AM	4	50	0	0	0	25	8	0	15	0	6	0	0	0	0	0	108	1671
8:35 AM	5	54	0	0	0	25	7	0	19	0	5	0	0	0	0	0	115	1646
8:40 AM	4	61	0	0	0	40	7	0	28	0	7	0	0	0	0	0	147	1641
8:45 AM	3	59	0	0	0	39	8	0	14	0	8	0	0	0	0	0	131	1622
8:50 AM	6	58	0	0	0	33	8	0	18	0	7	0	0	0	0	0	130	1596
8:55 AM	3	44	0	0	0	37	11	0	15	0	5	0	0	0	0	0	115	1576

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	768	0	0	0	448	144	0	380	0	60	0	0	0	0	0	1832
Heavy Trucks	4	32	0		0	16	4		8	0	0		0	0	0		64
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 6:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

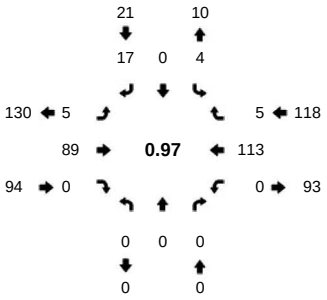
LOCATION: 7 Eleven Dwy -- Cedar Oak Dr

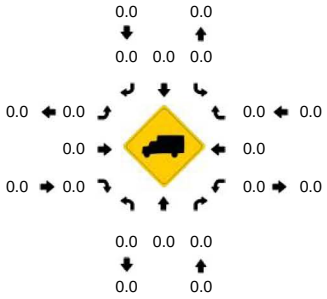
QC JOB #: 10706610

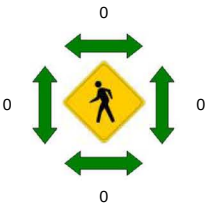
CITY/STATE: West Linn, OR

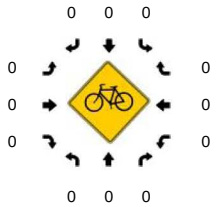
DATE: Tue, Jan 31 2012

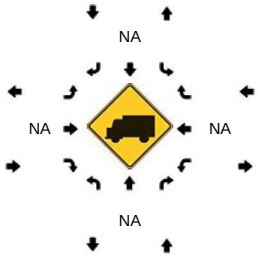
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

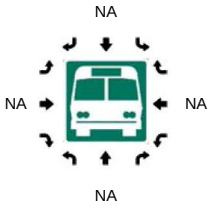












5-Min Count Period Beginning At	7 Eleven Dwy (Northbound)				7 Eleven Dwy (Southbound)				Cedar Oak Dr (Eastbound)				Cedar Oak Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	1	6	0	0	0	7	0	0	14	
4:05 PM	0	0	0	0	1	0	2	0	1	9	0	0	0	17	0	0	30	
4:10 PM	0	0	0	0	1	0	3	0	4	6	0	0	0	4	0	0	18	
4:15 PM	0	0	0	0	0	0	5	0	0	9	0	0	0	11	0	0	25	
4:20 PM	0	0	0	0	1	0	2	0	2	6	0	0	0	5	0	0	16	
4:25 PM	0	0	0	0	0	0	1	0	1	3	0	0	0	7	2	0	14	
4:30 PM	0	0	0	0	1	0	3	0	2	8	0	0	0	11	0	0	25	
4:35 PM	0	0	0	0	0	0	3	0	2	9	0	0	0	6	1	0	21	
4:40 PM	0	0	0	0	0	0	3	0	1	9	0	0	0	10	1	0	24	
4:45 PM	0	0	0	0	1	0	1	0	0	7	0	0	0	10	0	0	19	
4:50 PM	0	0	0	0	1	0	2	0	1	6	0	0	0	7	0	0	17	
4:55 PM	0	0	0	0	0	0	2	0	0	6	0	0	0	3	0	0	11	234
5:00 PM	0	0	0	0	0	0	1	0	0	6	0	0	0	7	0	0	14	234
5:05 PM	0	0	0	0	0	0	2	0	1	8	0	0	0	14	2	0	27	231
5:10 PM	0	0	0	0	0	0	2	0	0	8	0	0	0	9	0	0	19	232
5:15 PM	0	0	0	0	1	0	2	0	0	6	0	0	0	12	0	0	21	228
5:20 PM	0	0	0	0	0	0	2	0	1	6	0	0	0	11	0	0	20	232
5:25 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	6	0	0	13	231
5:30 PM	0	0	0	0	1	0	0	0	0	10	0	0	0	16	0	0	27	233
5:35 PM	0	0	0	0	0	0	0	0	1	10	0	0	0	8	2	0	21	233
5:40 PM	0	0	0	0	1	0	0	0	0	7	0	0	0	9	0	0	17	226
5:45 PM	0	0	0	0	0	0	3	0	0	9	0	0	0	3	2	0	17	224
5:50 PM	0	0	0	0	2	0	3	0	1	14	0	0	0	10	1	0	31	238
5:55 PM	0	0	0	0	0	0	3	0	1	5	0	0	0	8	1	0	18	245

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	4	0	24	0	4	80	0	0	0	128	0	0	240
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 10:47 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

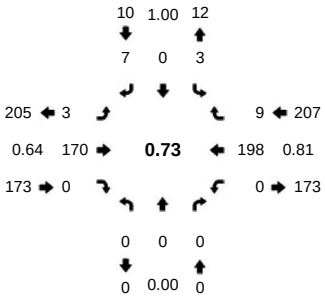
LOCATION: 7 Eleven Dwy -- Cedar Oak Dr

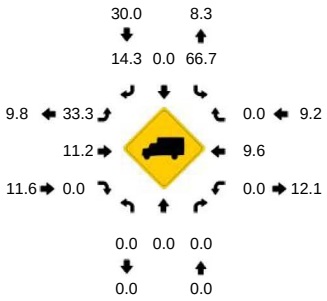
QC JOB #: 10706609

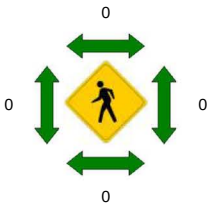
CITY/STATE: West Linn, OR

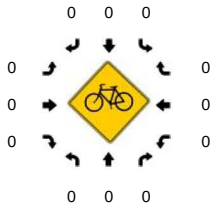
DATE: Tue, Jan 31 2012

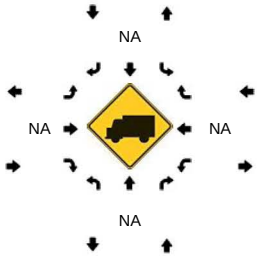
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

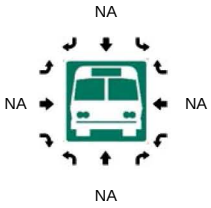












5-Min Count Period Beginning At	7 Eleven Dwy (Northbound)				7 Eleven Dwy (Southbound)				Cedar Oak Dr (Eastbound)				Cedar Oak Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	1	0	0	9	0	0	0	10	3	0	23	
7:05 AM	0	0	0	0	0	0	2	0	2	4	0	0	0	6	0	0	14	
7:10 AM	0	0	0	0	0	0	2	0	1	3	0	0	0	7	1	0	14	
7:15 AM	0	0	0	0	0	0	1	0	1	8	0	0	0	6	0	0	16	
7:20 AM	0	0	0	0	0	0	1	0	1	10	0	0	0	11	0	0	23	
7:25 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	1	0	0	9	
7:30 AM	0	0	0	0	0	0	0	0	0	15	0	0	0	7	0	0	22	
7:35 AM	0	0	0	0	0	0	0	0	1	16	0	0	0	13	0	0	30	
7:40 AM	0	0	0	0	0	0	0	0	0	23	0	0	0	15	1	0	39	
7:45 AM	0	0	0	0	0	0	1	0	0	32	0	0	0	20	1	0	54	
7:50 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	27	0	0	40	
7:55 AM	0	0	0	0	3	0	2	0	0	7	0	0	0	27	3	0	42	326
8:00 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	13	3	0	29	332
8:05 AM	0	0	0	0	0	0	1	0	0	9	0	0	0	22	1	0	33	351
8:10 AM	0	0	0	0	0	0	1	0	0	9	0	0	0	13	0	0	23	360
8:15 AM	0	0	0	0	0	0	1	0	2	10	0	0	0	12	0	0	25	369
8:20 AM	0	0	0	0	0	0	1	0	0	11	0	0	0	18	0	0	30	376
8:25 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	11	0	0	23	390
8:30 AM	0	0	0	0	0	0	1	0	0	6	0	0	0	15	0	0	22	390
8:35 AM	0	0	0	0	0	0	2	0	1	6	0	0	0	11	1	0	21	381
8:40 AM	0	0	0	0	0	0	1	0	0	8	0	0	0	7	1	0	17	359
8:45 AM	0	0	0	0	0	0	0	0	1	4	0	0	0	10	0	0	15	320
8:50 AM	0	0	0	0	1	0	1	0	1	5	0	0	0	8	0	0	16	296
8:55 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	17	0	0	20	274

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	4	0	0	272	0	0	0	248	8	0	532
Heavy Trucks	0	0	0		0	0	0		0	24	0		0	36	0		60
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 6:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

LOCATION: OR 43 -- Kasch's Dwy

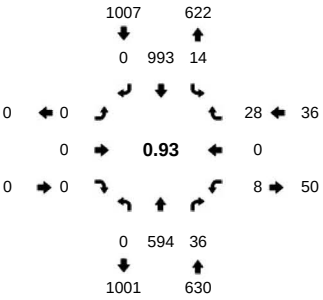
CITY/STATE: West Linn, OR

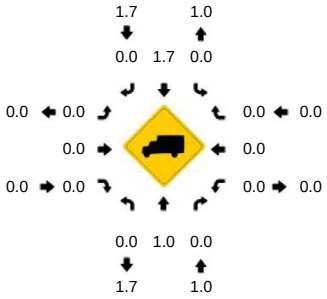
QC JOB #: 10706608

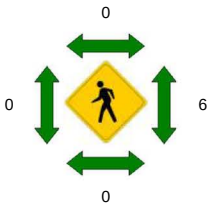
DATE: Tue, Jan 31 2012

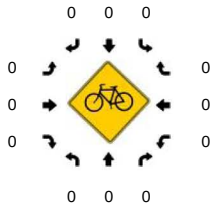
Peak-Hour: 4:40 PM -- 5:40 PM

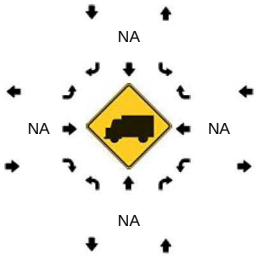
Peak 15-Min: 5:10 PM -- 5:25 PM

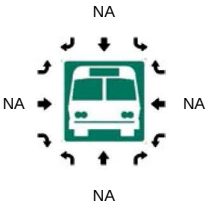












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Kasch's Dwy (Eastbound)				Kasch's Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	42	2	0	3	56	0	0	0	0	0	0	0	0	4	0	107	
4:05 PM	0	46	2	0	3	56	0	0	0	0	0	0	1	0	4	0	112	
4:10 PM	0	54	3	0	6	78	0	0	0	0	0	0	0	0	3	0	144	
4:15 PM	0	57	2	0	1	68	0	0	0	0	0	0	0	0	1	0	129	
4:20 PM	0	39	2	0	3	76	0	0	0	0	0	0	1	0	1	0	122	
4:25 PM	0	47	1	0	0	49	0	0	0	0	0	0	0	0	5	0	102	
4:30 PM	0	51	0	0	2	76	0	0	0	0	0	0	0	0	1	0	130	
4:35 PM	0	40	1	0	1	77	0	0	0	0	0	0	1	0	0	0	120	
4:40 PM	0	51	4	0	1	66	0	0	0	0	0	0	0	0	1	0	123	
4:45 PM	0	46	3	0	2	74	0	0	0	0	0	0	1	0	6	0	132	
4:50 PM	0	56	4	0	2	89	0	0	0	0	0	0	0	0	1	0	152	
4:55 PM	0	56	2	0	1	77	0	0	0	0	0	0	0	0	1	0	137	1510
5:00 PM	0	42	2	0	2	72	0	0	0	0	0	0	2	0	1	0	121	1524
5:05 PM	0	51	3	0	1	78	0	0	0	0	0	0	0	0	3	0	136	1548
5:10 PM	0	47	3	0	2	87	0	0	0	0	0	0	1	0	3	0	143	1547
5:15 PM	0	60	6	0	1	91	0	0	0	0	0	0	1	0	2	0	161	1579
5:20 PM	0	52	0	0	1	88	0	0	0	0	0	0	2	0	4	0	147	1604
5:25 PM	0	39	6	0	1	94	0	0	0	0	0	0	0	0	1	0	141	1643
5:30 PM	0	42	1	0	0	96	0	0	0	0	0	0	1	0	4	0	144	1657
5:35 PM	0	52	2	0	0	81	0	0	0	0	0	0	0	0	1	0	136	1673
5:40 PM	0	42	1	0	1	68	0	0	0	0	0	0	0	0	0	0	112	1662
5:45 PM	0	50	6	0	1	62	0	0	0	0	0	0	0	0	2	0	121	1651
5:50 PM	0	60	1	0	2	86	0	0	0	0	0	0	1	0	1	0	151	1650
5:55 PM	0	40	1	0	3	61	0	0	0	0	0	0	0	0	4	0	109	1622

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	636	36	0	16	1064	0	0	0	0	0	0	16	0	36	0	1804
Heavy Trucks	0	8	0		0	8	0		0	0	0		0	0	0		16
Pedestrians		0				0				0				12			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 10:47 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

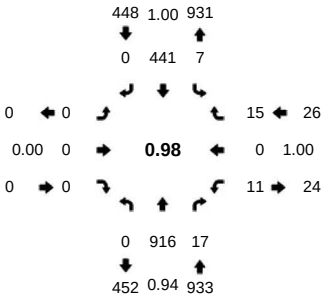
LOCATION: OR 43 -- Kasch's Dwy

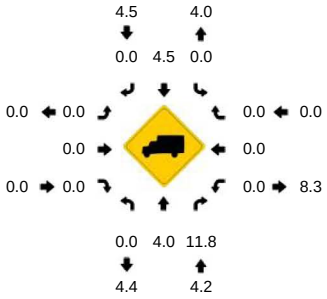
QC JOB #: 10706607

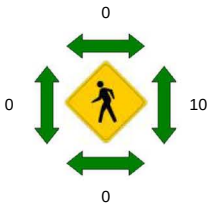
CITY/STATE: West Linn, OR

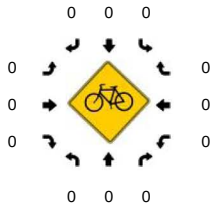
DATE: Tue, Jan 31 2012

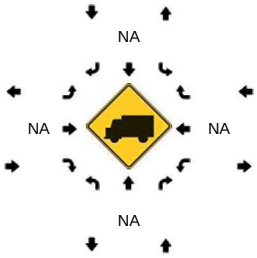
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

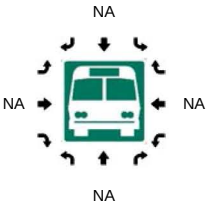












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Kasch's Dwy (Eastbound)				Kasch's Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	46	0	0	1	24	0	0	0	0	0	0	1	0	1	0	73	
7:05 AM	0	58	2	0	2	25	0	0	0	0	0	0	0	0	3	0	90	
7:10 AM	0	84	3	0	1	32	0	0	0	0	0	0	0	0	2	0	122	
7:15 AM	0	74	0	0	0	26	0	0	0	0	0	0	1	0	3	0	104	
7:20 AM	0	91	1	0	0	33	0	0	0	0	0	0	0	0	2	0	127	
7:25 AM	0	86	1	0	0	34	0	0	0	0	0	0	0	0	3	0	124	
7:30 AM	0	84	1	0	0	31	0	0	0	0	0	0	0	0	1	0	117	
7:35 AM	0	79	1	0	0	32	0	0	0	0	0	0	1	0	0	0	113	
7:40 AM	0	83	1	0	0	42	0	0	0	0	0	0	0	0	1	0	127	
7:45 AM	0	73	3	0	0	24	0	0	0	0	0	0	0	0	3	0	103	
7:50 AM	0	87	1	0	3	38	0	0	0	0	0	0	1	0	0	0	130	
7:55 AM	0	73	1	0	0	35	0	0	0	0	0	0	2	0	0	0	111	1341
8:00 AM	0	55	2	0	0	41	0	0	0	0	0	0	2	0	3	0	103	1371
8:05 AM	0	75	4	0	1	32	0	0	0	0	0	0	2	0	3	0	117	1398
8:10 AM	0	77	1	0	1	55	0	0	0	0	0	0	0	0	2	0	136	1412
8:15 AM	0	66	1	0	1	37	0	0	0	0	0	0	1	0	1	0	107	1415
8:20 AM	0	76	1	0	0	37	0	0	0	0	0	0	0	0	0	0	114	1402
8:25 AM	0	88	0	0	1	37	0	0	0	0	0	0	2	0	1	0	129	1407
8:30 AM	0	55	5	0	0	23	0	0	0	0	0	0	0	0	1	0	84	1374
8:35 AM	0	64	4	0	1	22	0	0	0	0	0	0	0	0	2	0	93	1354
8:40 AM	0	80	1	0	0	43	0	0	0	0	0	0	2	0	3	0	129	1356
8:45 AM	0	77	2	0	0	37	0	0	0	0	0	0	0	0	3	0	119	1372
8:50 AM	0	73	1	0	0	37	0	0	0	0	0	0	0	0	1	0	112	1354
8:55 AM	0	54	1	0	0	36	0	0	0	0	0	0	0	0	2	0	93	1336

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	972	20	0	12	416	0	0	0	0	0	0	4	0	16	0	1440
Heavy Trucks	0	28	8		0	4	0		0	0	0		0	0	0		40
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 6:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

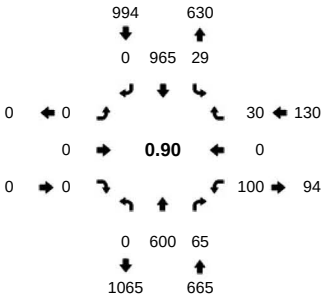
LOCATION: OR 43 -- Cedar Oak Dr

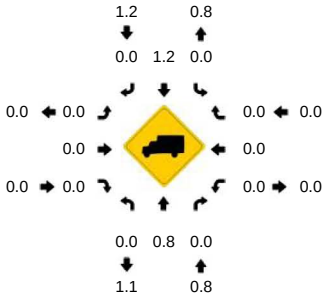
QC JOB #: 10706606

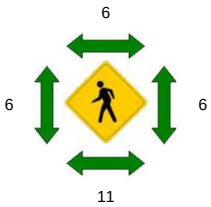
CITY/STATE: West Linn, OR

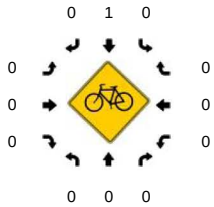
DATE: Tue, Jan 31 2012

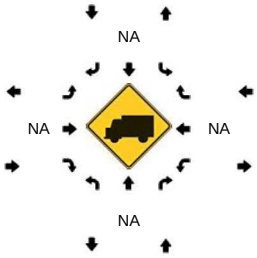
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

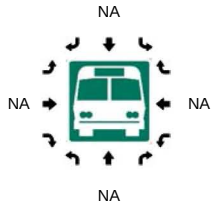












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Cedar Oak Dr (Eastbound)				Cedar Oak Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	41	6	0	1	55	0	0	0	0	0	0	4	0	3	0	110	
4:05 PM	0	50	9	0	1	55	0	0	0	0	0	0	19	0	0	0	134	
4:10 PM	0	53	10	0	0	76	0	0	0	0	0	0	5	0	2	0	146	
4:15 PM	0	57	6	0	3	69	0	0	0	0	0	0	14	0	2	0	151	
4:20 PM	0	40	5	0	3	73	0	0	0	0	0	0	5	0	2	0	128	
4:25 PM	0	51	4	0	0	49	0	0	0	0	0	0	8	0	0	0	112	
4:30 PM	0	44	4	0	6	67	0	0	0	0	0	0	10	0	4	0	135	
4:35 PM	0	41	8	0	3	78	0	0	0	0	0	0	8	0	1	0	139	
4:40 PM	0	53	8	0	2	62	0	0	0	0	0	0	10	0	3	0	138	
4:45 PM	0	44	6	0	1	67	0	0	0	0	0	0	8	0	3	0	129	
4:50 PM	0	60	3	0	4	87	0	0	0	0	0	0	4	0	5	0	163	
4:55 PM	0	50	3	0	3	76	0	0	0	0	0	0	4	0	1	0	137	1622
5:00 PM	0	43	4	0	2	72	0	0	0	0	0	0	6	0	2	0	129	1641
5:05 PM	0	50	7	0	2	68	0	0	0	0	0	0	13	0	3	0	143	1650
5:10 PM	0	49	7	0	1	93	0	0	0	0	0	0	10	0	1	0	161	1665
5:15 PM	0	64	5	0	1	91	0	0	0	0	0	0	10	0	4	0	175	1689
5:20 PM	0	52	5	0	2	88	0	0	0	0	0	0	12	0	1	0	160	1721
5:25 PM	0	42	4	0	3	87	0	0	0	0	0	0	4	0	2	0	142	1751
5:30 PM	0	39	6	0	4	96	0	0	0	0	0	0	12	0	4	0	161	1777
5:35 PM	0	54	7	0	4	78	0	0	0	0	0	0	7	0	1	0	151	1789
5:40 PM	0	42	7	0	0	68	0	0	0	0	0	0	7	0	2	0	126	1777
5:45 PM	0	59	7	0	2	62	0	0	0	0	0	0	6	0	0	0	136	1784
5:50 PM	0	54	12	0	3	81	0	0	0	0	0	0	11	0	2	0	163	1784
5:55 PM	0	41	3	0	3	59	0	0	0	0	0	0	11	0	0	0	117	1764

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	660	68	0	16	1088	0	0	0	0	0	0	128	0	24	0	1984
Heavy Trucks	0	4	0		0	8	0		0	0	0		0	0	0		12
Pedestrians		8				4				0				8			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 10:47 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

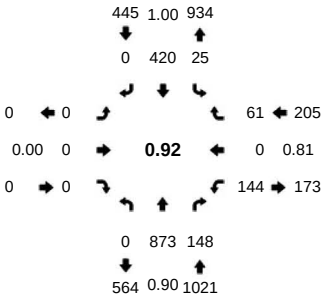
LOCATION: OR 43 -- Cedar Oak Dr

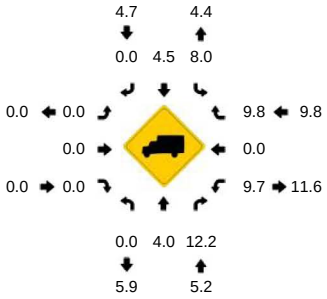
CITY/STATE: West Linn, OR

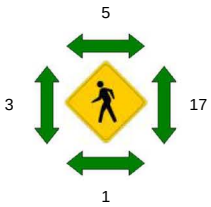
QC JOB #: 10706605

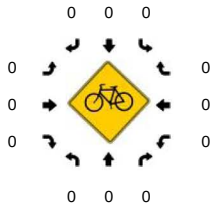
DATE: Tue, Jan 31 2012

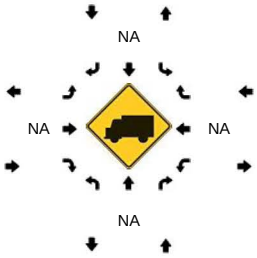
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

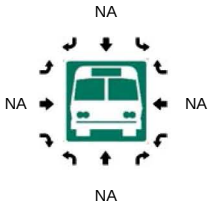












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Cedar Oak Dr (Eastbound)				Cedar Oak Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	40	8	0	1	23	0	0	0	0	0	0	5	0	6	0	83	
7:05 AM	0	59	5	0	1	22	0	0	0	0	0	0	6	0	2	0	95	
7:10 AM	0	79	4	0	0	33	0	0	0	0	0	0	6	0	3	0	125	
7:15 AM	0	74	8	0	1	27	0	0	0	0	0	0	6	0	1	0	117	
7:20 AM	0	85	8	0	3	28	0	0	0	0	0	0	7	0	5	0	136	
7:25 AM	0	85	7	0	1	36	0	0	0	0	0	0	1	0	0	0	130	
7:30 AM	0	83	13	0	2	30	0	0	0	0	0	0	4	0	3	0	135	
7:35 AM	0	77	15	0	2	28	0	0	0	0	0	0	10	0	3	0	135	
7:40 AM	0	80	20	0	3	39	0	0	0	0	0	0	10	0	5	0	157	
7:45 AM	0	69	28	0	4	25	0	0	0	0	0	0	16	0	5	0	147	
7:50 AM	0	75	13	0	0	36	0	0	0	0	0	0	16	0	11	0	151	
7:55 AM	0	66	7	0	0	34	0	0	0	0	0	0	21	0	8	0	136	1547
8:00 AM	0	54	12	0	1	43	0	0	0	0	0	0	11	0	2	0	123	1587
8:05 AM	0	74	7	0	2	32	0	0	0	0	0	0	16	0	7	0	138	1630
8:10 AM	0	74	7	0	2	52	0	0	0	0	0	0	10	0	4	0	149	1654
8:15 AM	0	63	8	0	4	35	0	0	0	0	0	0	8	0	5	0	123	1660
8:20 AM	0	74	7	0	4	31	0	0	0	0	0	0	14	0	5	0	135	1659
8:25 AM	0	84	11	0	1	35	0	0	0	0	0	0	8	0	3	0	142	1671
8:30 AM	0	52	6	0	0	27	0	0	0	0	0	0	9	0	7	0	101	1637
8:35 AM	0	62	5	0	2	21	0	0	0	0	0	0	7	0	6	0	103	1605
8:40 AM	0	84	4	0	4	41	0	0	0	0	0	0	7	0	1	0	141	1589
8:45 AM	0	75	4	0	1	37	0	0	0	0	0	0	7	0	3	0	127	1569
8:50 AM	0	76	4	0	2	37	0	0	0	0	0	0	7	0	2	0	128	1546
8:55 AM	0	52	3	0	0	36	0	0	0	0	0	0	11	0	6	0	108	1518

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	896	244	0	28	400	0	0	0	0	0	0	168	0	84	0	1820
Heavy Trucks	0	24	20		4	4	0		0	0	0		20	0	16		88
Pedestrians		0				0				4				8			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/8/2012 6:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

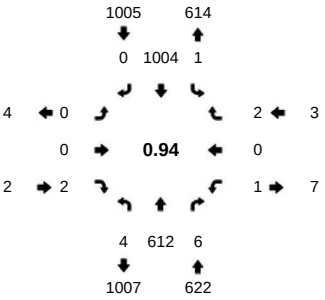
Method for determining peak hour: Total Entering Volume

LOCATION: OR 43 -- Walling Circle/Retail Center Dwy

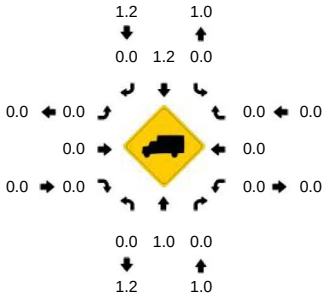
QC JOB #: 10706604

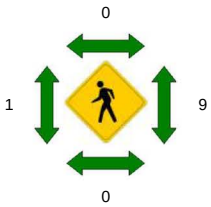
CITY/STATE: West Linn, OR

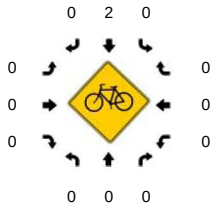
DATE: Tue, Jan 31 2012

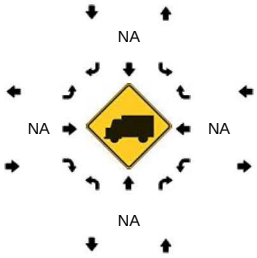


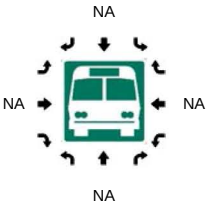
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM











5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Walling Circle/Retail Center Dwy (Eastbound)				Walling Circle/Retail Center Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	47	0	0	0	61	0	0	0	0	0	0	0	0	0	0	108	
4:05 PM	1	46	0	0	0	63	0	0	0	0	0	0	0	0	0	0	110	
4:10 PM	1	58	0	0	0	83	0	0	0	0	0	0	0	0	0	0	142	
4:15 PM	2	53	0	0	0	70	0	0	0	0	0	0	0	0	0	0	125	
4:20 PM	0	40	0	0	0	77	0	0	0	0	1	0	0	0	0	0	118	
4:25 PM	1	53	0	0	0	48	0	0	1	0	0	0	0	0	0	0	103	
4:30 PM	0	53	0	0	0	78	0	0	0	0	0	0	0	0	0	0	131	
4:35 PM	0	39	0	0	0	75	0	0	0	0	0	0	0	0	0	0	114	
4:40 PM	0	48	1	0	1	64	0	0	0	0	0	0	0	0	0	0	114	
4:45 PM	0	54	0	0	0	77	0	0	0	0	2	0	0	0	1	0	134	
4:50 PM	0	68	0	0	0	83	0	0	0	0	0	0	0	0	0	0	151	
4:55 PM	1	47	0	0	0	85	0	0	0	0	0	0	0	0	0	0	133	1483
5:00 PM	0	45	0	0	0	70	0	0	0	0	0	0	0	0	0	0	115	1490
5:05 PM	1	53	1	0	0	82	0	0	0	0	0	0	0	0	0	0	137	1517
5:10 PM	0	49	0	0	0	90	0	0	0	0	0	0	0	0	1	0	140	1515
5:15 PM	1	58	0	0	0	91	0	0	0	0	0	0	0	0	0	0	150	1540
5:20 PM	0	57	0	0	0	88	0	0	0	0	0	0	0	0	0	0	145	1567
5:25 PM	1	37	3	0	0	96	0	0	0	0	0	0	0	0	0	0	137	1601
5:30 PM	0	48	0	0	0	98	0	0	0	0	0	0	0	0	0	0	146	1616
5:35 PM	0	48	1	0	0	80	0	0	0	0	0	0	1	0	0	0	130	1632
5:40 PM	0	46	0	0	0	72	0	0	0	0	0	0	1	0	0	0	119	1637
5:45 PM	0	50	0	0	0	60	0	0	0	0	0	0	0	0	0	0	110	1613
5:50 PM	0	62	0	0	0	88	0	0	0	0	0	0	0	0	0	0	150	1612
5:55 PM	0	43	0	0	0	64	0	0	0	0	1	0	0	0	0	0	108	1587

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	656	0	0	0	1076	0	0	0	0	0	0	0	0	4	0	1740
Heavy Trucks	0	4	0		0	4	0		0	0	0		0	0	0		8
Pedestrians		0				0				0				20			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: South

Report generated on 2/8/2012 10:46 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

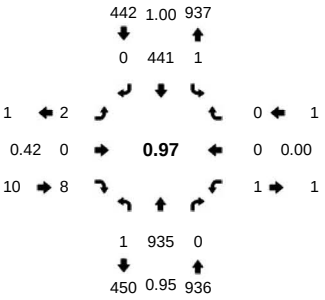
LOCATION: OR 43 -- Walling Circle/Retail Center Dwy

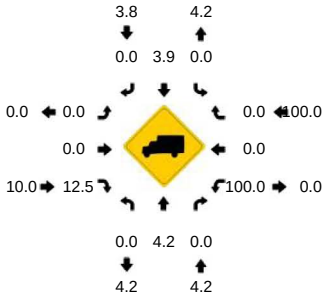
QC JOB #: 10706603

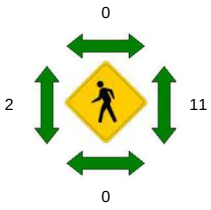
CITY/STATE: West Linn, OR

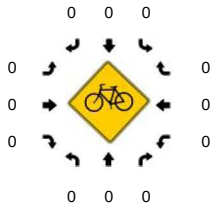
DATE: Tue, Jan 31 2012

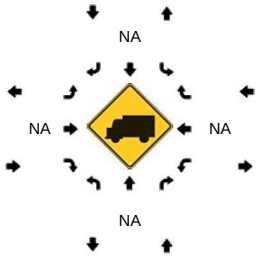
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

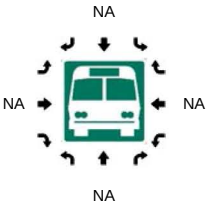












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Walling Circle/Retail Center Dwy (Eastbound)				Walling Circle/Retail Center Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	47	1	0	0	24	0	0	0	0	0	0	0	0	0	0	72	
7:05 AM	0	61	0	0	0	30	0	0	0	0	0	0	0	0	0	0	91	
7:10 AM	0	86	0	0	0	31	0	0	0	0	0	0	0	0	0	0	117	
7:15 AM	0	75	0	0	0	26	0	0	0	0	0	0	0	0	0	0	101	
7:20 AM	0	67	0	0	0	18	0	0	0	0	1	0	0	0	0	0	86	
7:25 AM	0	90	0	0	0	35	0	0	0	0	0	0	0	0	0	0	125	
7:30 AM	0	87	0	0	0	30	0	0	0	0	1	0	0	0	0	0	118	
7:35 AM	0	78	0	0	0	29	0	0	0	0	2	0	0	0	0	0	109	
7:40 AM	0	86	0	0	0	39	0	0	0	0	3	0	0	0	0	0	128	
7:45 AM	0	75	0	0	0	24	0	0	2	0	0	0	0	0	0	0	101	
7:50 AM	0	86	0	0	0	41	0	0	0	0	1	0	0	0	0	0	128	
7:55 AM	0	75	0	0	0	35	0	0	0	0	0	0	0	0	0	0	110	1286
8:00 AM	0	57	0	0	0	42	0	0	0	0	0	0	0	0	0	0	99	1313
8:05 AM	0	78	0	0	0	34	0	0	0	0	0	0	0	0	0	0	112	1334
8:10 AM	0	77	0	0	0	54	0	0	0	0	1	0	0	0	0	0	132	1349
8:15 AM	0	68	0	0	0	38	0	0	0	0	0	0	0	0	0	0	106	1354
8:20 AM	0	80	0	0	1	36	0	0	0	0	0	0	1	0	0	0	118	1386
8:25 AM	1	88	0	0	0	39	0	0	0	0	0	0	0	0	0	0	128	1389
8:30 AM	0	58	0	0	0	26	0	0	0	0	0	0	0	0	0	0	84	1355
8:35 AM	0	65	0	0	0	23	0	0	0	0	0	0	0	0	0	0	88	1334
8:40 AM	0	83	1	0	0	41	0	0	0	0	0	0	0	0	0	0	125	1331
8:45 AM	0	80	0	0	0	37	0	0	0	0	0	0	0	0	0	0	117	1347
8:50 AM	1	73	0	0	0	39	0	0	1	0	1	0	0	0	0	0	115	1334
8:55 AM	0	59	0	0	0	34	0	0	0	0	1	0	0	0	0	0	94	1318

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	988	0	0	0	416	0	0	8	0	16	0	0	0	0	0	1428
Heavy Trucks	0	32	0		0	4	0		0	0	0		0	0	0		36
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: South

Report generated on 2/8/2012 6:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

LOCATION: OR 43 -- Walling Circle

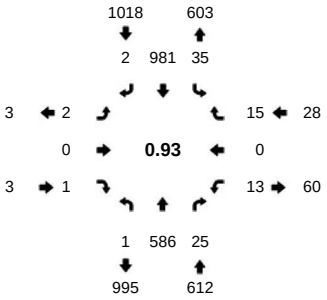
CITY/STATE: West Linn, OR

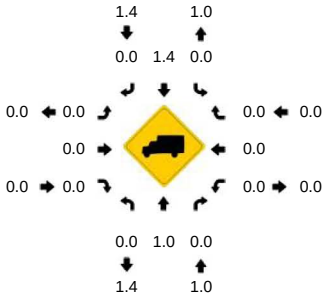
QC JOB #: 10706602

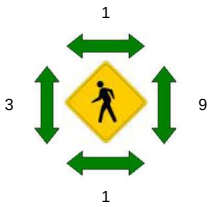
DATE: Tue, Jan 31 2012

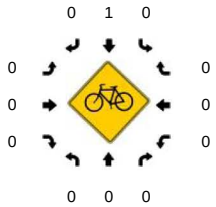
Peak-Hour: 4:40 PM -- 5:40 PM

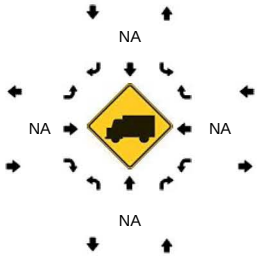
Peak 15-Min: 5:10 PM -- 5:25 PM

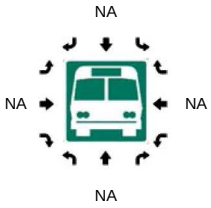












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Walling Circle (Eastbound)				Walling Circle (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	46	1	0	4	56	0	0	0	0	0	0	1	0	1	0	109	
4:05 PM	0	48	0	0	2	67	0	0	0	0	0	0	1	0	2	0	120	
4:10 PM	0	54	5	0	6	73	1	0	0	0	0	0	3	0	3	0	145	
4:15 PM	0	51	0	0	0	67	0	0	0	0	0	0	1	0	1	0	120	
4:20 PM	0	37	2	0	5	72	1	0	0	0	0	0	4	0	4	0	125	
4:25 PM	0	54	1	0	2	48	0	0	0	0	0	0	1	0	1	0	107	
4:30 PM	0	44	5	0	2	80	0	0	0	0	0	0	0	0	0	0	131	
4:35 PM	0	34	6	0	3	75	0	0	0	0	0	0	4	0	3	0	125	
4:40 PM	0	46	1	0	1	69	1	0	0	0	0	0	0	0	1	0	119	
4:45 PM	0	54	1	0	1	72	0	0	0	0	0	0	2	0	0	0	130	
4:50 PM	0	65	4	0	4	82	0	0	0	0	0	0	0	0	2	0	157	
4:55 PM	0	40	1	0	3	83	0	0	0	0	0	0	0	0	3	0	130	1518
5:00 PM	0	47	0	0	3	65	0	0	0	0	1	0	2	0	0	0	118	1527
5:05 PM	1	47	2	0	2	83	0	0	0	0	0	0	1	0	2	0	138	1545
5:10 PM	0	52	2	0	5	90	0	0	0	0	0	0	1	0	2	0	152	1552
5:15 PM	0	51	3	0	2	86	0	0	1	0	0	0	2	0	0	0	145	1577
5:20 PM	0	59	2	0	4	77	0	0	0	0	0	0	4	0	4	0	150	1602
5:25 PM	0	35	4	0	4	98	1	0	0	0	0	0	0	0	0	0	142	1637
5:30 PM	0	47	2	0	2	100	0	0	1	0	0	0	0	0	0	0	152	1658
5:35 PM	0	43	3	0	4	76	0	0	0	0	0	0	1	0	1	0	128	1661
5:40 PM	0	48	0	0	2	75	1	0	0	0	0	0	1	0	1	0	128	1670
5:45 PM	0	43	2	0	1	53	0	0	0	0	0	0	0	0	0	0	99	1639
5:50 PM	0	58	4	0	5	89	0	0	0	0	0	0	0	0	0	0	156	1638
5:55 PM	0	44	2	0	3	60	1	0	0	0	0	0	3	0	2	0	115	1623

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	648	28	0	44	1012	0	0	4	0	0	0	28	0	24	0	1788
Heavy Trucks	0	8	0		0	8	0		0	0	0		0	0	0		16
Pedestrians		0				0				0				16			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: North

Report generated on 2/8/2012 10:46 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

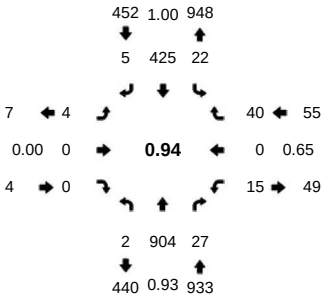
LOCATION: OR 43 -- Walling Circle

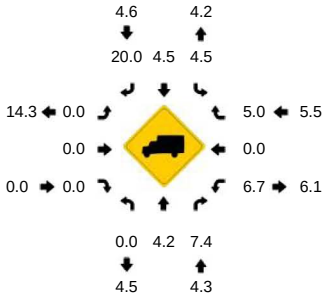
QC JOB #: 10706601

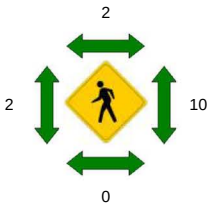
CITY/STATE: West Linn, OR

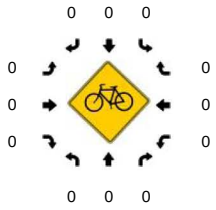
DATE: Tue, Jan 31 2012

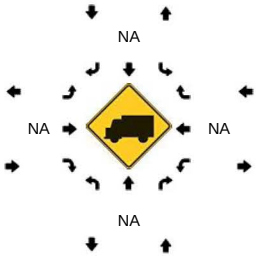
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

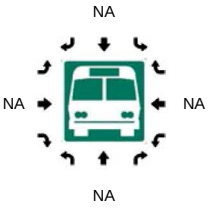












5-Min Count Period Beginning At	OR 43 (Northbound)				OR 43 (Southbound)				Walling Circle (Eastbound)				Walling Circle (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	45	5	0	1	21	0	0	1	0	1	0	2	0	2	0	78	
7:05 AM	0	58	2	0	4	29	0	0	0	0	0	0	0	0	6	0	99	
7:10 AM	0	84	1	0	3	27	1	0	0	0	0	0	0	0	2	0	118	
7:15 AM	0	72	4	0	1	26	0	0	0	0	0	0	0	0	2	0	105	
7:20 AM	0	89	4	0	2	33	0	0	0	0	0	0	1	0	2	0	131	
7:25 AM	0	83	3	0	1	33	0	0	1	0	0	0	1	0	4	0	126	
7:30 AM	0	89	1	0	1	31	0	0	0	0	0	0	0	0	2	0	124	
7:35 AM	0	73	3	0	3	30	1	0	0	0	0	0	0	0	3	0	113	
7:40 AM	0	83	4	0	3	41	0	0	0	0	0	0	1	0	2	0	134	
7:45 AM	0	74	3	0	6	20	0	0	0	0	0	0	0	0	5	0	108	
7:50 AM	1	86	0	0	4	36	1	0	0	0	0	0	6	0	7	0	141	
7:55 AM	0	75	1	0	0	38	2	0	0	0	0	0	1	0	5	0	122	1399
8:00 AM	1	50	4	0	1	40	0	0	1	0	0	0	2	0	4	0	103	1424
8:05 AM	0	76	2	0	0	32	1	0	0	0	0	0	0	0	2	0	113	1438
8:10 AM	0	72	2	0	2	51	0	0	1	0	0	0	2	0	3	0	133	1453
8:15 AM	0	64	4	0	0	34	0	0	1	0	0	0	2	0	4	0	109	1457
8:20 AM	0	79	1	0	0	36	0	0	0	0	0	0	1	0	0	0	117	1443
8:25 AM	0	83	2	0	2	36	0	0	1	0	0	0	0	0	3	0	127	1444
8:30 AM	0	59	0	0	1	27	0	0	0	0	0	0	0	0	2	0	89	1409
8:35 AM	1	64	2	0	0	23	0	0	0	0	0	0	1	0	6	0	97	1393
8:40 AM	0	79	1	0	0	43	0	0	0	0	0	0	0	0	5	0	128	1387
8:45 AM	0	78	3	0	3	33	0	0	0	0	0	0	1	0	3	0	121	1400
8:50 AM	0	73	0	0	0	39	0	0	0	0	0	0	2	0	1	0	115	1374
8:55 AM	0	62	0	0	3	32	0	0	0	0	0	0	1	0	3	0	101	1353

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	972	28	0	52	388	4	0	0	0	0	0	28	0	56	0	1532
Heavy Trucks	0	36	0		4	4	0		0	0	0		0	0	4		48
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: North

Report generated on 2/8/2012 6:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Attachment B
Level of Service
Description

LEVEL OF SERVICE CONCEPT

Level of Service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various Level of Service from A to F.[1]

SIGNALIZED INTERSECTIONS

The six level of service grades are described qualitatively for signalized intersections in **Table B1**. Additionally, **Table B2** identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, level of service D is generally considered to represent the minimum acceptable design standard.

TABLE B1: LEVEL OF SERVICE DEFINITIONS (SIGNALIZED INTERSECTIONS)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

[1] Most of the material in this appendix is adapted from the Transportation Research Board, *Highway Capacity Manual*, (2000).

TABLE B2: LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

UNSIGNALIZED INTERSECTIONS

Unsignalized intersections include two way stop controlled (TWSC) and all way stop controlled (AWSC) intersections. The *2000 Highway Capacity Manual* provides models for estimating control delay at both TWSC and AWSC intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in **Table B3**. A quantitative definition of level of service for unsignalized intersections is presented in **Table B4**. Using this definition, Level of Service E is generally considered to represent the minimum acceptable design standard.

TABLE B3: LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Average Delay per Vehicle to Minor Street
A	Nearly all drivers find freedom of operation. Very seldom is there more than one vehicle in queue.
B	Some drivers begin to consider the delay an inconvenience. Occasionally there is more than one vehicle in queue.
C	Many times there is more than one vehicle in queue. Most drivers feel restricted, but not objectionably so.
D	Often there is more than one vehicle in queue. Drivers feel quite restricted.
E	Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. There is almost always more than one vehicle in queue. Drivers find the delays approaching intolerable levels.
F	Forced flow. Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

TABLE B4: LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10.0 and ≤15.0
C	>15.0 and ≤25.0
D	>25.0 and ≤35.0
E	>35.0 and ≤50.0
F	>50.0

It should be noted that the level of service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level-of-service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOE's) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards.

VOLUME-TO-CAPACITY CONCEPT

The *Highway Capacity Manual 2000* defines capacity as "the maximum number of vehicles that can pass a certain point during a specified period under prevailing roadway, traffic, and control conditions." Capacity analysis examines segments or points (such as signalized intersections) of a facility under uniform traffic, roadway, and control conditions. These conditions determine capacity; therefore, segments with different prevailing conditions will have different capacities. Capacity is not the absolute maximum flow rate – driver characteristics vary from region to region, and the absolute maximum capacity can vary from day to day and location to location.

SIGNALIZED INTERSECTIONS

Capacity at signalized intersections is defined for each lane group. The lane group capacity is the maximum hourly rate at which vehicles can reasonably be expected to pass through the intersection under prevailing conditions. The ratio of flow rate to capacity (v/c), often called the volume to capacity ratio, is typically referred as to the degree of saturation. The critical v/c ratio (also known as the intersection v/c ratio) depends on the conflicting critical lane flow rates and the signal phasing, and considers only the lane groups that have the highest flow ratio (v/s) for a given signal phase.

The *Oregon Highway Plan* Action 1F.6 identifies maximum v/c thresholds for signalized intersections for areas within and outside of MPO areas. These are summarized below in **Table E5** and **Table E6**.

TABLE E5 – MAXIMUM VOLUME-TO-CAPACITY RATIOS FOR PEAK HOUR OPERATING CONDITIONS[1]

Maximum Volume-To-Capacity Ratios Outside Metro[2]							
Highway Category	Inside Urban Growth Boundary					Outside Urban Growth Boundary	
	STAs	MPO	Non-MPO outside of STAs where non-freeway posted speed <= 35 mph, or a Designated UBA	Non-MPO outside of STAs where non-freeway speed limit > 35 mph	Non-MPO where non-freeway speed limit >= 45 mph	Unincorporated Communities	Rural Lands
Interstate Highways	N/A	0.80	N/A	0.70	0.70	0.70	0.70
Statewide Expressways	N/A	0.80	0.70	0.70	0.70	0.70	0.70
Freight Route on a Statewide Highway	0.85	0.80	0.80	0.75	0.70	0.70	0.70
Statewide (not a freight route)	0.90	0.85	0.85	0.80	0.75	0.75	0.70
Freight Route on a Regional or District Highway	0.90	0.85	0.85	0.80	0.75	0.75	0.70
Expressway on a Regional or District Highway	N/A	0.85	N/A	0.80	0.75	0.75	0.70
Regional Highways	0.95	0.85	0.85	0.80	0.75	0.75	0.70
District/Local Interest Roads	0.95	0.90	0.90	0.85	0.80	0.80	0.75

[1] For Portland Metro and the Rouge Valley MPO see also OHP Amendment 00-04 amended Table 7 regarding Metro and established Alternative Mobility Standards for the RVMPO. Where there is a conflict between the Table 6 standards and the established alternative mobility standards, the more tolerant standard (higher v/c ratio) applies. The OHP amendments establishing the RVMPO and Metro alternative standards are located on the web at:

[2] National Highway System (NHS) highway designation requirements are addressed in the Highway Design Manual (HDM)

TABLE E6 – MAXIMUM VOLUME-TO-CAPACITY RATIOS WITHIN PORTLAND METROPOLITAN REGION[1]

Location	Standard	
	1st Hour	2nd Hour
Central City **Regional Centers** **Town Centers** **Main Streets** **Station Communities**	1.1	0.99
Corridors[2] **Industrial Areas** **Intermodal Facilities** **Employment Areas** **Inner Neighborhoods** **Outer Neighborhoods**	0.99	0.99

Banfield Freeway[3] (from I-5 to I-205)	1.1	0.99
I-5 North[3] (from Marquam Bridge to Interstate Bridge)	1.1	0.99
Highway 99E[3] (from Lincoln Street to Highway 224 Interchange)	1.1	0.99
Sunset Highway[3] (from I-405 to Sylvan interchange)	1.1	0.99
Stadium Freeway[3] (from I-5 South to I-5 North)	1.1	0.99
Other Principal Arterial Routes **I-205[3]** **I-84 (east of I-205)** **I-5 (Marquam Bridge to Wilsonville)** **Highway 217[3]** **US 26 (west of Sylvan)** **Highway 30** **Tualatin Valley Hwy[3] (Cedar Hills Blvd. to Brookwood Avenue)** **Highway 224[3]** **Highway 47** **Highway 213** **242nd /US 26 in Gresham**	0.99	0.99
Areas of Special Concern	Areas with this designation are planned for mixed use development, but are also characterized by physical, environmental or other constraints that limit the range of acceptable transportation solutions for addressing a high level-of-service need, but where alternative routes for regional through-traffic are provided. In these areas, substitute performance measures are allowed by OAR.660.012.0060(1)(d). Provisions for determining the alternative performance measures are included in Section 6.7.7 of the 200 RTP. The OHP mobility standard for state highways in these areas applies until the alternative performance measures are adopted in local plans and approved by the Oregon Transportation Commission.	
Beaverton Regional Center **Highway 99W (I-5 to Tualatin Road)**	1.0 0.95	

Note: Maximum volume to capacity ratios for two hour peak hour operating conditions through a 20-year horizon for state highway sections within the Portland metropolitan area urban growth boundary.

[1] The volume to capacity ratios in the table are for the highest two consecutive hours or weekday traffic volumes. This is calculated by dividing the traffic volume for the average weekly two-hour PM peak by twice the hourly capacity.

[2] Corridors that are also state highways are 99W, Sandy Boulevard, Powell Boulevard, 82nd Avenue, North Portland Road, North Denver Street, Lombard Street, Hall Boulevard, Farmington Road, Canyon Road, Beaverton-Hillsdale Highway, Tualatin Valley Highway (from Hall Boulevard to Cedar Hills Boulevard and from Brookwood Street to E Street in Forest Grove), Scholls Ferry Road, 99E (from Milwaukie to Oregon City) and Highway 43.

[3] Thresholds shown are for interim purposes only; refinement plans for these corridors are required in Metro Regional Transportation Plan and will include a recommended motor vehicle performance policy for each corridor.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, capacity is determined using a gap acceptance model which calculates the potential capacity of each minor traffic stream in accordance with Equation 17-3 in the *Highway*

Capacity Manual 2000. The potential capacity of a movement is a function of the conflicting flow rate expressed as an hourly rate, as well as the minor-street movement.

The *Oregon Highway Plan* Action 1F.1 identifies maximum v/c thresholds for unsignalized intersections. As stated on page 75, "At unsignalized intersections and road approaches, the volume-to-capacity ratios in Tables 6 and 7 shall not be exceeded for either of the state highway approaches that are not stopped. Approaches at which traffic must stop, or otherwise yield the right of way, shall be operated to maintain safe operation of the intersection and all of its approaches and shall not exceed the volume to capacity ratios for District/Local Interest Roads in Table 6 within the urban growth boundaries or 0.80 outside of urban growth boundaries."

Attachment C
2012 Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	1	13	0	15	1	691	25	35	1158	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	2	0	1	14	0	16	1	743	27	38	1245	2
Pedestrians		3			9			4			1	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1055				
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77				0.77		
vC, conflicting volume	2087	2106	1253	2093	2093	766	1250			779		
vC1, stage 1 conf vol	1325	1325		768	768							
vC2, stage 2 conf vol	762	781		1326	1326							
vCu, unblocked vol	2262	2286	1253	2270	2270	548	1250			564		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	91	100	96	100			95		
cM capacity (veh/h)	157	179	211	160	183	412	562			777		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	3	30	1	770	38	1247
Volume Left	2	14	1	0	38	0
Volume Right	1	16	0	27	0	2
cSH	172	238	562	1700	777	1700
Volume to Capacity	0.02	0.13	0.00	0.45	0.05	0.73
Queue Length 95th (ft)	1	11	0	0	4	0
Control Delay (s)	26.4	22.3	11.4	0.0	9.9	0.0
Lane LOS	D	C	B		A	
Approach Delay (s)	26.4	22.3	0.0		0.3	
Approach LOS	D	C				

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	77.3%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	1	0	2	4	722	6	1	1185	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	2	1	0	2	4	768	6	1	1261	0
Pedestrians		1			9							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								378				
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77				0.77		
vC, conflicting volume	2042	2056	1262	2054	2053	780	1262			783		
vC1, stage 1 conf vol	1264	1264		789	789							
vC2, stage 2 conf vol	779	792		1265	1264							
vCu, unblocked vol	2208	2225	1262	2223	2221	561	1262			565		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	99	99			100		
cM capacity (veh/h)	178	199	209	173	197	404	557			773		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	3	4	774	1	1261
Volume Left	0	1	4	0	1	0
Volume Right	2	2	0	6	0	0
cSH	209	280	557	1700	773	1700
Volume to Capacity	0.01	0.01	0.01	0.46	0.00	0.74
Queue Length 95th (ft)	1	1	1	0	0	0
Control Delay (s)	22.4	18.0	11.5	0.0	9.7	0.0
Lane LOS	C	C	B		A	
Approach Delay (s)	22.4	18.0	0.1		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	77.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	28	701	36	14	1172
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	9	30	754	39	15	1260
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			179			
pX, platoon unblocked	0.76	0.76			0.76	
vC, conflicting volume	1439	779			798	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1420	553			579	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	92			98	
cM capacity (veh/h)	96	365			761	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	39	792	435	840
Volume Left	9	0	15	0
Volume Right	30	39	0	0
cSH	225	1700	761	1700
Volume to Capacity	0.17	0.47	0.02	0.49
Queue Length 95th (ft)	15	0	2	0
Control Delay (s)	24.3	0.0	0.6	0.0
Lane LOS	C		A	
Approach Delay (s)	24.3	0.0	0.2	
Approach LOS	C			

Intersection Summary				
Average Delay			0.6	
Intersection Capacity Utilization			57.3%	ICU Level of Service B
Analysis Period (min)			15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	100	30	708	65	29	1139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.96	1.00		1.00	1.00
Flpb, ped/bikes	0.98	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1772	1557	1856		1805	3574
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1772	1557	1856		1805	3574
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	33	787	72	32	1266
RTOR Reduction (vph)	0	29	2	0	0	0
Lane Group Flow (vph)	111	4	857	0	32	1266
Confl. Peds. (#/hr)	11	6		6	6	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Turn Type		custom			Prot	
Protected Phases			6		5	2
Permitted Phases	4	4				
Actuated Green, G (s)	12.1	12.1	80.2		4.7	88.9
Effective Green, g (s)	12.1	12.1	80.2		4.7	88.9
Actuated g/C Ratio	0.11	0.11	0.73		0.04	0.81
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	2.3	2.3	5.0		2.3	5.0
Lane Grp Cap (vph)	195	171	1353		77	2888
v/s Ratio Prot			c0.46		0.02	c0.35
v/s Ratio Perm	c0.06	0.00				
v/c Ratio	0.57	0.02	0.63		0.42	0.44
Uniform Delay, d1	46.5	43.7	7.5		51.3	3.1
Progression Factor	1.00	1.00	0.98		1.00	1.00
Incremental Delay, d2	2.8	0.0	2.0		2.1	0.5
Delay (s)	49.2	43.7	9.4		53.4	3.6
Level of Service	D	D	A		D	A
Approach Delay (s)	48.0		9.4			4.8
Approach LOS	D		A			A

Intersection Summary

HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	5	89	113	5	4	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	6	102	130	6	5	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		213				
pX, platoon unblocked						
vC, conflicting volume	136				247	133
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136				247	133
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1461				743	922

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	108	136	24
Volume Left	6	0	5
Volume Right	0	6	20
cSH	1461	1700	882
Volume to Capacity	0.00	0.08	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.4	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		23.8%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	151	85	83	635	971	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1547	1770	1881	1881	1575
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1805	1547	1770	1881	1881	1575
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	168	94	92	706	1079	270
RTOR Reduction (vph)	0	83	0	0	0	70
Lane Group Flow (vph)	168	11	92	706	1079	200
Confl. Peds. (#/hr)		1	2			2
Heavy Vehicles (%)	0%	2%	2%	1%	1%	0%
Turn Type		custom	Prot			Perm
Protected Phases			1	6	2	
Permitted Phases	4	4				2
Actuated Green, G (s)	13.4	13.4	8.6	87.6	75.0	75.0
Effective Green, g (s)	13.4	13.4	8.6	87.6	75.0	75.0
Actuated g/C Ratio	0.12	0.12	0.08	0.80	0.68	0.68
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	2.3	2.3	2.3	5.0	5.0	5.0
Lane Grp Cap (vph)	220	188	138	1498	1283	1074
v/s Ratio Prot			c0.05	0.38	c0.57	
v/s Ratio Perm	c0.09	0.01				0.13
v/c Ratio	0.76	0.06	0.67	0.47	0.84	0.19
Uniform Delay, d1	46.8	42.7	49.3	3.7	13.1	6.4
Progression Factor	1.00	1.00	1.00	1.00	1.08	0.88
Incremental Delay, d2	13.6	0.1	9.9	1.1	6.3	0.4
Delay (s)	60.4	42.8	59.2	4.7	20.3	5.9
Level of Service	E	D	E	A	C	A
Approach Delay (s)	54.1			11.0	17.4	
Approach LOS	D			B	B	

Intersection Summary

HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	0	15	0	40	2	1067	27	22	502	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	4	0	0	16	0	43	2	1135	29	23	534	5
Pedestrians		2			10						2	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		3.5			3.5						3.5	
Percent Blockage		0			1						0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1055				
pX, platoon unblocked	0.34	0.34		0.34	0.34	0.34				0.34		
vC, conflicting volume	1769	1764	539	1745	1752	1161	541			1174		
vC1, stage 1 conf vol	586	586		1164	1164							
vC2, stage 2 conf vol	1184	1178		581	588							
vCu, unblocked vol	2285	2268	539	2212	2234	514	541			550		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.2	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	100	90	100	77	100			93		
cM capacity (veh/h)	103	138	546	160	162	188	1035			342		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	59	2	1164	23	539
Volume Left	4	16	2	0	23	0
Volume Right	0	43	0	29	0	5
cSH	103	179	1035	1700	342	1700
Volume to Capacity	0.04	0.33	0.00	0.68	0.07	0.32
Queue Length 95th (ft)	3	33	0	0	5	0
Control Delay (s)	41.3	34.5	8.5	0.0	16.3	0.0
Lane LOS	E	D	A		C	
Approach Delay (s)	41.3	34.5	0.0		0.7	
Approach LOS	E	D				

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	73.5%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	8	1	0	0	1	1103	0	1	520	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	2	0	8	1	0	0	1	1137	0	1	536	0
Pedestrians		2			11							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								378				
pX, platoon unblocked	0.32	0.32		0.32	0.32	0.32				0.32		
vC, conflicting volume	1679	1690	538	1697	1690	1148	538			1148		
vC1, stage 1 conf vol	540	540		1150	1150							
vC2, stage 2 conf vol	1139	1150		546	540							
vCu, unblocked vol	2069	2104	538	2124	2104	383	538			383		
tC, single (s)	7.1	6.5	6.3	8.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		7.1	5.5							
tF (s)	3.5	4.0	3.4	4.4	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	98	99	100	100	100			100		
cM capacity (veh/h)	186	171	523	131	172	208	1038			370		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	1	1	1137	1	536
Volume Left	2	1	1	0	1	0
Volume Right	8	0	0	0	0	0
cSH	384	131	1038	1700	370	1700
Volume to Capacity	0.03	0.01	0.00	0.67	0.00	0.32
Queue Length 95th (ft)	2	1	0	0	0	0
Control Delay (s)	14.6	32.6	8.5	0.0	14.8	0.0
Lane LOS	B	D	A		B	
Approach Delay (s)	14.6	32.6	0.0		0.0	
Approach LOS	B	D				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	11	15	1081	17	7	520
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	11	15	1103	17	7	531
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			179			
pX, platoon unblocked	0.31	0.31			0.31	
vC, conflicting volume	1401	1122			1130	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1179	268			297	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	93			98	
cM capacity (veh/h)	56	224			388	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	27	1120	184	354
Volume Left	11	0	7	0
Volume Right	15	17	0	0
cSH	98	1700	388	1700
Volume to Capacity	0.27	0.66	0.02	0.21
Queue Length 95th (ft)	25	0	1	0
Control Delay (s)	54.7	0.0	0.8	0.0
Lane LOS	F		A	
Approach Delay (s)	54.7	0.0	0.3	
Approach LOS	F			

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		72.9%	ICU Level of Service C
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	144	61	1030	148	25	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.97	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1638	1421	1766		1671	3438
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1638	1421	1766		1671	3438
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	66	1120	161	27	539
RTOR Reduction (vph)	0	58	4	0	0	0
Lane Group Flow (vph)	157	8	1277	0	27	539
Confl. Peds. (#/hr)	1	5		17	17	
Heavy Vehicles (%)	10%	10%	4%	12%	8%	5%
Turn Type		custom			Prot	
Protected Phases			6		5	2
Permitted Phases	4	4				
Actuated Green, G (s)	12.1	12.1	70.4		4.5	78.9
Effective Green, g (s)	12.1	12.1	70.4		4.5	78.9
Actuated g/C Ratio	0.12	0.12	0.70		0.04	0.79
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	2.3	2.3	5.0		2.3	5.0
Lane Grp Cap (vph)	198	172	1243		75	2713
v/s Ratio Prot			c0.72		c0.02	0.16
v/s Ratio Perm	c0.10	0.01				
v/c Ratio	0.79	0.05	1.03		0.36	0.20
Uniform Delay, d1	42.7	38.9	14.8		46.4	2.6
Progression Factor	1.00	1.00	1.16		1.00	1.00
Incremental Delay, d2	18.4	0.1	28.2		1.7	0.2
Delay (s)	61.2	38.9	45.3		48.1	2.8
Level of Service	E	D	D		D	A
Approach Delay (s)	54.6		45.3			5.0
Approach LOS	D		D			A

Intersection Summary

HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	170	198	9	3	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	4	236	275	12	4	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		213				
pX, platoon unblocked						
vC, conflicting volume	288				526	281
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288				526	281
tC, single (s)	4.4				7.1	6.3
tC, 2 stage (s)						
tF (s)	2.5				4.1	3.4
p0 queue free %	100				99	99
cM capacity (veh/h)	1116				414	730

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	240	288	14
Volume Left	4	0	4
Volume Right	0	12	10
cSH	1116	1700	594
Volume to Capacity	0.00	0.17	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.2	0.0	11.2
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	11.2
Approach LOS			B

Intersection Summary				
Average Delay			0.4	
Intersection Capacity Utilization			26.3%	ICU Level of Service A
Analysis Period (min)			15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	281	67	25	904	562	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1563	1671	1810	1810	1509
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1563	1671	1810	1810	1509
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	302	72	27	972	604	99
RTOR Reduction (vph)	0	58	0	0	0	37
Lane Group Flow (vph)	302	14	27	972	604	62
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	2%	1%	8%	5%	5%	7%
Turn Type		custom	Prot			Perm
Protected Phases			1	6	2	
Permitted Phases	4	4				2
Actuated Green, G (s)	19.8	19.8	4.5	71.2	62.7	62.7
Effective Green, g (s)	19.8	19.8	4.5	71.2	62.7	62.7
Actuated g/C Ratio	0.20	0.20	0.04	0.71	0.63	0.63
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	2.3	2.3	2.3	5.0	5.0	5.0
Lane Grp Cap (vph)	350	309	75	1289	1135	946
v/s Ratio Prot			0.02	c0.54	0.33	
v/s Ratio Perm	c0.17	0.01				0.04
v/c Ratio	0.86	0.05	0.36	0.75	0.53	0.07
Uniform Delay, d1	38.8	32.5	46.4	9.0	10.4	7.3
Progression Factor	1.00	1.00	1.00	1.00	0.83	0.38
Incremental Delay, d2	18.8	0.0	1.7	4.1	1.7	0.1
Delay (s)	57.6	32.5	48.1	13.1	10.4	2.9
Level of Service	E	C	D	B	B	A
Approach Delay (s)	52.8			14.0	9.4	
Approach LOS	D			B	A	

Intersection Summary

HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Attachment D
Crash Data

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

OR 43 (Hwy 003) from Walling Way to Hidden Springs plus 200 feet in all directions

January 1, 2006 through December 31, 2010

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2010														
REAR-END	0	0	7	7	0	0	0	6	0	7	0	2	1	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	2	1	3	0	2	0	3	0	3	0	1	0	0
2010 TOTAL	0	2	9	11	0	2	0	9	1	10	1	4	1	0
YEAR: 2009														
REAR-END	0	4	7	11	0	7	0	8	3	10	1	3	0	0
TURNING MOVEMENTS	0	1	3	4	0	1	0	4	0	4	0	1	0	0
2009 TOTAL	0	5	10	15	0	8	0	12	3	14	1	4	0	0
YEAR: 2008														
REAR-END	0	7	7	14	0	7	0	13	1	14	0	3	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2008 TOTAL	0	7	8	15	0	7	0	14	1	15	0	3	0	0
YEAR: 2007														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	0	0	0
REAR-END	0	2	3	5	0	2	0	4	1	4	1	0	1	0
TURNING MOVEMENTS	0	1	1	2	0	2	0	1	1	0	2	0	0	0
2007 TOTAL	0	3	5	8	0	4	0	5	3	5	3	0	1	0
YEAR: 2006														
REAR-END	0	5	7	12	0	8	1	7	4	10	2	1	2	0
TURNING MOVEMENTS	0	2	2	4	0	3	0	4	0	3	1	2	0	0
2006 TOTAL	0	7	9	16	0	11	1	11	4	13	3	3	2	0
FINAL TOTAL	0	24	41	65	0	32	1	51	12	57	8	14	4	0

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.

Attachment E
2013 Background Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	1	13	0	15	1	703	25	36	1176	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	0	1	15	0	18	1	740	26	38	1238	2
Pedestrians		3			9			4			1	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1055				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	2078	2095	1246	2083	2083	763	1243			775		
vC1, stage 1 conf vol	1318	1318		764	764							
vC2, stage 2 conf vol	761	777		1319	1319							
vCu, unblocked vol	2241	2262	1246	2247	2246	557	1243			572		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	91	100	96	100			95		
cM capacity (veh/h)	158	180	213	161	185	413	565			783		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	33	1	766	38	1240
Volume Left	2	15	1	0	38	0
Volume Right	1	18	0	26	0	2
cSH	173	239	565	1700	783	1700
Volume to Capacity	0.02	0.14	0.00	0.45	0.05	0.73
Queue Length 95th (ft)	2	12	0	0	4	0
Control Delay (s)	26.2	22.4	11.4	0.0	9.8	0.0
Lane LOS	D	C	B		A	
Approach Delay (s)	26.2	22.4	0.0		0.3	
Approach LOS	D	C				

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	78.3%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	1	0	2	4	734	6	1	1204	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	2	1	0	2	4	773	6	1	1267	0
Pedestrians		1			9							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								378				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	2054	2067	1268	2065	2064	785	1268			788		
vC1, stage 1 conf vol	1270	1270		793	793							
vC2, stage 2 conf vol	783	796		1272	1270							
vCu, unblocked vol	2212	2229	1268	2226	2225	581	1268			585		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	99	99			100		
cM capacity (veh/h)	177	198	207	172	196	399	554			771		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	4	4	779	1	1267
Volume Left	0	1	4	0	1	0
Volume Right	2	2	0	6	0	0
cSH	207	277	554	1700	771	1700
Volume to Capacity	0.01	0.01	0.01	0.46	0.00	0.75
Queue Length 95th (ft)	1	1	1	0	0	0
Control Delay (s)	22.6	18.2	11.5	0.0	9.7	0.0
Lane LOS	C	C	B		A	
Approach Delay (s)	22.6	18.2	0.1		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	78.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	28	712	37	14	1190
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	33	749	39	15	1253
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			179			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	1431	775			794	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1411	564			590	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	91			98	
cM capacity (veh/h)	99	365			767	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	42	788	432	835
Volume Left	9	0	15	0
Volume Right	33	39	0	0
cSH	229	1700	767	1700
Volume to Capacity	0.18	0.46	0.02	0.49
Queue Length 95th (ft)	17	0	1	0
Control Delay (s)	24.2	0.0	0.6	0.0
Lane LOS	C		A	
Approach Delay (s)	24.2	0.0	0.2	
Approach LOS	C			

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		57.8%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	102	30	719	66	29	1157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.96	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1557	1856		1805	3574
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1557	1856		1805	3574
Peak-hour factor, PHF	0.85	0.85	0.95	0.95	0.95	0.95
Adj. Flow (vph)	120	35	757	69	31	1218
RTOR Reduction (vph)	0	31	2	0	0	0
Lane Group Flow (vph)	120	4	824	0	31	1218
Confl. Peds. (#/hr)	11	6		6	6	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	12.9	12.9	79.5		4.6	88.1
Effective Green, g (s)	12.9	12.9	80.0		5.1	88.6
Actuated g/C Ratio	0.12	0.12	0.73		0.05	0.81
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	2.3	2.3	5.0		2.3	5.0
Lane Grp Cap (vph)	212	183	1350		84	2879
v/s Ratio Prot	c0.07		c0.44		0.02	c0.34
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.61		0.37	0.42
Uniform Delay, d1	45.9	43.0	7.4		50.9	3.2
Progression Factor	1.00	1.00	0.98		1.00	1.00
Incremental Delay, d2	2.5	0.0	1.9		1.6	0.5
Delay (s)	48.4	43.0	9.0		52.5	3.6
Level of Service	D	D	A		D	A
Approach Delay (s)	47.2		9.0			4.8
Approach LOS	D		A			A

Intersection Summary

HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	5	90	115	5	4	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	106	135	6	5	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		213				
pX, platoon unblocked						
vC, conflicting volume	141				256	138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	141				256	138
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1454				734	915

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	112	141	25
Volume Left	6	0	5
Volume Right	0	6	20
cSH	1454	1700	874
Volume to Capacity	0.00	0.08	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.4	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		23.8%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	153	86	84	645	987	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1547	1770	1881	1881	1575
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1805	1547	1770	1881	1881	1575
Peak-hour factor, PHF	0.90	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	170	96	88	679	1039	260
RTOR Reduction (vph)	0	84	0	0	0	70
Lane Group Flow (vph)	170	12	88	679	1039	190
Confl. Peds. (#/hr)		1	2			2
Heavy Vehicles (%)	0%	2%	2%	1%	1%	0%
Turn Type		Perm	Prot			Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	13.5	13.5	8.5	87.5	75.0	75.0
Effective Green, g (s)	13.5	13.5	9.0	88.0	75.5	75.5
Actuated g/C Ratio	0.12	0.12	0.08	0.80	0.69	0.69
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	2.3	2.3	2.3	5.0	5.0	5.0
Lane Grp Cap (vph)	222	190	145	1505	1291	1081
v/s Ratio Prot	c0.09		c0.05	0.36	c0.55	
v/s Ratio Perm		0.01				0.12
v/c Ratio	0.77	0.06	0.61	0.45	0.80	0.18
Uniform Delay, d1	46.7	42.7	48.8	3.4	12.1	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.12	1.22
Incremental Delay, d2	13.6	0.1	5.5	1.0	5.0	0.3
Delay (s)	60.4	42.7	54.3	4.4	18.6	7.8
Level of Service	E	D	D	A	B	A
Approach Delay (s)	54.0			10.1	16.4	
Approach LOS	D			B	B	

Intersection Summary

HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	0	15	0	41	2	1084	27	22	510	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	0	0	18	0	48	2	1141	28	23	537	5
Pedestrians		2			10						2	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		3.5			3.5						3.5	
Percent Blockage		0			1						0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1055				
pX, platoon unblocked	0.33	0.33		0.33	0.33	0.33				0.33		
vC, conflicting volume	1783	1771	541	1753	1760	1167	544			1179		
vC1, stage 1 conf vol	588	588		1169	1169							
vC2, stage 2 conf vol	1195	1184		583	590							
vCu, unblocked vol	2357	2322	541	2265	2287	493	544			530		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.2	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	100	89	100	74	100			93		
cM capacity (veh/h)	94	136	544	158	159	186	1033			335		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	5	66	2	1169	23	542
Volume Left	5	18	2	0	23	0
Volume Right	0	48	0	28	0	5
cSH	94	178	1033	1700	335	1700
Volume to Capacity	0.05	0.37	0.00	0.69	0.07	0.32
Queue Length 95th (ft)	4	40	0	0	6	0
Control Delay (s)	45.1	36.8	8.5	0.0	16.6	0.0
Lane LOS	E	E	A		C	
Approach Delay (s)	45.1	36.8	0.0		0.7	
Approach LOS	E	E				

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	74.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	8	1	0	0	1	1121	0	1	529	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	0	9	1	0	0	1	1180	0	1	557	0
Pedestrians		2			11							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								378				
pX, platoon unblocked	0.30	0.30		0.30	0.30	0.30				0.30		
vC, conflicting volume	1743	1754	559	1761	1754	1191	559			1191		
vC1, stage 1 conf vol	561	561		1193	1193							
vC2, stage 2 conf vol	1182	1193		568	561							
vCu, unblocked vol	2301	2337	559	2362	2337	481	559			481		
tC, single (s)	7.1	6.5	6.3	8.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		7.1	5.5							
tF (s)	3.5	4.0	3.4	4.4	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	98	99	100	100	100			100		
cM capacity (veh/h)	161	151	509	112	152	177	1020			328		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	1	1	1180	1	557
Volume Left	2	1	1	0	1	0
Volume Right	9	0	0	0	0	0
cSH	355	112	1020	1700	328	1700
Volume to Capacity	0.03	0.01	0.00	0.69	0.00	0.33
Queue Length 95th (ft)	3	1	0	0	0	0
Control Delay (s)	15.5	37.4	8.5	0.0	16.0	0.0
Lane LOS	C	E	A		C	
Approach Delay (s)	15.5	37.4	0.0		0.0	
Approach LOS	C	E				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	74.0%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	11	15	1098	17	7	529
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	18	1156	18	7	557
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			179			
pX, platoon unblocked	0.30	0.30			0.30	
vC, conflicting volume	1468	1175			1184	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1392	402			432	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	67	90			98	
cM capacity (veh/h)	39	177			334	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	31	1174	193	371
Volume Left	13	0	7	0
Volume Right	18	18	0	0
cSH	71	1700	334	1700
Volume to Capacity	0.43	0.69	0.02	0.22
Queue Length 95th (ft)	43	0	2	0
Control Delay (s)	90.1	0.0	1.0	0.0
Lane LOS	F		A	
Approach Delay (s)	90.1	0.0	0.3	
Approach LOS	F			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	146	62	1047	150	25	504
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.97	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1641	1395	1766		1671	3438
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1641	1395	1766		1671	3438
Peak-hour factor, PHF	0.85	0.85	0.95	0.95	0.95	0.95
Adj. Flow (vph)	172	73	1102	158	26	531
RTOR Reduction (vph)	0	64	4	0	0	0
Lane Group Flow (vph)	172	9	1256	0	26	531
Confl. Peds. (#/hr)	1	5		17	17	
Heavy Vehicles (%)	10%	12%	4%	12%	8%	5%
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	12.8	12.8	71.0		3.2	78.2
Effective Green, g (s)	12.8	12.8	71.5		3.7	78.7
Actuated g/C Ratio	0.13	0.13	0.72		0.04	0.79
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	2.3	2.3	5.0		2.3	5.0
Lane Grp Cap (vph)	210	179	1263		62	2706
v/s Ratio Prot	c0.10		c0.71		c0.02	0.15
v/s Ratio Perm		0.01				
v/c Ratio	0.82	0.05	0.99		0.42	0.20
Uniform Delay, d1	42.5	38.3	14.1		47.1	2.7
Progression Factor	1.00	1.00	1.15		1.00	1.00
Incremental Delay, d2	20.7	0.1	19.3		2.7	0.2
Delay (s)	63.2	38.3	35.5		49.8	2.8
Level of Service	E	D	D		D	A
Approach Delay (s)	55.8		35.5			5.0
Approach LOS	E		D			A

Intersection Summary

HCM Average Control Delay	29.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	173	201	9	3	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	4	204	236	11	4	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		213				
pX, platoon unblocked						
vC, conflicting volume	247				452	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	247				452	242
tC, single (s)	4.4				7.1	6.3
tC, 2 stage (s)						
tF (s)	2.5				4.1	3.4
p0 queue free %	100				99	99
cM capacity (veh/h)	1158				460	768

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	207	247	12
Volume Left	4	0	4
Volume Right	0	11	8
cSH	1158	1700	640
Volume to Capacity	0.00	0.15	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.2	0.0	10.7
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.7
Approach LOS			B

Intersection Summary				
Average Delay			0.3	
Intersection Capacity Utilization			26.5%	ICU Level of Service A
Analysis Period (min)			15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	285	68	25	918	571	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1563	1671	1810	1810	1509
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1563	1671	1810	1810	1509
Peak-hour factor, PHF	0.90	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	317	76	26	966	601	98
RTOR Reduction (vph)	0	60	0	0	0	35
Lane Group Flow (vph)	317	16	26	966	601	63
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	2%	1%	8%	5%	5%	7%
Turn Type		Perm	Prot			Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	20.4	20.4	3.2	70.6	63.4	63.4
Effective Green, g (s)	20.4	20.4	3.7	71.1	63.9	63.9
Actuated g/C Ratio	0.20	0.20	0.04	0.71	0.64	0.64
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	2.3	2.3	2.3	5.0	5.0	5.0
Lane Grp Cap (vph)	361	319	62	1287	1157	964
v/s Ratio Prot	c0.18		0.02	c0.53	0.33	
v/s Ratio Perm		0.01				0.04
v/c Ratio	0.88	0.05	0.42	0.75	0.52	0.06
Uniform Delay, d1	38.6	32.0	47.1	9.0	9.8	6.8
Progression Factor	1.00	1.00	1.00	1.00	0.84	0.35
Incremental Delay, d2	20.4	0.0	2.7	4.1	1.6	0.1
Delay (s)	59.0	32.0	49.8	13.0	9.8	2.5
Level of Service	E	C	D	B	A	A
Approach Delay (s)	53.8			14.0	8.8	
Approach LOS	D			B	A	

Intersection Summary

HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Attachment F
2013 Total Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	0	15	0	41	2	1092	27	22	521	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	0	0	18	0	48	2	1149	28	23	548	5
Pedestrians		2			10						2	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		3.5			3.5						3.5	
Percent Blockage		0			1						0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1055				
pX, platoon unblocked	0.33	0.33		0.33	0.33	0.33				0.33		
vC, conflicting volume	1803	1791	553	1773	1780	1176	556			1188		
vC1, stage 1 conf vol	599	599		1178	1178							
vC2, stage 2 conf vol	1204	1192		595	602							
vCu, unblocked vol	2411	2376	553	2319	2341	525	556			562		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.2	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	100	88	100	73	100			93		
cM capacity (veh/h)	89	132	535	153	156	180	1023			328		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	5	66	2	1178	23	554
Volume Left	5	18	2	0	23	0
Volume Right	0	48	0	28	0	5
cSH	89	172	1023	1700	328	1700
Volume to Capacity	0.05	0.38	0.00	0.69	0.07	0.33
Queue Length 95th (ft)	4	42	0	0	6	0
Control Delay (s)	47.5	38.5	8.5	0.0	16.8	0.0
Lane LOS	E	E	A		C	
Approach Delay (s)	47.5	38.5	0.0		0.7	
Approach LOS	E	E				

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	74.8%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	8	1	0	0	1	1129	0	1	540	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	0	9	1	0	0	1	1188	0	1	568	0
Pedestrians		2			11							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								378				
pX, platoon unblocked	0.31	0.31		0.31	0.31	0.31				0.31		
vC, conflicting volume	1763	1774	570	1781	1774	1199	570			1199		
vC1, stage 1 conf vol	573	573		1202	1202							
vC2, stage 2 conf vol	1191	1202		580	573							
vCu, unblocked vol	2362	2398	570	2422	2398	515	570			515		
tC, single (s)	7.1	6.5	6.3	8.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		7.1	5.5							
tF (s)	3.5	4.0	3.4	4.4	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	99	100	100	100			100		
cM capacity (veh/h)	155	147	501	108	147	170	1010			320		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	1	1	1188	1	568
Volume Left	2	1	1	0	1	0
Volume Right	9	0	0	0	0	0
cSH	347	108	1010	1700	320	1700
Volume to Capacity	0.03	0.01	0.00	0.70	0.00	0.33
Queue Length 95th (ft)	3	1	0	0	0	0
Control Delay (s)	15.7	38.8	8.6	0.0	16.3	0.0
Lane LOS	C	E	A		C	
Approach Delay (s)	15.7	38.8	0.0		0.0	
Approach LOS	C	E				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	74.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	15	30	1091	32	21	526
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	35	1148	34	22	554
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			179			
pX, platoon unblocked	0.30	0.30			0.30	
vC, conflicting volume	1496	1175			1192	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1488	408			465	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	45	80			93	
cM capacity (veh/h)	32	176			326	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	53	1182	207	369
Volume Left	18	0	22	0
Volume Right	35	34	0	0
cSH	71	1700	326	1700
Volume to Capacity	0.75	0.70	0.07	0.22
Queue Length 95th (ft)	87	0	5	0
Control Delay (s)	142.1	0.0	2.9	0.0
Lane LOS	F		A	
Approach Delay (s)	142.1	0.0	1.1	
Approach LOS	F			

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	152	62	1055	150	25	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.97	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1641	1395	1766		1671	3438
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1641	1395	1766		1671	3438
Peak-hour factor, PHF	0.85	0.85	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	73	1111	158	26	532
RTOR Reduction (vph)	0	63	4	0	0	0
Lane Group Flow (vph)	179	10	1265	0	26	532
Confl. Peds. (#/hr)	1	5		17	17	
Heavy Vehicles (%)	10%	12%	4%	12%	8%	5%
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	13.1	13.1	70.7		3.2	77.9
Effective Green, g (s)	13.1	13.1	71.2		3.7	78.4
Actuated g/C Ratio	0.13	0.13	0.71		0.04	0.78
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	2.3	2.3	5.0		2.3	5.0
Lane Grp Cap (vph)	215	183	1257		62	2695
v/s Ratio Prot	c0.11		c0.72		c0.02	0.15
v/s Ratio Perm		0.01				
v/c Ratio	0.83	0.05	1.01		0.42	0.20
Uniform Delay, d1	42.4	38.0	14.4		47.1	2.8
Progression Factor	1.00	1.00	1.13		1.00	1.00
Incremental Delay, d2	22.6	0.1	22.0		2.7	0.2
Delay (s)	65.0	38.1	38.3		49.8	2.9
Level of Service	E	D	D		D	A
Approach Delay (s)	57.2		38.3			5.1
Approach LOS	E		D			A

Intersection Summary			
HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	173	201	10	4	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	4	204	236	12	5	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		213				
pX, platoon unblocked						
vC, conflicting volume	248				453	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	248				453	242
tC, single (s)	4.4				7.1	6.3
tC, 2 stage (s)						
tF (s)	2.5				4.1	3.4
p0 queue free %	100				99	98
cM capacity (veh/h)	1156				460	768

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	207	248	20
Volume Left	4	0	5
Volume Right	0	12	15
cSH	1156	1700	663
Volume to Capacity	0.00	0.15	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.2	0.0	10.6
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.6
Approach LOS			B

Intersection Summary				
Average Delay			0.5	
Intersection Capacity Utilization			26.5%	ICU Level of Service A
Analysis Period (min)			15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	287	68	25	925	576	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1563	1671	1810	1810	1509
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1563	1671	1810	1810	1509
Peak-hour factor, PHF	0.90	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	319	76	26	974	606	99
RTOR Reduction (vph)	0	60	0	0	0	36
Lane Group Flow (vph)	319	16	26	974	606	63
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	2%	1%	8%	5%	5%	7%
Turn Type		Perm	Prot			Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	20.5	20.5	3.2	70.5	63.3	63.3
Effective Green, g (s)	20.5	20.5	3.7	71.0	63.8	63.8
Actuated g/C Ratio	0.20	0.20	0.04	0.71	0.64	0.64
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	2.3	2.3	2.3	5.0	5.0	5.0
Lane Grp Cap (vph)	363	320	62	1285	1155	963
v/s Ratio Prot	c0.18		0.02	c0.54	0.33	
v/s Ratio Perm		0.01				0.04
v/c Ratio	0.88	0.05	0.42	0.76	0.52	0.07
Uniform Delay, d1	38.5	31.9	47.1	9.1	9.8	6.8
Progression Factor	1.00	1.00	1.00	1.00	0.85	0.35
Incremental Delay, d2	20.4	0.0	2.7	4.2	1.6	0.1
Delay (s)	58.9	32.0	49.8	13.3	10.0	2.5
Level of Service	E	C	D	B	B	A
Approach Delay (s)	53.7			14.3	9.0	
Approach LOS	D			B	A	

Intersection Summary

HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	1	13	0	15	1	720	25	36	1193	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	0	1	15	0	18	1	758	26	38	1256	2
Pedestrians		3			9			4			1	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1055				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	2114	2131	1264	2119	2119	781	1261			793		
vC1, stage 1 conf vol	1336	1336		782	782							
vC2, stage 2 conf vol	779	795		1337	1337							
vCu, unblocked vol	2287	2308	1264	2293	2293	579	1261			594		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	90	100	96	100			95		
cM capacity (veh/h)	154	176	208	157	180	401	557			767		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	33	1	784	38	1258
Volume Left	2	15	1	0	38	0
Volume Right	1	18	0	26	0	2
cSH	168	233	557	1700	767	1700
Volume to Capacity	0.02	0.14	0.00	0.46	0.05	0.74
Queue Length 95th (ft)	2	12	0	0	4	0
Control Delay (s)	26.8	23.0	11.5	0.0	9.9	0.0
Lane LOS	D	C	B		A	
Approach Delay (s)	26.8	23.0	0.0		0.3	
Approach LOS	D	C				

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	1	0	2	4	751	6	1	1221	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	2	1	0	2	4	791	6	1	1285	0
Pedestrians		1			9							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								378				
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77				0.77		
vC, conflicting volume	2090	2103	1286	2101	2099	803	1286			806		
vC1, stage 1 conf vol	1288	1288		811	811							
vC2, stage 2 conf vol	801	814		1290	1288							
vCu, unblocked vol	2263	2279	1286	2277	2275	598	1286			602		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	99	99			100		
cM capacity (veh/h)	172	193	203	167	191	388	546			755		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	4	4	797	1	1285
Volume Left	0	1	4	0	1	0
Volume Right	2	2	0	6	0	0
cSH	203	269	546	1700	755	1700
Volume to Capacity	0.01	0.01	0.01	0.47	0.00	0.76
Queue Length 95th (ft)	1	1	1	0	0	0
Control Delay (s)	23.0	18.6	11.7	0.0	9.8	0.0
Lane LOS	C	C	B		A	
Approach Delay (s)	23.0	18.6	0.1		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	79.3%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	24	55	702	60	46	1175
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	28	65	739	63	48	1237
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			179			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	1492	777			808	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1489	556			597	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	66	82			94	
cM capacity (veh/h)	83	366			754	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	93	802	461	825
Volume Left	28	0	48	0
Volume Right	65	63	0	0
cSH	180	1700	754	1700
Volume to Capacity	0.52	0.47	0.06	0.49
Queue Length 95th (ft)	65	0	5	0
Control Delay (s)	44.5	0.0	1.8	0.0
Lane LOS	E		A	
Approach Delay (s)	44.5	0.0	0.7	
Approach LOS	E			

Intersection Summary				
Average Delay			2.3	
Intersection Capacity Utilization			82.5%	ICU Level of Service E
Analysis Period (min)			15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	113	30	731	66	29	1158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.96	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1557	1856		1805	3574
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1557	1856		1805	3574
Peak-hour factor, PHF	0.85	0.85	0.95	0.95	0.95	0.95
Adj. Flow (vph)	133	35	769	69	31	1219
RTOR Reduction (vph)	0	31	2	0	0	0
Lane Group Flow (vph)	133	4	836	0	31	1219
Confl. Peds. (#/hr)	11	6		6	6	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	13.2	13.2	79.2		4.6	87.8
Effective Green, g (s)	13.2	13.2	79.7		5.1	88.3
Actuated g/C Ratio	0.12	0.12	0.72		0.05	0.80
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	2.3	2.3	5.0		2.3	5.0
Lane Grp Cap (vph)	217	187	1345		84	2869
v/s Ratio Prot	c0.07		c0.45		0.02	c0.34
v/s Ratio Perm		0.00				
v/c Ratio	0.61	0.02	0.62		0.37	0.42
Uniform Delay, d1	46.0	42.7	7.6		50.9	3.2
Progression Factor	1.00	1.00	0.98		1.00	1.00
Incremental Delay, d2	4.0	0.0	2.0		1.6	0.5
Delay (s)	50.0	42.7	9.4		52.5	3.7
Level of Service	D	D	A		D	A
Approach Delay (s)	48.5		9.4			4.9
Approach LOS	D		A			A

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	5	90	115	6	5	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	106	135	7	6	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		213				
pX, platoon unblocked						
vC, conflicting volume	142				256	139
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	142				256	139
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	96
cM capacity (veh/h)	1453				734	915

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	112	142	39
Volume Left	6	0	6
Volume Right	0	7	33
cSH	1453	1700	882
Volume to Capacity	0.00	0.08	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.4	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization		23.8%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	155	86	84	655	997	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1547	1770	1881	1881	1575
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1805	1547	1770	1881	1881	1575
Peak-hour factor, PHF	0.90	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	172	96	88	689	1049	262
RTOR Reduction (vph)	0	84	0	0	0	70
Lane Group Flow (vph)	172	12	88	689	1049	192
Confl. Peds. (#/hr)		1	2			2
Heavy Vehicles (%)	0%	2%	2%	1%	1%	0%
Turn Type		Perm	Prot			Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	13.6	13.6	8.5	87.4	74.9	74.9
Effective Green, g (s)	13.6	13.6	9.0	87.9	75.4	75.4
Actuated g/C Ratio	0.12	0.12	0.08	0.80	0.69	0.69
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	2.3	2.3	2.3	5.0	5.0	5.0
Lane Grp Cap (vph)	223	191	145	1503	1289	1080
v/s Ratio Prot	c0.10		c0.05	0.37	c0.56	
v/s Ratio Perm		0.01				0.12
v/c Ratio	0.77	0.06	0.61	0.46	0.81	0.18
Uniform Delay, d1	46.7	42.6	48.8	3.5	12.3	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.11	1.18
Incremental Delay, d2	14.3	0.1	5.5	1.0	5.3	0.3
Delay (s)	61.0	42.6	54.3	4.5	19.0	7.7
Level of Service	E	D	D	A	B	A
Approach Delay (s)	54.4			10.2	16.7	
Approach LOS	D			B	B	

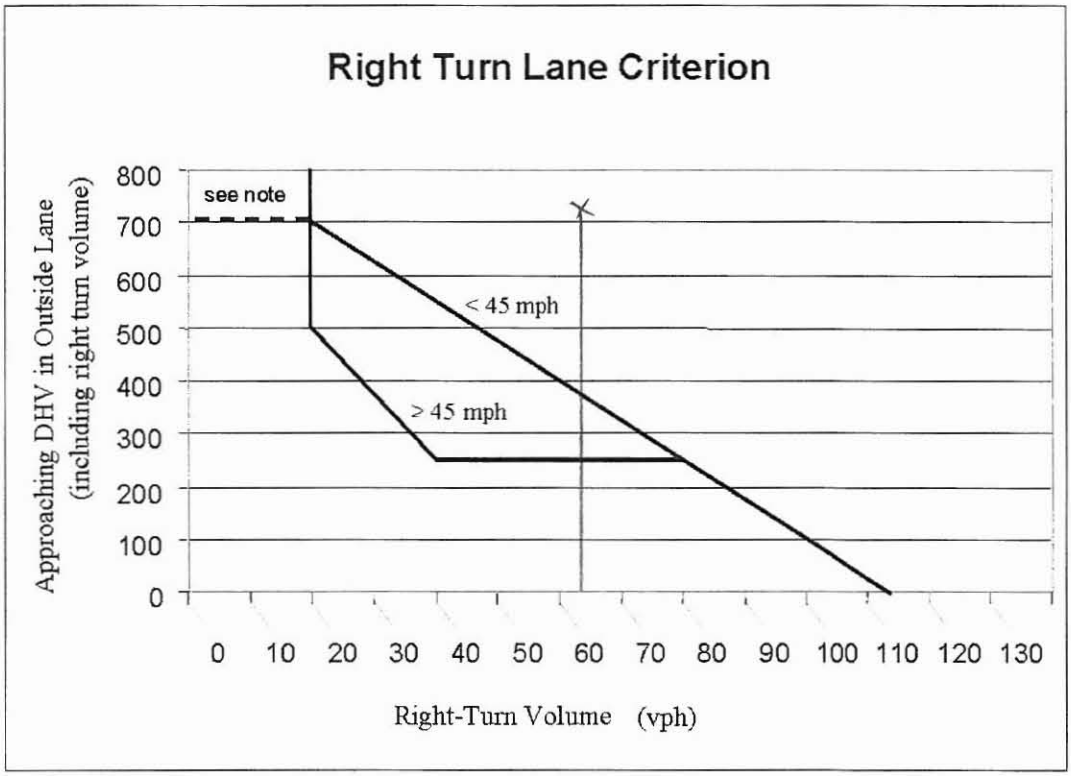
Intersection Summary

HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Attachment G
Turn Lane Warrant
Worksheet

APPENDIX F



Note: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

Figure F-3

II.) Criterion 2: Crash experience

The crash experience Criterion is satisfied when:

1.) Adequate trial of other remedies with satisfactory observance and enforcement has failed to reduce the accident frequency; and
2.) A history of crashes of the type susceptible to correction by a right turn lane; and
3.) The safety benefits outweigh the associated improvements costs; and
4.) The installation of the right turn lane does not adversely impact the operations of the roadway.

III.) Criterion 3: Special Cases

1.) Railroad crossings - If a railroad is parallel to the roadway and adversely affects right turns, a worst case scenario should be used in determining the

Attachment H
JTE Trip Generation and SDC Calculation Worksheet