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ARCHITECTS



A CENTERCAL DEVELOPMENT

NYBERG RIVERS MASTER PLAN

TUALATIN, OREGON



PROJECT TEAM / ACKNOWLEDGEMENTS

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INTRODUCTION

The Nyberg Rivers Master Plan was drafted to provide both physical and aesthetic guidance for the proposed redevelopment of a regionally significant commercial center within the City of Tualatin. This working document creates a framework for the currently proposed Nyberg Rivers development, as well as any future development action that may occur within the Nyberg Rivers center. The framework addresses specific elements that include site access, transportation, utilities, internal circulation, building location, building design and materials, parking, landscaping and pedestrian facilities. A specific description of each element is provided in this document, as well as a visual representation of the Master Plan element. It should be noted that these elements are not entirely prescriptive, but a solid foundation by which all development activity should address and look to meet the intent of the stated objective.

The derivation of this Master Plan is based on the City of Tualatin Central Urban Renewal Plan, which was originally adopted on January 27, 1975. The Central Urban Renewal Plan has undergone several amendments through the years to arrive at a plan that reflects the City of Tualatin's current vision for the overall urban renewal area, as well as specific blocks and districts within the subarea. The Plan also identifies the necessary processes required for proposed development activity in the urban renewal area.

“Prior to approval of applications for development projects within Blocks 1, 2, 3, 4, 5, 13, 25, 26, 27, 31, 32, and 33, applicants will be required to submit and gain City approval of a master plan governing development within the Block(s). Such master plan shall contain sufficient information, as determined by the City, to ensure that development meets the objectives of the Plan.”

The Nyberg Rivers Master Plan is located within Blocks 1, 2, 3, 4 and 5, thus triggering the master plan requirements outlined in the Central Urban Renewal Plan. The Plan outlines land uses within the renewal area, which are governed by the Planning District Standards outlined in the Tualatin Development Code. The Planning District Designations applicable to this master plan application include the Central Commercial, Office Commercial, and High Density Residential designations.

City Gateway

The Nyberg Rivers Master Plan represents a comprehensive and collaborative effort to create a vibrant center that provides a seamless extension of the Tualatin City Center. The Nyberg Rivers site is ideally suited as a gateway entry into the City Center, as the property is located directly adjacent to Interstate 5 and is the first parcel visible to westbound vehicle traffic upon leaving the I-5 exit ramp. The Tualatin-Sherwood



ABOVE: The Master Plan area encompasses Tualatin Urban Renewal Plan Blocks 1,2,3,4 and 5.
LEFT: The Nyberg Rivers Master plan is located to the east of the Tualatin Commons and along Interstate-5

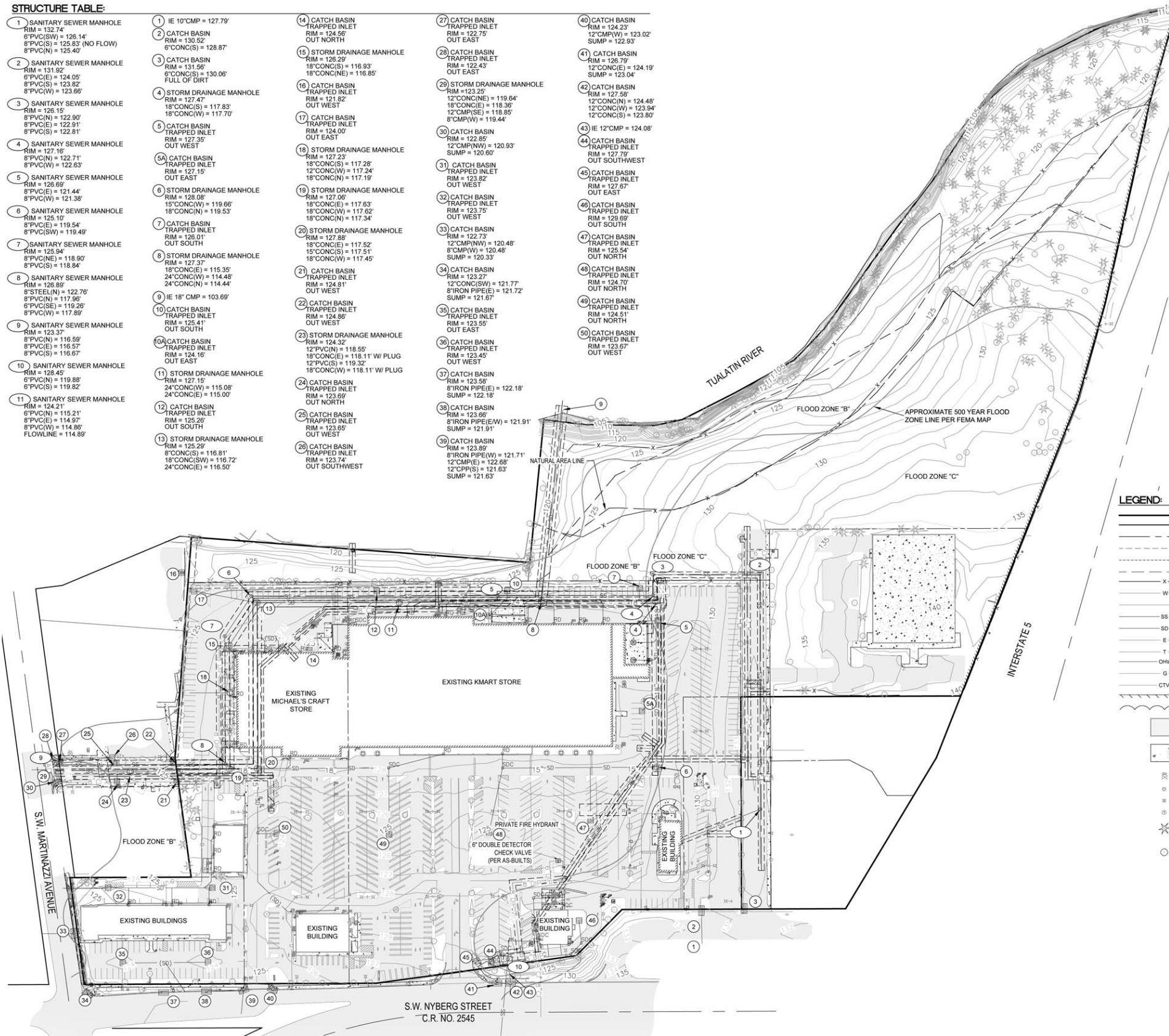
Highway is a heavily traveled corridor drawing traffic from a regional extent. In addition to vehicle traffic, regional and local planning and funding efforts have created a strong network of pedestrian and bicycle paths. These paths provide strong connectivity within the City Center core, as well as regional linkages to the Tualatin River Trail and the Ice Age Tonquin Trail located just west of Tualatin Commons.

The primary commercial tenants will work to attract regional visitors to the City core in an effort to create a more vibrant and alive City Center. The mix of uses will create a sense of place, with a vibrancy present during all hours and days of the week. In addition, this project will provide pedestrian and bicycle amenities and linkages to the regional framework to encourage a more active and healthy option for visitors to the site. This site represents a valuable asset to the Tualatin Community, the Nyberg Rivers Master Plan realizes the critical role that this site plays in establishing the Tualatin City Center as a regional draw for residents, visitors, and businesses.

NYBERG RIVERS MASTER PLAN EXISTING CONDITIONS

STRUCTURE TABLE:

1) SANITARY SEWER MANHOLE RIM = 132.74' 8" PVC(SW) = 126.14' 8" PVC(S) = 123.83' (NO FLOW) 8" PVC(N) = 125.40'	2) SANITARY SEWER MANHOLE RIM = 131.92' 8" PVC(E) = 124.05' 8" PVC(S) = 123.82' 8" PVC(W) = 123.66'	3) SANITARY SEWER MANHOLE RIM = 126.15' 8" PVC(N) = 122.90' 8" PVC(E) = 122.91' 8" PVC(S) = 122.81'	4) SANITARY SEWER MANHOLE RIM = 127.16' 8" PVC(N) = 122.71' 8" PVC(W) = 122.63' 8" PVC(S) = 122.63'	5) SANITARY SEWER MANHOLE RIM = 126.69' 8" PVC(E) = 121.44' 8" PVC(W) = 121.38'	6) SANITARY SEWER MANHOLE RIM = 125.17' 8" PVC(E) = 119.54' 8" PVC(SW) = 119.49'	7) SANITARY SEWER MANHOLE RIM = 125.94' 8" PVC(N) = 118.90' 8" PVC(S) = 118.84'	8) SANITARY SEWER MANHOLE RIM = 126.89' 8" STEEL(N) = 122.76' 8" PVC(N) = 117.96' 8" PVC(SE) = 119.26' 8" PVC(W) = 117.89'	9) SANITARY SEWER MANHOLE RIM = 123.37' 8" PVC(N) = 116.59' 8" PVC(E) = 116.57' 8" PVC(S) = 116.57'	10) SANITARY SEWER MANHOLE RIM = 128.45' 8" PVC(N) = 119.88' 8" PVC(S) = 119.82'	11) SANITARY SEWER MANHOLE RIM = 124.21' 8" PVC(N) = 115.21' 8" PVC(E) = 114.97' 8" PVC(W) = 114.86' FLOWLINE = 114.89'	1) IE 10" CMP = 127.79'	2) CATCH BASIN RIM = 130.52' 6" CONC(S) = 128.87'	3) CATCH BASIN RIM = 131.56' 18" CONC(S) = 130.06' FULL OF DIRT	4) STORM DRAINAGE MANHOLE RIM = 127.47' 18" CONC(S) = 117.83' 18" CONC(W) = 117.70'	5) CATCH BASIN TRAPPED INLET RIM = 127.35' OUT WEST	5A) CATCH BASIN TRAPPED INLET RIM = 127.15' OUT EAST	6) STORM DRAINAGE MANHOLE RIM = 128.08' 15" CONC(W) = 119.66' 18" CONC(N) = 119.53'	7) CATCH BASIN TRAPPED INLET RIM = 126.01' OUT SOUTH	8) STORM DRAINAGE MANHOLE RIM = 127.37' 18" CONC(S) = 115.35' 24" CONC(W) = 114.48' 24" CONC(N) = 114.44'	9) IE 18" CMP = 103.69'	10) CATCH BASIN TRAPPED INLET RIM = 125.41' OUT SOUTH	10A) CATCH BASIN TRAPPED INLET RIM = 124.32' 24" CONC(W) = 115.08' 24" CONC(E) = 115.00'	11) STORM DRAINAGE MANHOLE RIM = 127.15' 24" CONC(W) = 115.08' 24" CONC(E) = 115.00'	12) CATCH BASIN TRAPPED INLET RIM = 125.28' OUT SOUTH	13) STORM DRAINAGE MANHOLE RIM = 125.23' 8" CONC(S) = 116.81' 18" CONC(SW) = 116.72' 24" CONC(E) = 116.50'	14) CATCH BASIN TRAPPED INLET RIM = 124.56' OUT NORTH	15) STORM DRAINAGE MANHOLE RIM = 126.29' 18" CONC(S) = 116.93' 18" CONC(E) = 116.85'	16) CATCH BASIN TRAPPED INLET RIM = 121.82' OUT WEST	17) CATCH BASIN TRAPPED INLET RIM = 124.00' OUT EAST	18) STORM DRAINAGE MANHOLE RIM = 127.23' 18" CONC(S) = 117.28' 12" CONC(W) = 117.24' 18" CONC(N) = 117.19'	19) STORM DRAINAGE MANHOLE RIM = 127.05' 18" CONC(E) = 117.63' 18" CONC(W) = 117.62' 18" CONC(N) = 117.34'	20) STORM DRAINAGE MANHOLE RIM = 127.88' 18" CONC(E) = 117.52' 15" CONC(S) = 117.51' 18" CONC(W) = 117.45'	21) CATCH BASIN TRAPPED INLET RIM = 124.81' OUT WEST	22) CATCH BASIN TRAPPED INLET RIM = 124.86' OUT WEST	23) STORM DRAINAGE MANHOLE RIM = 124.32' 12" PVC(N) = 118.55' 18" CONC(E) = 118.11' W/ PLUG 12" PVC(S) = 119.32' 18" CONC(W) = 118.11' W/ PLUG	24) CATCH BASIN TRAPPED INLET RIM = 123.69' OUT NORTH	25) CATCH BASIN TRAPPED INLET RIM = 123.65' OUT WEST	26) CATCH BASIN TRAPPED INLET RIM = 123.74' OUT SOUTHWEST	27) CATCH BASIN TRAPPED INLET RIM = 122.75' OUT EAST	28) CATCH BASIN TRAPPED INLET RIM = 122.43' OUT EAST	29) STORM DRAINAGE MANHOLE RIM = 123.25' 12" CONC(N) = 119.64' 18" CONC(E) = 118.39' 12" CMP(SE) = 118.85' 8" CMP(W) = 119.44'	30) CATCH BASIN TRAPPED INLET RIM = 122.85' 12" CMP(N) = 120.93' SUMP = 120.60'	31) CATCH BASIN TRAPPED INLET RIM = 123.52' OUT WEST	32) CATCH BASIN TRAPPED INLET RIM = 123.75' OUT WEST	33) CATCH BASIN TRAPPED INLET RIM = 122.73' 12" CONC(W) = 121.77' 8" ITRON PIPE(E) = 121.72' SUMP = 121.67'	34) CATCH BASIN TRAPPED INLET RIM = 123.27' 12" CONC(SW) = 121.77' 8" ITRON PIPE(E) = 121.72' SUMP = 121.67'	35) CATCH BASIN TRAPPED INLET RIM = 123.55' OUT EAST	36) CATCH BASIN TRAPPED INLET RIM = 123.45' OUT WEST	37) CATCH BASIN TRAPPED INLET RIM = 123.58' 8" ITRON PIPE(E) = 122.18' SUMP = 122.18'	38) CATCH BASIN TRAPPED INLET RIM = 123.69' 8" ITRON PIPE(W) = 121.91' SUMP = 121.91'	39) CATCH BASIN TRAPPED INLET RIM = 123.69' 8" ITRON PIPE(W) = 121.71' 12" CMP(E) = 122.68' 12" CPP(S) = 121.63' SUMP = 121.63'	40) CATCH BASIN TRAPPED INLET RIM = 124.23' 12" CMP(W) = 123.62' SUMP = 122.93'	41) CATCH BASIN TRAPPED INLET RIM = 126.79' 12" CONC(E) = 124.19' SUMP = 123.04'	42) CATCH BASIN TRAPPED INLET RIM = 127.58' 12" CONC(N) = 124.48' 12" CONC(W) = 123.94' 12" CONC(S) = 123.80'	43) IE 12" CMP = 124.08'	44) CATCH BASIN TRAPPED INLET RIM = 127.79' OUT SOUTHWEST	45) CATCH BASIN TRAPPED INLET RIM = 127.67' OUT EAST	46) CATCH BASIN TRAPPED INLET RIM = 123.69' OUT SOUTH	47) CATCH BASIN TRAPPED INLET RIM = 124.51' OUT NORTH	48) CATCH BASIN TRAPPED INLET RIM = 124.51' OUT NORTH	49) CATCH BASIN TRAPPED INLET RIM = 124.51' OUT NORTH	50) CATCH BASIN TRAPPED INLET RIM = 123.67' OUT WEST
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DATUM:
WASHINGTON COUNTY BENCHMARK NO. 922
A 3" BRASS DISK SET IN CONCRETE CURB AT THE SOUTHEAST
CORNER OF THE INTERSECTION OF SW BOONES FERRY ROAD
AND SW TUALATIN ROAD.
ELEVATION = 122.154'

BASIS OF BEARINGS:
ESTABLISHED BY HOLDING MONUMENTS [104] AND [100].
N 89°46'15" E ALONG THE NORTHERLY LINE OF (TITLE
REPORT) PARCEL III AND PARCEL V PER SURVEY NO.
21.181.

LEGEND:

—	EXISTING BOUNDARY LINE	—	SANITARY SEWER CLEANOUT
—	EXISTING RIGHT-OF-WAY LINE	—	SANITARY SEWER MANHOLE
—	SECTIONAL LINE	—	CATCH BASIN
—	EASEMENT LINE	—	STORM DRAIN MANHOLE
—	SETBACK LINE	—	ROOF DRAIN
—	BUILDING OVERHANG LINE	—	FIRE HYDRANT
X	FENCE LINE, TYPE AS NOTED	—	FIRE DEPARTMENT CONNECTION
W	UNDERGROUND WATER LINE	—	POST INDICATOR VALVE
—	UNDERGROUND IRRIGATION LINE	—	UNDERGROUND WATER VAULT
SS	SANITARY SEWER LINE	—	WATER VALVE
SD	STORM DRAINAGE LINE	—	WATER METER BOX
E	UNDERGROUND ELECTRICAL LINE	—	SPRINKLER VALVE
T	UNDERGROUND TELEPHONE LINE	—	GROUND LIGHT
OHW	OVERHEAD WIRE	—	STREET LIGHT (COBRA ARM)
G	UNDERGROUND GAS LINE	—	SHOEBOX LIGHT (SINGLE)
CTV	UNDERGROUND CABLE TV LINE	—	ACORN/GLOBE LIGHT
—	BUILDING FACE	—	ELECTRIC METER
—	TREE/VEGETATION LINE	—	TRANSFORMER
—	EXISTING ASPHALT SURFACE	—	PARKING BUMPER
—	EXISTING CONCRETE SURFACE	—	TRAFFIC SIGNAL POLE
—	GAS VALVE	—	SIGNAL JUNCTION BOX
—	GAS METER	—	UNKNOWN CLEANOUT
—	TELEPHONE RISER	—	UNKNOWN MANHOLE
—	TELEPHONE MANHOLE	—	BOLLARD
—	CONIFEROUS TREE	—	GATE POST
—	DECIDUOUS TREE	—	MAILBOX
		—	SIGN

EXISTING CONDITIONS

Site Improvements/Development

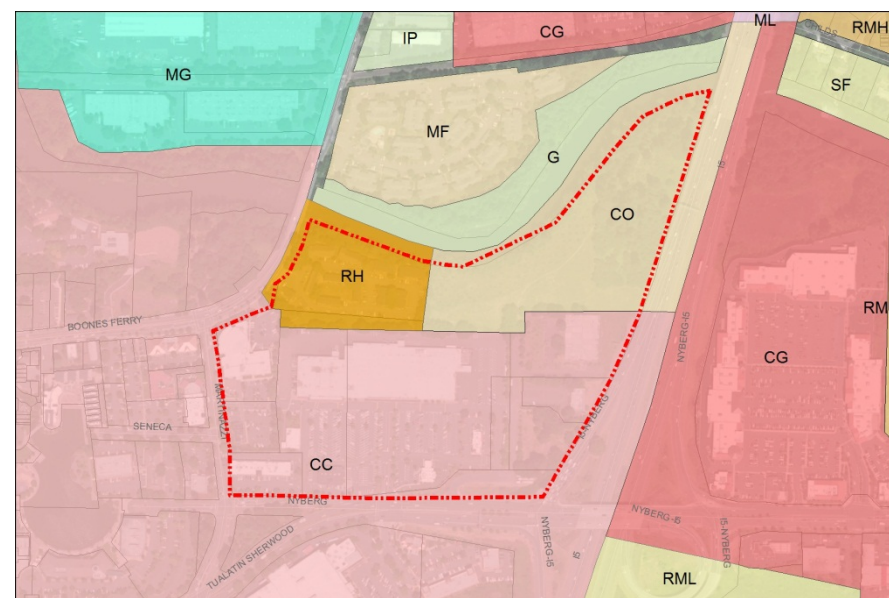
The existing Nyberg Rivers development area is comprised of two multi-tenant retail buildings, a Banner Bank, a US Bank, a Wendy’s restaurant with drive-up, and a central commercial center containing a K-Mart and Michael’s craft store. The overall square footage of buildings located on-site is 161,462 SF, with associated parking fields. Parking stalls and drive aisles are provided throughout the site, with parking lot landscape islands including groundcover, shrubs, and trees. There are no pedestrian or bicycle paths located on-site, aside from the street improvements for the driveway portion in front of the City of Tualatin Library and City Offices. Existing utilities are stubbed to each of the commercial spaces, and stormwater quality is handled in on-site basins before eventually flowing into the Tualatin River.

Urban Renewal Plan

The Central Urban Renewal Plan (identified as “The Plan”) was originally adopted on January 27, 1975 and has undergone several amendments to reflect the City of Tualatin’s current vision for the overall urban renewal area, as well as specific blocks designated within the subarea. An accompanying report to The Plan outlines the goals and objectives, as well as an outline of the project activities undertaken through The Plan. These project activities are public improvements under the following categories:

- > Flood Control—minimizing flood risk within The Plan area
- > Roads and Streets—identifying specific streets and interchanges needing infrastructure improvements and capital funding.
- > Utilities—improvements needed in sanitary sewer, storm sewer, water supply, and electricity systems. Specific project activities are summarized.
- > Parking Facilities—establishment of the Core Area Parking District (CAPD) in 1979, as well as impact fees on new construction to provide for parking lot development within the parking district.
- > Pedestrian Facilities—improvement of pedestrian circulation within the URA through the construction of sidewalks, improvements to the triangular park site, and the development of design guidelines for private pedestrian walkways and street furniture.
- > Civic Facilities—includes pedestrian oriented facilities, major features of Tualatin Commons (water feature and landmark), site acquisition for police facility, library expansion and participating in design discussion for a community building.
- > Transit Facilities—assisting Tri-Met in locating park-and-ride facilities and encouraging private development to integrate transit provisions.

The Plan also outlines land uses within the renewal area, which are governed by the Planning District Standards outlined in the Tualatin Development Code. The Planning District Designations applicable to this master plan application include the Central Commercial, Office Commercial, and High Density Residential designations.



TOP: The Master Plan area encompasses Tualatin Urban Renewal Plan Blocks 1,2,3,4 and 5.
 BOTTOM: The Nyberg Rivers Master plan includes three zoning designations

Land Use /Zoning Designation

Land use within the Central Urban Renewal Area is governed by the Planning District Standards contained in the Tualatin Development Code. As designated in the Urban Renewal Area, the following Planning District designations and their permitted uses are within the Nyberg Rivers Master Plan boundary:

Central Commercial (CC)	Retail, professional and service uses of the kind usually found in downtown areas patronized by pedestrians. This district serves to implement the City's Central Urban Renewal Plan. The District provides areas suitable for civic, social and cultural functions serving the general community. Multi-family dwellings are also appropriate uses in certain blocks within the District.
Office Commercial (CO)	Office development ranging from small buildings with one or two tenants to large complexes housing business headquarters. Development design in this district shall be sensitive to the preservation of significant natural resources and shall provide extensive perimeter landscaping, especially adjacent to residential areas and streets.
High Density Residential (RH)	High density garden apartment and condominiums development. Within the Central Urban Renewal Area uses permitted may be mixed with uses permitted in the Central Commercial Planning District.

Topography

Site topography within the Nyberg Rivers project area is relatively flat within already-developed areas. However, as the site is directly adjacent to the south banks of the Tualatin River, the site generally slopes down from south to north. The highest point located on-site is in the southeastern corner, adjacent to the I-5/Nyberg Street off-ramp.

Environmental

The undeveloped areas abutting the site to the north and east include three general categories of vegetative cover—forested areas west of I-5 and along the south bank of the Tualatin River; a swath of native vegetation enhancements approximately 125-feet wide that begin south of the Tualatin River; and fallow grassland, which lies between existing development and the forested and enhanced areas to the north and east. The forested and enhancement areas are overwhelmingly dominated by upland plant species, although tree and shrub species that prefer moist conditions, such as Oregon ash and western red cedar, are present within the riparian areas along the river.

According to field work and data collection provided by Pacific Habitat Services, the Tualatin River is the only sensitive area on or immediately adjoining the site.

Transportation

Primary vehicle access into the site is provided via SW Nyberg Street, a Major Arterial with direct access to the I-5 interchange located approximately 100-feet to the east from the Nyberg Rivers easternmost boundary. SW Nyberg Street westbound from the I-5 interchange features 3 lanes and an on-street bicycle lane that terminates at SW 75th Avenue. Curb tight sidewalks are also provided along the entire section of SW Nyberg along the property frontage. The primary access into the site is provided at the signalized intersection that serves the shopping center and the adjacent Fred Meyer’s store. There currently is no designated turn lane for westbound vehicles approaches the shopping center. Secondary access is provided via SW 75th Avenue and a driveway located approximately 150-feet from the SW Nyberg Street/SW Martinazzi Avenue intersection.

Secondary access is provided via SW Martinazzi Avenue. Martinazzi Avenue is a Major Arterial with four travel lanes to the north until SW Seneca Street. After the Seneca Street intersection, there is a single travel lane in each direction and a center median turn lane. There are curb tight sidewalks provided along the entire portion of SW Martinazzi that fronts the property. Access from SW Martinazzi Avenue is provided by a small drive aisle located approximately 100-feet from the Martinazzi/Nyberg

intersection, as well as a larger access aisle to serve the shopping center and the City of Tualatin Library and City Offices.

Access to the multi-family residential development located in the northwest corner of the site is provided by a driveway entrance located off Boones Ferry Road, approximately 250-feet from the Martinazzi/Boones Ferry intersection.

According to a transportation impact analysis (TIA) provided by Kittelson and Associates, dated March 2013, all of the study intersections currently operate acceptably during the weekday p.m. and Saturday midday peak hours with the exception of the SW Martinazzi Avenue/SW Sagert Street and SW 65th Avenue/SW Sagert road intersections. These intersections are located south of the project site. Year 2014 background traffic conditions show the same levels of operation with the same intersections failing.

Utilities

Stormwater - The existing on-site stormwater system is comprised of a public storm sewer mainline and multiple private collection laterals feeding into that public line. The public line is encompassed within a 15 foot public easement running east-west, just north of the existing retail buildings and then heading south to serve the property in the southeast corner. Stormwater falling on the site is currently captured in sumped, trapped catch basins and conveyed through a series of private storm sewer lines the public storm mains currently onsite. The public lines collect in one 24” main that flows north outfalls into the Tualatin River through an 18” outfall.

Sanitary Sewer - The existing on-site sanitary sewer system is comprised of a public line that serves the main portion of the site and private laterals connecting to the existing buildings. This public sanitary sewer line and the 15 foot easement runs nearly parallel with the public stormwater line, behind the existing retail building and then heads straight south once past the existing buildings. An existing grease interceptor serves the K-Mart building, but no other grease interceptors have been located onsite.

Water - The existing on-site water system is almost entirely made up of public water line with a 15’ public easement. The current system is looped around the existing retail buildings to the north and also serves the property in the southeast corner. Fire hydrants are located sporadically around the existing site to serve the existing buildings. The fire flow test conducted on 3/18/13 yielded the following results: Static – 70PSI, Residual 66 PSI, Flow – 949 GPM, Pressure 20 GPM

NYBERG RIVERS MASTER PLAN
DEVELOPMENT PLAN

PROJECT SUMMARY

MASTER PLAN AREA:	38.72 ACRES
FUTURE DEVELOPMENT AREAS: (by others)	6.81 ACRES
PRIMARY DEVELOPMENT AREA:	
GROSS AREA:	31.91 ACRES
NATURAL AREA:	6.00 ACRES
NET AREA:	25.91 ACRES
REQUIRED LANDSCAPE AREA:	15% / 4.78 ACRES
LANDSCAPE AREA PROPOSED:	9.03 ACRES
FLOOR AREA RATIO:	0.214
TOTAL PERMISSIBLE BUILDING AREA:	307,000 SF







BUILDING	AREA
BLDG 1005	30,000 SF
BLDG 1010	21,750 SF
BLDG 1030	2,900 SF
BLDG 1040	110,000 SF
BLDG A	12,500 SF
BLDG B	5,850 SF
BLDG C	3,950 SF
BLDG D	32,459 SF
BLDG E	3,285 SF
BLDG F	5,500 SF
BLDG G-100	6,200 SF
BLDG H-100	4,679 SF
BLDG J-100	5,734 SF
BLDG M-100	8,000 SF
BLDG N-100	45,000 SF
TOTAL:	297,807 SF

ADDITIONAL POTENTIAL BUILDING AREA: 9,193 SF

TOTAL PROVIDED STALLS:	1,299 stalls
PARKING RATIO:	4.36/1,000 SF
PARKING STALL DIMENSIONS:	STANDARD 9-ft X 19-ft COMPACT 7.7-ft X 16-ft

- Notes:
- "Site Area" includes only the areas of Tualatin Urban Renewal Blocks that are subject of this development proposal. Other phases of the Master Plan may be developed by others.
 - Required Landscaping based on Gross Site Area
 - Building areas listed in table may differ from actual footprint size to allow for interior walls and architectural elements.

LEGEND

-  Future Development Areas
-  Existing Buildings
-  New Buildings
-  Natural Area
-  Master Plan Boundary
-  Primary Development Area



DEVELOPMENT PLAN

The Nyberg Rivers Master Plan is conceptualized as a multi-tenant shopping center redevelopment project. The development plan depicted in this section illustrates the build-out plan for the project. The development plan encompasses blocks 1, 2, 3, 4, and 5 of the City of Tualatin Urban Renewal Plan including the existing shopping center, open space areas, city buildings and an existing multi-family community.

This master plan and the Development Plan herein, is focused on the areas designated as the Primary Development Area, whereas, the residual areas are designated as Future Development Area(s). The Primary Development Area is controlled by CenterCal Properties (the developer) and detailed project planning has occurred on these portions of the master plan. The Future Development Area(s) are anticipated to be pursued and completed by other parties. The Development Plan focuses project statistics and planning on the Primary Development Area.

Proposed Uses

The Primary Development Area will be redeveloped to support traditional shopping center related uses. These land uses include, but are not limited to, retail, restaurant, banks, health clubs, and service uses. General Office and Medical Office land uses may also be included within the shopping center. Drive-through service windows will be retained for Buildings A, B, C, and E. Building F-100 is a relation of an existing restaurant with drive-through use. A new drive-through service window will be constructed as part of H-100.

Buildings

The Primary Development Area will be redeveloped by retaining some existing buildings and constructing other new buildings, parking areas, and site amenities. The Primary Development Area will retain the existing buildings for the western portions of the site. This includes buildings A, B, C, D, and E. The eastern portions of the project will include new construction of buildings F-100, G-100, H-100, J-100, M-100, N-100, 1005, 1010, 1030, and 1040. F-100 is relocating an existing drive through restaurant use. Building D will include façade improvements to architecturally match and complement the new buildings in the center.

The Master Plan allows up to 307,000 sf of building area within the Primary Development Area. The building areas are listed on the Project Summary table of the Development Plan. The Development Plan identifies 9,193 sf of additional potential building area that can be applied as minor additions and/or adjustments to the building footprints at the time of site plan review (Architectural Review).

Parking

The Primary Development Area will be redeveloped to retain much of the existing parking in the western portions of the project. Some of the western parking fields will be enhanced to improve site appearance, pedestrian and vehicular circulation, parking capacity, and overall efficiency. Specifically, the existing parking areas to the west and south of Building D and to the south of Building B will be enhanced.

The residual areas of the Primary Development Area will be developed with new parking fields. New and enhanced parking areas will be constructed to comply with current code standards in terms of dimensional standards, layout, landscaping, circulation, and pedestrian facilities.

Vehicle Use Areas

The Master Plan illustrates the vehicle use areas including access, circulation, and parking. The Primary Development Area will be redeveloped with a combination of existing and new vehicular access points; five primary access points will occur from Nyberg Street, Seneca Street and a new Street "A". Secondary access points will be retained along Martinazzi Avenue. Overall, the project is designed to be integrated with the surrounding transportation network and abutting uses. Additional detail is illustrated in the Transportation Plan and Pedestrian and Bicycle Plan sections of the Master Plan.

Pedestrian Areas

The Master Plan includes an abundance of pedestrian areas that provide safe and convenient linkages to all project buildings, surrounding roadways, and adjacent sites. The sidewalks located along the primary storefronts of Buildings D, 1005, 1010, 1030, and 1040 will create a premium pedestrian experience. This pedestrian area is designed as an extension of the downtown core and will function as a primary shopping street completed with wide sidewalks, outdoor seating, landscape planters, and other pedestrian amenities. This area provides the ability to extend the existing Art Walk to the east.

Sidewalks are provided along all primary building facades and provide generous widths to facilitate circulation. Designated pedestrian pathways are designed across the parking fields to provide linkages to the adjoining roadway and all buildings within the development. These pathways are lined with landscaping that will provide pedestrian protection and shade. Additional detail is illustrated Pedestrian and Bicycle Plan sections of the Master Plan.

Public Gathering Areas

The Master Plan includes public gathering through-out the Primary Development Area. Gathering areas are designed as outside plazas/patios with seating. The shopping street in front of Buildings D, 1005, 1010, 1030, and 1040 includes ample width to support outside dining, seating, and areas for occasional events and displays (e.g. art, sales, and performances). Building N-100 includes a wide sidewalk along the full façade to allow seating and occasional events and displays. Buildings F-100 and H-100 include plaza/patio space for outside dining. Building 1030 includes a rear plaza/patio to allow for outside dining and seating.

Open Space Areas

The Master Plan includes multiple open space areas that serve different functions including conservation, landscaping and public use. The Primary Development Area includes a six-acre natural area along the Tualatin River. This natural area will be retained as open space while supporting a shared pathway easement to link the site to the City's regional trail system. The natural area will continue to be managed as a vegetative restoration area and will provide passive access to the Tualatin River.

The Primary Development Area includes a linear open space area along its northern boundary and adjacent to Future Development Area 4. This open space area will be landscaped and support a shared pathway easement. Another linear open space areas is located along the western Primary Development Area boundary and adjacent to Future Development Area 5-b (Tualatin Library). This linear open space area includes tree preservation, new landscaping, and a shared pathway easement. The Primary Development Area includes an abundance of landscape areas along the building foundations, site boundaries, and parking fields.

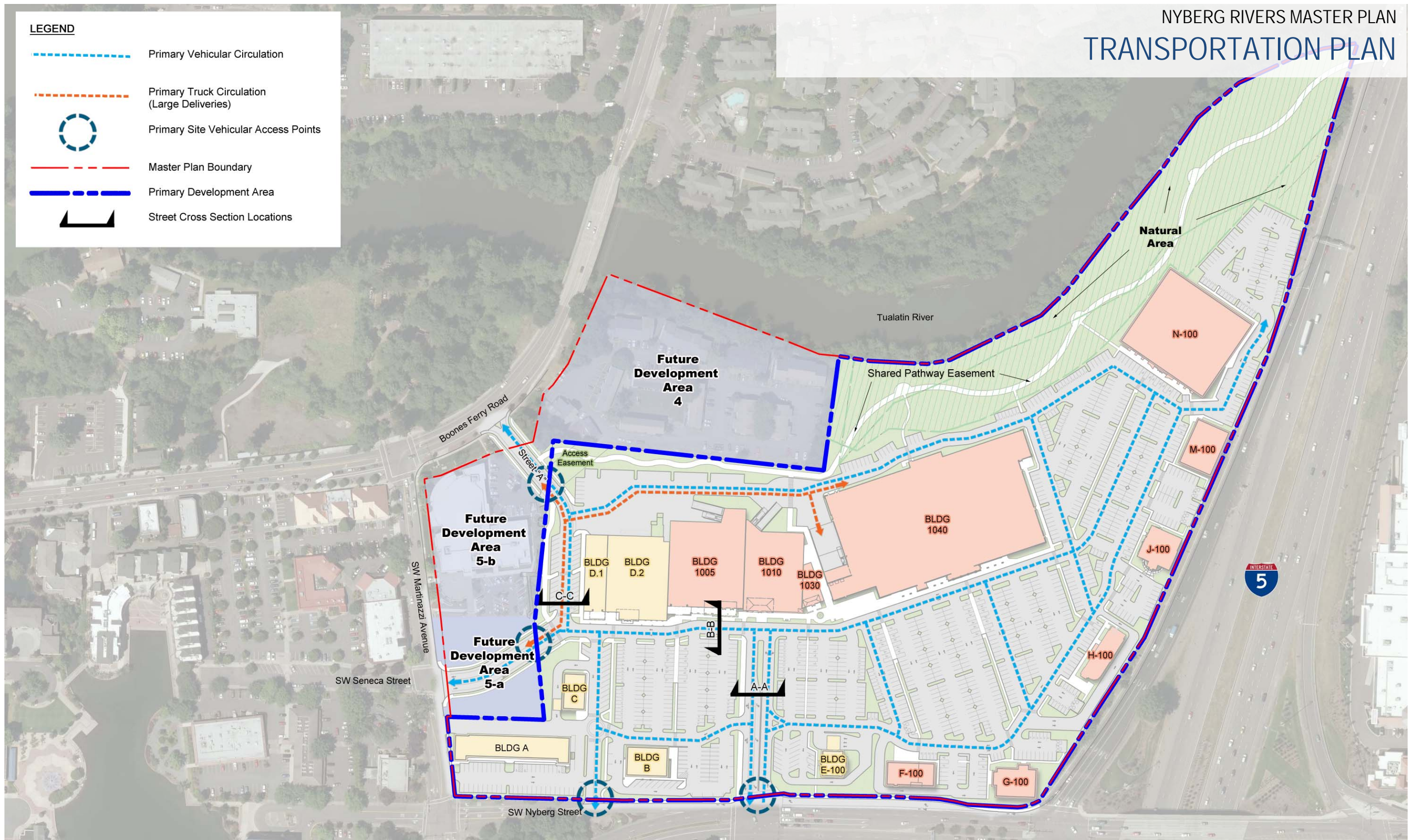


TOP: The Nyberg Rivers retail buildings will strengthen Tualatin's shopping district.

NYBERG RIVERS MASTER PLAN TRANSPORTATION PLAN

LEGEND

- Primary Vehicular Circulation
- Primary Truck Circulation (Large Deliveries)
- Primary Site Vehicular Access Points
- Master Plan Boundary
- Primary Development Area
- Street Cross Section Locations



TRANSPORTATION CIRCULATION PLAN

The Nyberg Rivers Master Plan is designed to be integrated into Tualatin’s transportation network. The Plan is also designed to respond to the City’s long-range transportation plans. The Transportation Circulation Plan of this document provides planning for Blocks 1, 2, 3, 4, and 5 of the Urban Renewal Area but focuses most detail on the Primary Development Area.

Surrounding Transportation Network

The Nyberg Rivers Master Plan abuts Nyberg Street to the south, Martinazzi Avenue to the West and Boones Ferry Road to the North. Nyberg Street is designated as a Major Arterial for the eastern portions of the site and is designated as a Minor Collector for the western portions at the roadway split to Tualatin-Sherwood Road. Martinazzi Avenue is designation as a Minor Arterial and Boones Ferry Road is a Major Arterial. Seneca Street is designated as a Collector, is currently off-set at its intersection with Martinazzi Avenue and is planned for future alignment by the Transportation System Plan.

Site Access

The Master Plan will be developed with four primary access points; two from Nyberg Street, one from Seneca Street and one from Boone Ferry Road by way of new Street “A”. Secondary access points will be maintained and/or occur from along Martinazzi Avenue and Boones Ferry Road (Future Development Area 4).

Site Circulation

The Master Plan is designed to function efficiently with on-site circulation. The Transportation Plan illustrates the primary vehicular and truck circulation routes for the Primary Development Area of the Master Plan.

The primary vehicular circulation routes are planned within the site to allow for safe, efficient, and attractive movement. First, the Plan anticipates an extension of Seneca Street from the Tualatin Commons and extending into the project site. Second, Street “A” is a new roadway connection from Boones Ferry Road into the site. Street “A” along the western side of Building D. Together, the Seneca Street connection and Street “A” provide a vital internal circulation connection and act as an extension of the downtown roadway pattern.

The most dominate route into the plan area is a north-south divided drive from Nyberg Street that terminates at the main storefronts. The east-west drive along the storefronts is generously-wide and connects to Seneca Street and to Street “A”. The east-west drive terminates at the eastern portions of the project. A second east-west drive provides additional site circulation to the southern buildings. A second north-south drive provides a connection

between less intense portions of Nyberg Street and the east-west storefront drive. Several other north-south routes provide efficient site circulation. Finally, the Primary Development Area allows for full vehicular access around Buildings D, 1005, 1010, 1030 and 1040.

Primary truck circulation for the Primary Development Area is planned to occur from Martinazzi and Boones Ferry Road by way of Seneca Street and new Street “A”. Large truck deliveries are planned to occur at loading docks within the east-west drive north of Buildings D, 1005, 1010, 1030, and 1040. The other buildings are planned to receive smaller truck delivers that can be accessible via any of the adjoining driveways.

Future Access

The Master Plan is designed to allow for future access to other prospective redevelopment areas. The Master Plan includes an access easement from Street “A” to serve Future Development Area 4. If this area is redeveloped, a local roadway connection can occur at this location to allow for internal, cross access to all uses within the Master Plan area. Future Development Areas 5-a and 5-b can occur from a future Seneca Street extension from Martinazzi Avenue into the project.

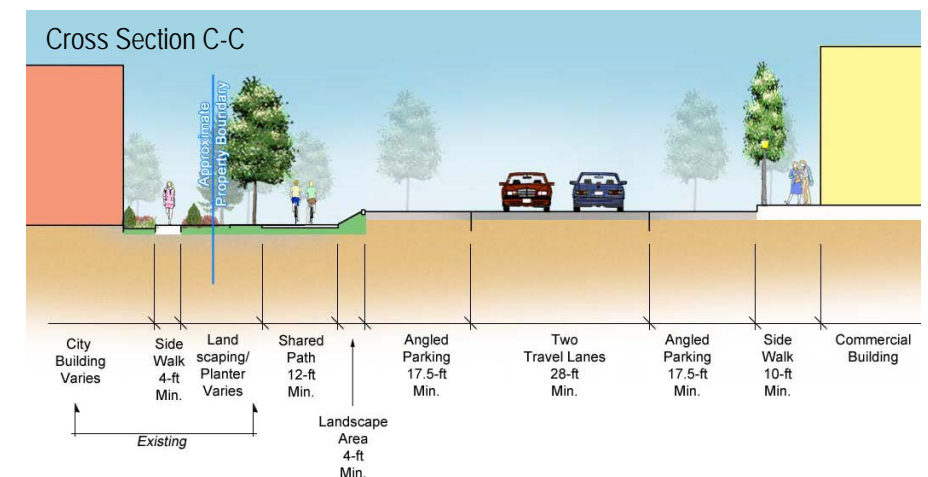
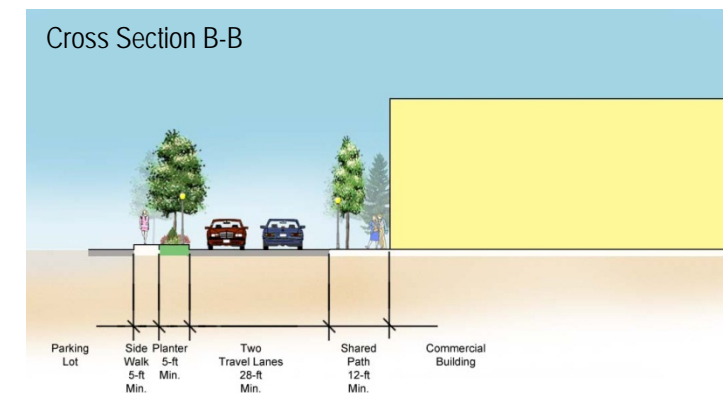
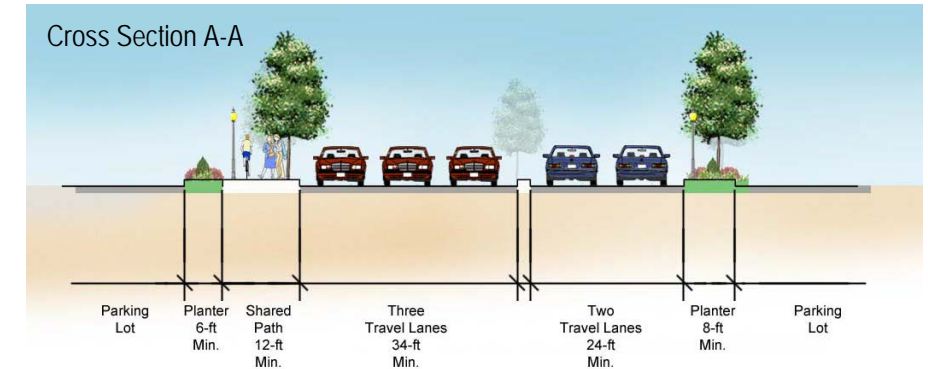
Transportation System Plan Conformance

The Master Plan responds to and conforms to the February 2013 City of Tualatin Transportation System Plan (TSP) in terms of access, roadway extensions, and linkages. Nyberg Street and Boones Ferry Road are Major Arterials, access to the Primary Development Areas is limited to shared access drives that serve the entire Master Plan area. Martinazzi Avenue is a Minor Arterial; access to this roadway is by way of Seneca Street into the site. Boones Ferry Road is a Major Arterial and new access is limited to a new local roadway, Street “A”. This configuration allows internal connections to various areas of the Master Plan without the need for a new driveway cut for each particular use.

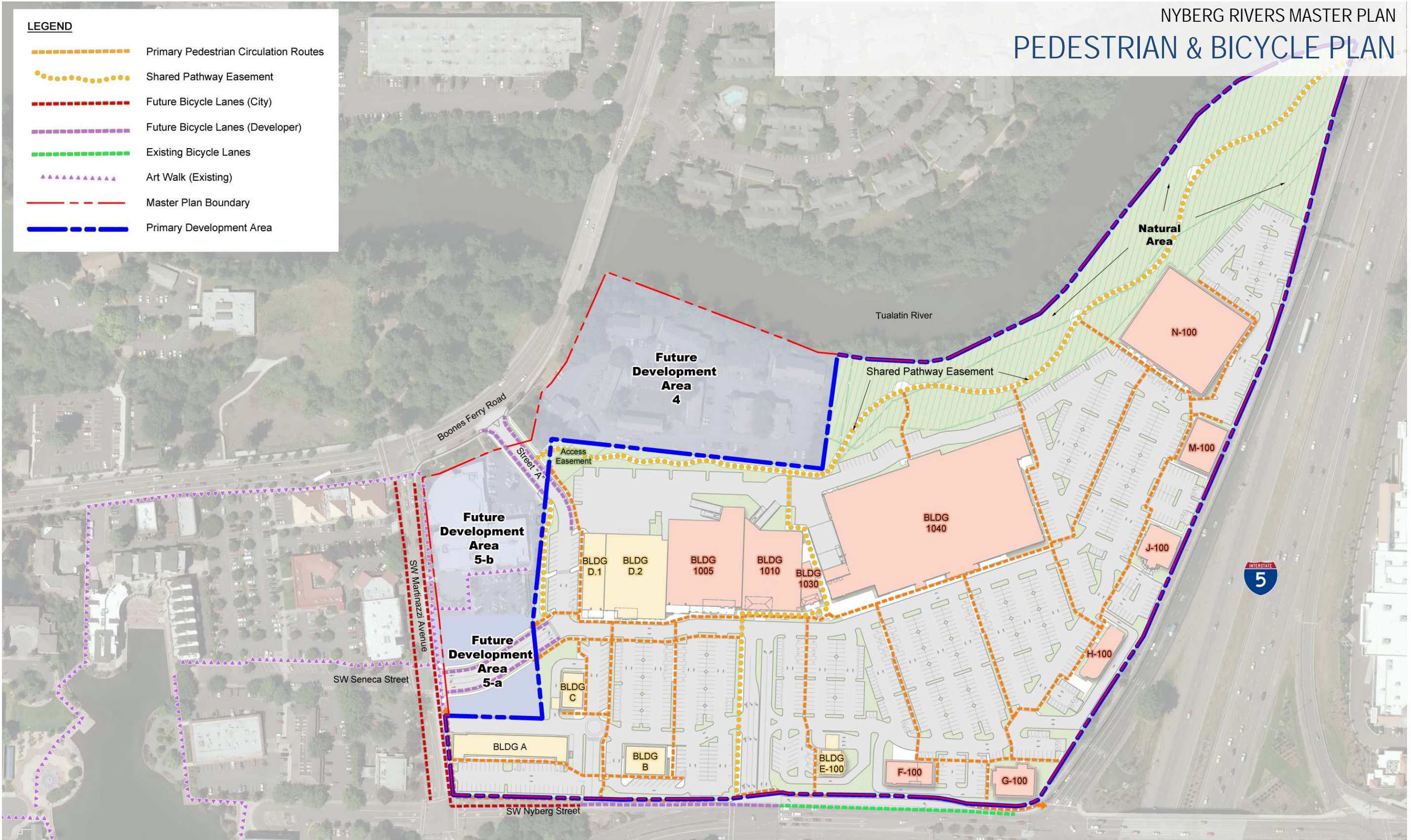
The TSP delineates two future minor collector connections across the Master Plan Area. Seneca Street provides for the east-west connection as identified on the TSP. Street “A” provides for a portion of the north-south TSP connection. The residual future connection is accommodated with the east-west drive along Building B, 1005, 1010, and 1030. The drive is design to resemble a City roadway with street trees and sidewalks. The north-south divided drive extending to Nyberg Street completes the TSP delineated connection. To strengthen this connection, no parking stalls are provided directly on the east-west storefront drive or the north-south divided drive.

Street Cross Sections

Conceptual street cross sections have been planned for key locations within the Primary Development Area of the Master Plan to achieve vital connections and to achieve a high-quality pedestrian experience. Specifically, the main north-south divided drive (Section A-A), the east-west storefront drive (Section B-B), the areas of Street “A” that transitions into a drive (Section C-C) are principal roadways that have underground detailed design consideration. The Transportation Plan illustrates the locations of these cross sections. The following cross sections illustrate the general design for these linkages.



NYBERG RIVERS MASTER PLAN
PEDESTRIAN & BICYCLE PLAN



PEDESTRIAN AND BICYCLE PLAN

The Nyberg Rivers Master Plan is designed to be integrated into the Tualatin pedestrian and trail network. The Plan is also designed to respond to the City’s long-range transportation plans. The Pedestrian and Bicycle Plan of this document provides planning for Blocks 1, 2, 3, 4, and 5 of the Urban Renewal Area but focus most detail on the Primary Development Area.

Surrounding Pedestrian / Bicycle Network

The Master Plan area is located amongst a well-equipped pedestrian fabric. All adjacent roadways have sidewalks. The larger Tualatin Commons area of the downtown area is characterized as a high-quality, pedestrian district.

Nyberg Street has existing bicycle lanes along most of the southern project boundary. The remaining areas are planned for future bicycle facilities. Boones Ferry Road has bicycle lanes for the portions directly around project site. Martinazzi Avenue is planned for future bicycle lanes.

There is a planned multi-use pathway is delineated along the Tualatin River. Other trails are located nearby to the west. Tualatin Commons includes pathways around the town lake. The City has established the Art Walk, a self-guided tour of Tualatin’s diverse public art, natural and cultural history. The Art Walk extends around the town lake, along Martinazzi and terminates at the library (located in Future Development Area 5-b)

Site Access

The Master Plan is designed to provide multiple areas for pedestrian and bicycle access. Bicycles can access the site via any of the driveway connections. The Seneca Street extension and Street “A” are planned with bicycle facilities. The east-west connection in front of the storefronts is planned to create a comfortable environment for bicyclists. A north-south shared pathway is planned along the divided access drive.

The Master Plan is designed with designated pedestrian pathways and sidewalks to access the site. Three north-south pedestrian accessways are provided from Nyberg Street. These accessways are designed as protected and landscaped sidewalks across the parking fields and connecting directly to the primary storefronts. The central-most north-south pedestrian connection that bisects the site provides a pedestrian/bicycle connection from Nyberg Street to the Tualatin River shared pathway easement. Sidewalks are provided alongside Street “A” from Boones Ferry Road and along the Seneca Street extension from Martinazzi Avenue.

Site Circulation

The Master Plan is designed with safe, attractive and efficient pedestrian circulation. Along with the sidewalks planned along the roadway facilities, the Primary Development Area includes separate, designated pedestrian pathways that interconnect all buildings and land uses. Sidewalks are planned along all primary building facades. Individual buildings are interconnected with pedestrian pathways that traverse parking fields to protect pedestrians and create a comfortable walking experience. Additionally, sidewalks are planned to connect to buildings and to the Future Development Area(s).

The sidewalks located along the primary storefronts of Buildings D, 1005, 1010, 1030, and 1040 will create an enhanced pedestrian experience. This pedestrian area is designed as an extension of the downtown core and will include wide sidewalks, outdoor seating, landscape planters, and other pedestrian amenities.

Shared Pathway Easement

The Master Plan includes three Shared Pathways Easement locations to accommodate future multi-use pathways. A Shared Pathway Easement is planned within the natural Area immediately adjacent to the Tualatin River and continuing to the west. A second Shared Pathway Easement is designated in the open space areas between the Primary Development Area and Future Development Area 5-a (existing library). This shared pathway easement provides a north-south connection between Seneca Street and Boones Ferry Road. A third shared pathway easement, running north-south, is provided alongside the divided entry drive from Nyberg Street. This north-south connection continues between Buildings 1030 and 1040. The Shared Pathway Easements are planned to accommodate a 12-ft wide paved pathway with 2 feet of clearance on both sides.

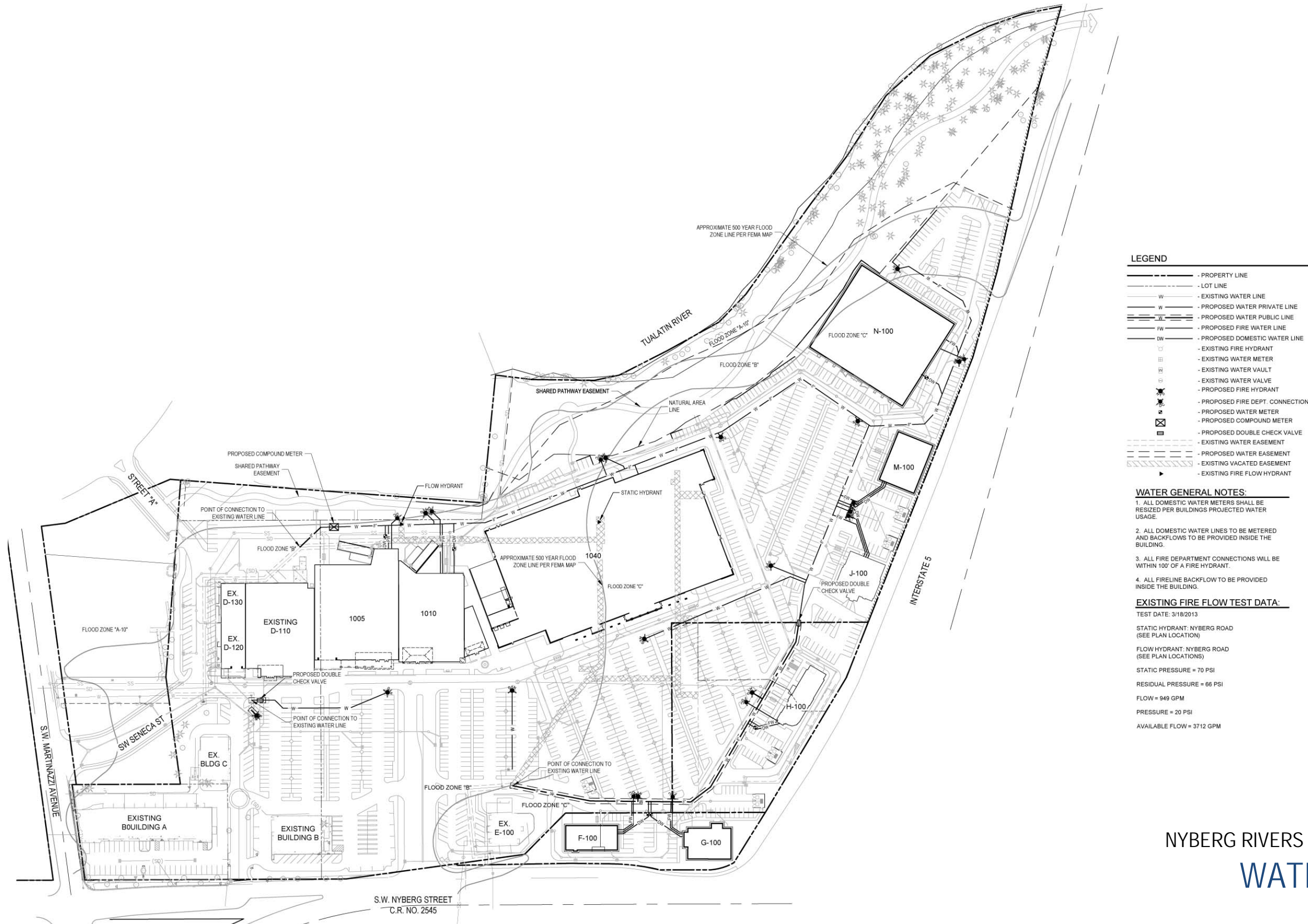
Transportation System Plan Conformance

The Master Plan responds to and conforms to the February 2013 City of Tualatin Transportation System Plan (TSP) with regards to pedestrian and bicycle facilities. The TSP delineates two future minor collector connections across the Master Plan Area. The planned Seneca Street extension provides for the east-west connection as identified on the TSP. Street “A” provides for a portion of the north-south TSP connection. The residual future connection is accommodated with the east-west connection along Building B, 1005, 1010, and 1030 and the north-south divided entry drive. The TSP calls for this connection to contain pedestrian and bicycle facilities, the Primary Development Area of the Master Plan complies with these planning policies through the provisions of shared facilities, shared pathway easements, and storefront sidewalks.

The TSP delineates a multi-use pathway along the Tualatin River. The Primary Development Area of the Master Plan includes a shared pathway easement within the natural area along the river. This connection is continued with a shared pathway connection just south of the Future Development Area 5.



TOP: All Nyberg Rivers retail buildings will be interconnected with sidewalks and pedestrian accessways.



LEGEND

	- PROPERTY LINE
	- LOT LINE
	- EXISTING WATER LINE
	- PROPOSED WATER PRIVATE LINE
	- PROPOSED WATER PUBLIC LINE
	- PROPOSED FIRE WATER LINE
	- PROPOSED DOMESTIC WATER LINE
	- EXISTING FIRE HYDRANT
	- EXISTING WATER METER
	- EXISTING WATER VAULT
	- EXISTING WATER VALVE
	- PROPOSED FIRE HYDRANT
	- PROPOSED FIRE DEPT. CONNECTION
	- PROPOSED WATER METER
	- PROPOSED COMPOUND METER
	- PROPOSED DOUBLE CHECK VALVE
	- EXISTING WATER EASEMENT
	- PROPOSED WATER EASEMENT
	- EXISTING VACATED EASEMENT
	- EXISTING FIRE FLOW HYDRANT

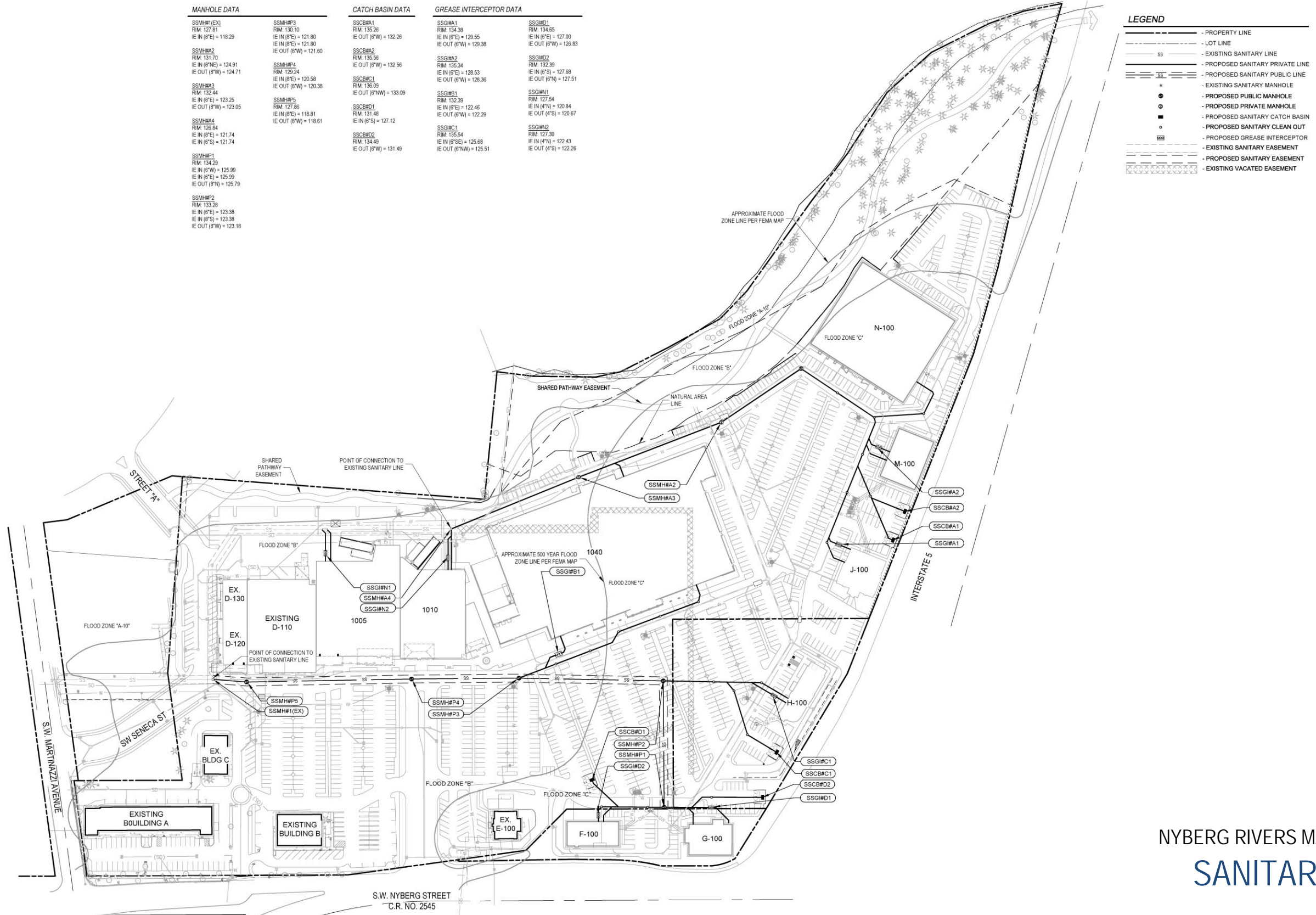
WATER GENERAL NOTES:

1. ALL DOMESTIC WATER METERS SHALL BE RESIZED PER BUILDINGS PROJECTED WATER USAGE.
2. ALL DOMESTIC WATER LINES TO BE METERED AND BACKFLOWS TO BE PROVIDED INSIDE THE BUILDING.
3. ALL FIRE DEPARTMENT CONNECTIONS WILL BE WITHIN 100' OF A FIRE HYDRANT.
4. ALL FIRELINE BACKFLOW TO BE PROVIDED INSIDE THE BUILDING.

EXISTING FIRE FLOW TEST DATA:

TEST DATE: 3/18/2013
 STATIC HYDRANT: NYBERG ROAD (SEE PLAN LOCATION)
 FLOW HYDRANT: NYBERG ROAD (SEE PLAN LOCATIONS)
 STATIC PRESSURE = 70 PSI
 RESIDUAL PRESSURE = 66 PSI
 FLOW = 949 GPM
 PRESSURE = 20 PSI
 AVAILABLE FLOW = 3712 GPM

NYBERG RIVERS MASTER PLAN
WATER PLAN



MANHOLE DATA		CATCH BASIN DATA		GREASE INTERCEPTOR DATA	
SSMH#1(EX) RIM 127.81 IE IN (8"E) = 118.29	SSMH#3 RIM 130.10 IE IN (8"E) = 121.80 IE IN (8"E) = 121.80 IE OUT (8"W) = 121.60	SSCB#1 RIM 135.26 IE OUT (6"W) = 132.26	SSCB#2 RIM 135.56 IE OUT (6"W) = 132.56	SSG#A1 RIM 134.38 IE IN (8"E) = 128.55 IE OUT (6"W) = 129.38	SSG#D1 RIM 134.65 IE IN (8"E) = 127.00 IE OUT (6"W) = 126.83
SSMH#2 RIM 131.70 IE IN (8"E) = 124.91 IE OUT (6"W) = 124.71	SSMH#4 RIM 129.24 IE IN (8"E) = 120.58 IE OUT (6"W) = 120.38	SSCB#1 RIM 136.09 IE OUT (6"W) = 133.09	SSCB#1 RIM 131.48 IE IN (6"S) = 127.12	SSG#A2 RIM 135.34 IE IN (8"E) = 128.53 IE OUT (6"W) = 128.36	SSG#D2 RIM 132.39 IE IN (8"S) = 127.68 IE OUT (6"W) = 127.51
SSMH#3 RIM 132.44 IE IN (8"E) = 123.25 IE OUT (6"W) = 123.05	SSMH#5 RIM 127.86 IE IN (8"E) = 118.81 IE OUT (6"W) = 118.61	SSCB#1 RIM 131.48 IE IN (6"S) = 127.12	SSCB#2 RIM 134.49 IE OUT (6"W) = 131.49	SSG#B1 RIM 132.39 IE IN (8"E) = 122.46 IE OUT (6"W) = 122.29	SSG#H1 RIM 127.54 IE IN (4"N) = 120.84 IE OUT (4"S) = 120.67
SSMH#4 RIM 126.84 IE IN (8"E) = 121.74 IE IN (8"S) = 121.74				SSG#C1 RIM 135.54 IE IN (8"SE) = 125.68 IE OUT (6"W) = 125.51	SSG#H2 RIM 127.30 IE IN (4"N) = 122.43 IE OUT (4"S) = 122.26
SSMH#P1 RIM 134.29 IE IN (6"W) = 125.99 IE IN (8"E) = 125.99 IE OUT (8"W) = 125.79					
SSMH#P2 RIM 133.28 IE IN (8"E) = 123.38 IE IN (8"S) = 123.38 IE OUT (8"W) = 123.18					

LEGEND

- — — — — PROPERTY LINE
- — — — — LOT LINE
- — — — — EXISTING SANITARY LINE
- — — — — PROPOSED SANITARY PRIVATE LINE
- — — — — PROPOSED SANITARY PUBLIC LINE
- EXISTING SANITARY MANHOLE
- PROPOSED PUBLIC MANHOLE
- PROPOSED PRIVATE MANHOLE
- PROPOSED SANITARY CATCH BASIN
- PROPOSED SANITARY CLEAN OUT
- ▭ PROPOSED GREASE INTERCEPTOR
- - - - - EXISTING SANITARY EASEMENT
- - - - - PROPOSED SANITARY EASEMENT
- ▨ EXISTING VACATED EASEMENT

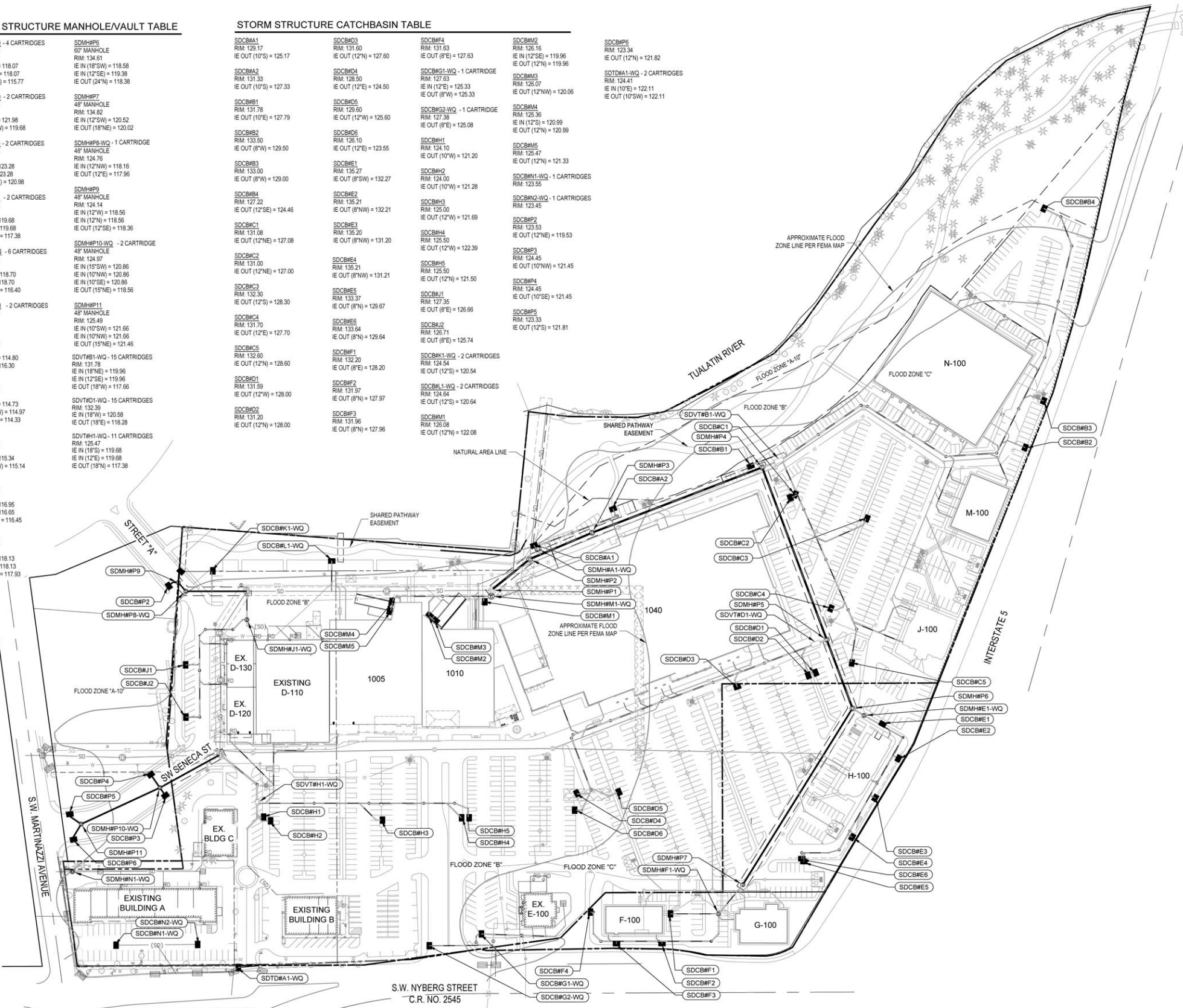
NYBERG RIVERS MASTER PLAN
SANITARY PLAN

STORM STRUCTURE MANHOLE/VAULT TABLE

SDMH#1-WQ - 4 CARTRIDGES 72" MANHOLE RIM: 129.57 IE IN (15'NE) = 118.07 IE IN (10'NW) = 118.07 IE OUT (12'SE) = 115.77	SDMH#2 60" MANHOLE RIM: 134.61 IE IN (18'SW) = 118.58 IE IN (12'SE) = 118.07 IE OUT (24'N) = 118.38	SDMH#1-WQ - 2 CARTRIDGES 48" MANHOLE RIM: 125.84 IE IN (12'SE) = 121.98 IE OUT (12'NW) = 119.68	SDMH#2-WQ - 1 CARTRIDGE 48" MANHOLE RIM: 134.50 IE IN (12'S) = 123.28 IE IN (8'W) = 122.28 IE OUT (12'NE) = 120.98	SDMH#1-WQ - 2 CARTRIDGES 48" MANHOLE RIM: 130.17 IE IN (12'S) = 119.68 IE IN (10'W) = 119.68 IE OUT (12'N) = 117.38	SDMH#1-WQ - 6 CARTRIDGES 72" MANHOLE RIM: 128.57 IE IN (12'W) = 118.70 IE IN (10'SE) = 120.86 IE OUT (12'N) = 116.40	SDMH#1-WQ - 2 CARTRIDGES 48" MANHOLE RIM: 124.24 IE IN (10'W) = 121.66 IE IN (10'NW) = 121.55 IE OUT (15'NE) = 121.46	SDVT#B1-WQ - 15 CARTRIDGES RIM: 131.78 IE IN (18'NE) = 119.96 IE IN (12'SE) = 119.96 IE OUT (18'W) = 117.56	SDVT#D1-WQ - 15 CARTRIDGES RIM: 132.39 IE IN (15'W) = 120.58 IE OUT (18'E) = 118.28	SDVT#H1-WQ - 11 CARTRIDGES RIM: 125.47 IE IN (24'S) = 115.34 IE OUT (24'W) = 115.14	SDMH#4 60" MANHOLE RIM: 131.72 IE IN (18'E) = 116.95 IE IN (24'S) = 116.65 IE OUT (24'W) = 116.45	SDMH#5 60" MANHOLE RIM: 132.31 IE IN (24'S) = 118.13 IE IN (18'W) = 118.13 IE OUT (24'N) = 117.93
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STORM STRUCTURE CATCHBASIN TABLE

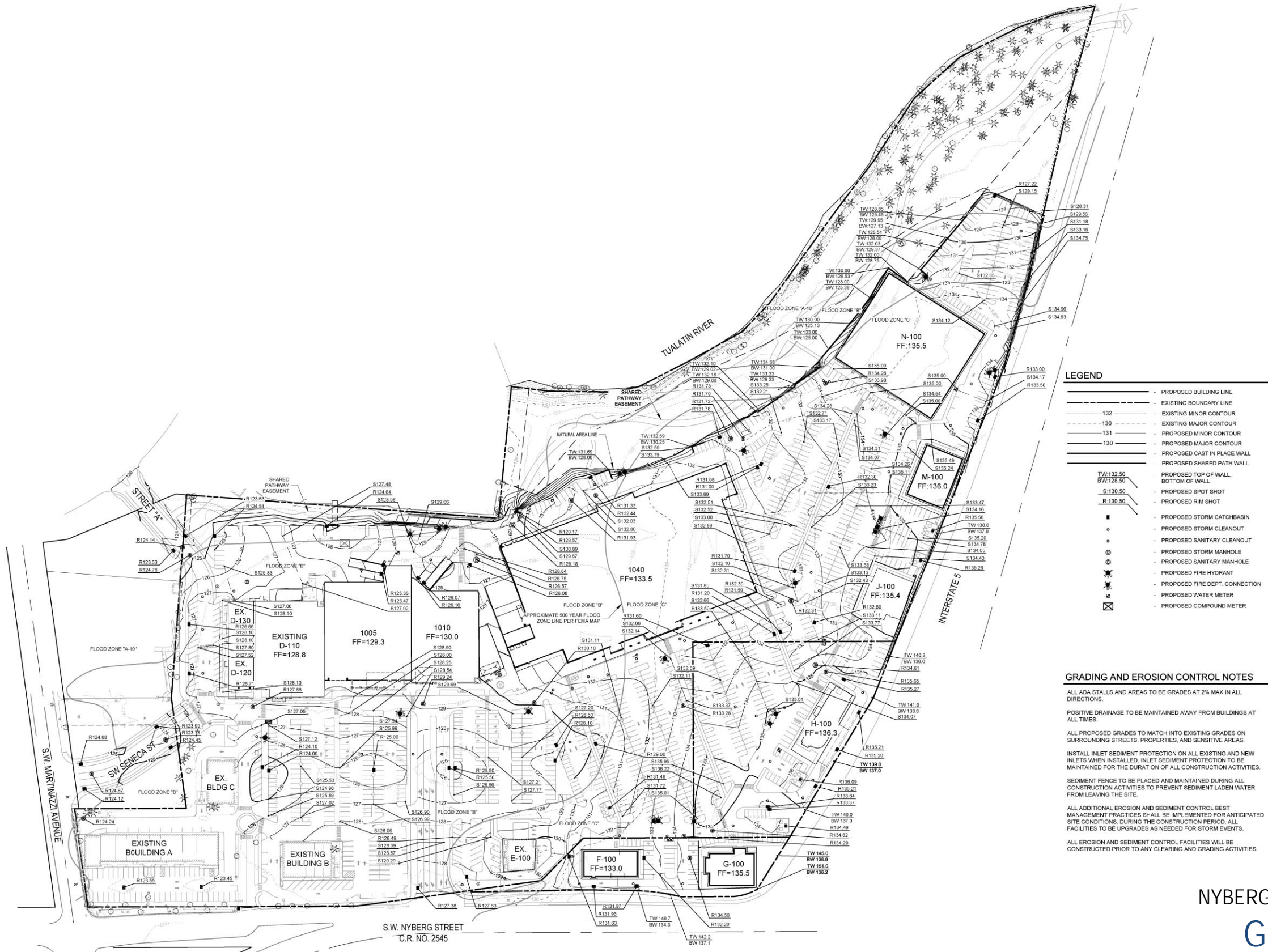
SDCB#A1 RIM: 129.17 IE OUT (10'S) = 125.17	SDCB#D3 RIM: 131.60 IE OUT (12'N) = 127.60	SDCB#F4 RIM: 131.63 IE OUT (8'E) = 127.63	SDCB#M2 RIM: 125.16 IE IN (12'SE) = 119.96 IE OUT (12'N) = 119.96
SDCB#A2 RIM: 131.33 IE OUT (10'S) = 127.33	SDCB#D4 RIM: 128.50 IE OUT (12'E) = 124.50	SDCB#G1-WQ - 1 CARTRIDGE RIM: 127.63 IE IN (12'E) = 125.33 IE OUT (8'W) = 125.33	SDCB#M3 RIM: 125.07 IE OUT (12'NW) = 120.06
SDCB#B1 RIM: 131.78 IE OUT (10'E) = 127.79	SDCB#E5 RIM: 129.60 IE OUT (12'E) = 125.60	SDCB#G2-WQ - 1 CARTRIDGE RIM: 127.36 IE OUT (8'E) = 125.08	SDCB#M4 RIM: 125.39 IE IN (12'S) = 120.99 IE OUT (12'N) = 120.99
SDCB#B2 RIM: 133.50 IE OUT (8'W) = 129.50	SDCB#E6 RIM: 126.10 IE OUT (12'E) = 123.55	SDCB#H1 RIM: 124.10 IE OUT (10'W) = 121.20	SDCB#M5 RIM: 125.47 IE OUT (12'N) = 121.33
SDCB#B3 RIM: 133.00 IE OUT (8'W) = 129.00	SDCB#E1 RIM: 135.27 IE OUT (8'SW) = 132.27	SDCB#H2 RIM: 124.00 IE OUT (10'W) = 121.28	SDCB#N1-WQ - 1 CARTRIDGES RIM: 123.55
SDCB#B4 RIM: 127.22 IE OUT (12'SE) = 124.46	SDCB#E2 RIM: 135.21 IE OUT (8'NW) = 132.21	SDCB#H3 RIM: 125.00 IE OUT (12'W) = 121.69	SDCB#N2-WQ - 1 CARTRIDGES RIM: 123.45
SDCB#C1 RIM: 131.08 IE OUT (12'NE) = 127.08	SDCB#E3 RIM: 135.20 IE OUT (8'NW) = 131.20	SDCB#H4 RIM: 125.50 IE OUT (12'W) = 122.39	SDCB#P2 RIM: 123.53 IE OUT (12'NE) = 119.53
SDCB#C2 RIM: 131.00 IE OUT (12'NE) = 127.00	SDCB#E4 RIM: 135.21 IE OUT (8'NW) = 131.21	SDCB#H5 RIM: 125.50 IE OUT (12'N) = 121.50	SDCB#P3 RIM: 124.45 IE OUT (10'NW) = 121.45
SDCB#C3 RIM: 132.30 IE OUT (12'S) = 128.30	SDCB#E5 RIM: 133.37 IE OUT (8'N) = 129.67	SDCB#I1 RIM: 127.35 IE OUT (8'E) = 126.66	SDCB#P4 RIM: 124.45 IE OUT (10'SE) = 121.45
SDCB#C4 RIM: 131.70 IE OUT (12'E) = 127.70	SDCB#E6 RIM: 133.64 IE OUT (8'N) = 129.64	SDCB#I2 RIM: 126.71 IE OUT (8'E) = 125.74	SDCB#P5 RIM: 123.33 IE OUT (12'S) = 121.81
SDCB#C5 RIM: 132.60 IE OUT (12'N) = 128.60	SDCB#F1 RIM: 132.20 IE OUT (8'E) = 128.20	SDCB#L1-WQ - 2 CARTRIDGES RIM: 124.54 IE OUT (12'S) = 120.54	
SDCB#D1 RIM: 131.59 IE OUT (12'W) = 128.00	SDCB#F2 RIM: 131.97 IE OUT (8'N) = 127.97	SDCB#L1-WQ - 2 CARTRIDGES RIM: 131.59 IE OUT (12'S) = 120.64	
SDCB#D2 RIM: 131.20 IE OUT (12'N) = 128.00	SDCB#F3 RIM: 131.96 IE OUT (8'N) = 127.96	SDCB#M1 RIM: 126.08 IE OUT (12'N) = 122.08	



LEGEND

- - - - - PROPERTY LINE
- - - - - LOT LINE
- - - - - EXISTING STORM LINE
- - - - - PROPOSED STORM PRIVATE LINE
- - - - - PROPOSED STORM PUBLIC LINE
- EXISTING STORM MANHOLE
- PROPOSED STORM MANHOLE
- EXISTING STORM CATCH BASIN
- PROPOSED STORM CATCH BASIN
- PROPOSED STORM CLEAN OUT
- - - - - EXISTING STORM EASEMENT
- - - - - PROPOSED STORM EASEMENT
- - - - - EXISTING VACATED EASEMENT

NYBERG RIVERS MASTER PLAN
STORMWATER PLAN



LEGEND

- PROPOSED BUILDING LINE
- - - EXISTING BOUNDARY LINE
- 132 - - - EXISTING MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - 131 - - - PROPOSED MINOR CONTOUR
- - - 130 - - - PROPOSED MAJOR CONTOUR
- - - PROPOSED CAST IN PLACE WALL
- - - PROPOSED SHARED PATH WALL
- TW 132.50
BW 128.50
S 130.50
R 130.50
- - - PROPOSED TOP OF WALL, BOTTOM OF WALL
- - - PROPOSED SPOT SHOT
- - - PROPOSED RIM SHOT
- PROPOSED STORM CATCHBASIN
- PROPOSED STORM CLEANOUT
- PROPOSED SANITARY CLEANOUT
- ⊙ PROPOSED STORM MANHOLE
- ⊙ PROPOSED SANITARY MANHOLE
- ⊙ PROPOSED FIRE HYDRANT
- ⊙ PROPOSED FIRE DEPT. CONNECTION
- ⊙ PROPOSED WATER METER
- ⊙ PROPOSED COMPOUND METER

GRADING AND EROSION CONTROL NOTES

ALL ADA STALLS AND AREAS TO BE GRADES AT 2% MAX IN ALL DIRECTIONS.

POSITIVE DRAINAGE TO BE MAINTAINED AWAY FROM BUILDINGS AT ALL TIMES.

ALL PROPOSED GRADES TO MATCH INTO EXISTING GRADES ON SURROUNDING STREETS, PROPERTIES, AND SENSITIVE AREAS.

INSTALL INLET SEDIMENT PROTECTION ON ALL EXISTING AND NEW INLETS WHEN INSTALLED. INLET SEDIMENT PROTECTION TO BE MAINTAINED FOR THE DURATION OF ALL CONSTRUCTION ACTIVITIES.

SEDIMENT FENCE TO BE PLACED AND MAINTAINED DURING ALL CONSTRUCTION ACTIVITIES TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE.

ALL ADDITIONAL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED FOR ANTICIPATED SITE CONDITIONS DURING THE CONSTRUCTION PERIOD. ALL FACILITIES TO BE UPGRADES AS NEEDED FOR STORM EVENTS.

ALL EROSION AND SEDIMENT CONTROL FACILITIES WILL BE CONSTRUCTED PRIOR TO ANY CLEARING AND GRADING ACTIVITIES.

NYBERG RIVERS MASTER PLAN
GRADING PLAN

CONCEPTUAL UTILITY PLANS

The Nyberg Rivers Master Plan is conceptually designed for utilities. The Utilities Plan of this document provides planning for Blocks 1, 2, 3, 4, and 5 of the Urban Renewal Area but focuses detail on the Primary Development Area.

Water Facilities

All proposed and existing buildings will be served by the proposed water system. The proposed water system onsite will extend a portion of the public water line with a 10 foot easement to serve the proposed buildings F-100, G-100, and H-100. At the property line the 8" public water line will change to an 8" private water line (proposed double check valve assembly to differentiate the private and public). This private portion of the water line will extend around the site to provide service to proposed buildings J-100, M-100, N-100, 1040, 1010, and 1005. A combined compound meter/double-check detector assembly is proposed to be installed at one end of the private loop with a double-check detector assembly proposed at the other public connection. Fire hydrants and FDC's have been placed around the proposed buildings for fire protection. All new buildings have been proposed as with fire sprinkler systems. A Water Plan is enclosed with this application for proposed layouts.

Sanitary Sewer Facilities

All sanitary sewers will be conveyed through an on-site sanitary sewer system. The proposed sanitary sewer system will reroute a portion of the public sewer line with a 15 foot easement to ensure sanitary service to the property in the southeast corner of the site and the acquired ODOT land (Proposed Building F-100, G-100, and H-100). A proposed main private sanitary line that serves proposed buildings J-100, M-100, N-100, 1005, 1010, and 1040 will run north of the proposed buildings and connect into the existing public sanitary sewer line. Grease interceptors will be located prior to the public sanitary sewer line connection for any proposed restaurant or building tenant requiring grease interceptors. Sanitary sewer service will also be extended to the covered trash enclosures onsite. A Sanitary Plan is enclosed with this application for proposed layouts.

Stormwater Facilities

The proposed project includes the construction of public and private storm sewer lines. All on-site surface water will be captured, conveyed and treated through an on-site stormwater system before discharged into the public system. Public storm lines have been designed for Street "A" and SW Seneca Street extension with treatment from Contech stormfilter structures. Additionally, a public storm line with a 15-foot easement has been proposed behind the proposed retail buildings (1005, 1010, and 1040). The public line then runs south to serve the property in the southeast corner of the site and the acquired ODOT land (Proposed buildings F-100 and G-100). A private storm line will be extended to the north for connections to proposed buildings J-100, M-100, and N-100. The storm service for existing buildings "A", "B", and "C" will remain in place, but will be retrofit with Contech stormfilter structures to treat the existing impervious area.

The remainder of the site will be captured in sumped catch basins and conveyed to Contech stormfilter structures. Sumped catch basins and Contech stormfilter structures are an approved pretreatment and treatment device per the City of Tualatin and Clean Water Services. A Storm Drainage Plan and Drainage Report are enclosed with this application for proposed layouts and more information.

Grading Plan

The Primary Development Area will be graded to achieve relatively flat redevelopment site (between 1-4% slope in paved areas). This will require a wall along the southeast corner of the site. Cut and fill at this location will occur to result in a development site that is lower than the adjacent Interstate off ramp. The site will slope gradually to the north towards the Tualatin River. A second set of walls will constructed alongside but outside of the natural areas to insure no disturbance in the natural area. This stair-stepped approach to site grade will accomplish two goals; (1) avoid any grading within the natural area, and (2) minimize the height of any single wall.

LEGEND

TUALATIN RIVER PLANTINGS:

- Oregon White Oak
- Western Dogwood
- Douglas Fir
- Western Red Cedar
- Oregon Grape
- Nootka Rose
- Manzanita
- Sedges & Rushes

CENTRAL OREGON PLANTINGS:

- River Birch
- Thornless Honeylocust
- Toba Hawthorne
- Bristlecone Pine
- Alpine Fir
- Serviceberry
- Rabbitbush
- Big Sage
- Mountain Mahogany
- Potentilla
- Pioneer Juniper

COAST RANGE PLANTINGS:

- Shore Juniper
- Shore Pine
- Madrone
- Burr Oak
- Beach Rose
- Pacific Wax Myrtle
- Salal & Bunchberry
- American Dunegrass



Frontage Ecosystem Cross-Section



NYBERG RIVERS MASTER PLAN
LANDSCAPE THEMING PLAN

LANDSCAPE PLAN

The Primary Development Area of the Master Plan will provide complete landscape coverage for its frontages, open space areas, building foundations, and parking areas. The Primary Development Area exceeds the minimum code standards for 15 percent landscape coverage by over three acres.

Perimeter Landscaping

Roadway frontages will follow a native Oregon landscape theme that represents three of the State’s ecosystems; Tualatin Valley, Central Oregon, and Coastal Range. These themes will be strengthened with a defined planting palette and architectural features.

Open Space Areas

Each open space area will be heavily landscaped to create a comfortable and aesthetically-pleasing environment. The conservation area will be retained with its existing plant material and recognized as a valuable buffer to the Tualatin River. The other open spaces areas will include shade trees and shrubs to create a passive outdoor area. The tri-angled open space area south of Building 1040 will be improved as a dry-creek bed with complementing plantings and sculptural elements.

Foundation / Building Landscaping

Building foundations will be planted with landscape material to complement the architectural style and soften building appearance within the overall Master Plan. Areas with predominate storefronts, multiple entryways, covered arcades, and/or outdoor seating areas provide landscaping between the drive aisle and the pedestrian pathways to achieve a well vegetative urban environment. This is provided as an alternative to providing landscaping directly along the foundation.

Parking Lot Landscaping

Parking areas have been planned to exceed the code standard by providing an average of one landscape island with tree for every grouping of eight parking stalls. Parking area landscaping islands include an average of one shade tree, shrubs and ground cover.

Plant / Species List

The Primary Development Area of the Master Plan will be landscaped from the following plant list in order to achieve a complementary, holistic appearance.

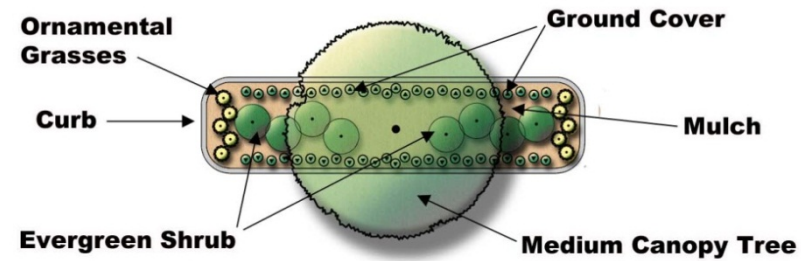
Nyberg Rivers Plant / Species List		
Trees	Alpine Fir	Serviceberry
	Beach Plum	Shore Juniper
	Bristlecone Pine	Shore Pine
	Burr Oak	Thornless Honeylocust
	Coast Live Oak	Toba Hawthorne
	Douglas Fir	Western Dogwood
	Madrone	Western Red Cedar
	Oregon White Oak	
	River Birch	
	Shrubs	Beach Rose
Big Sage		
Manzanita		
Mountain Mahogany		
Nootka Rose		
Oregon Grape		
Pacific Wax Myrtle		
Potentilla		
Rabbitbush		
Ground Cover	American Dunegrass	
	Bunchberry	
	Pioneer Juniper	
	Salal	
	Sedges and Rushes	
<p>Note: The aforementioned plant/species list is intended to establish the prominent plant varieties that will be used to landscape the Primary Development Area of the Nyberg Rivers Master Plan. This list does not exclude additional plant varieties from being incorporated into the design scheme.</p>		



Parking areas and access connectors with Nyberg Rivers will be landscaped and include canopy trees.

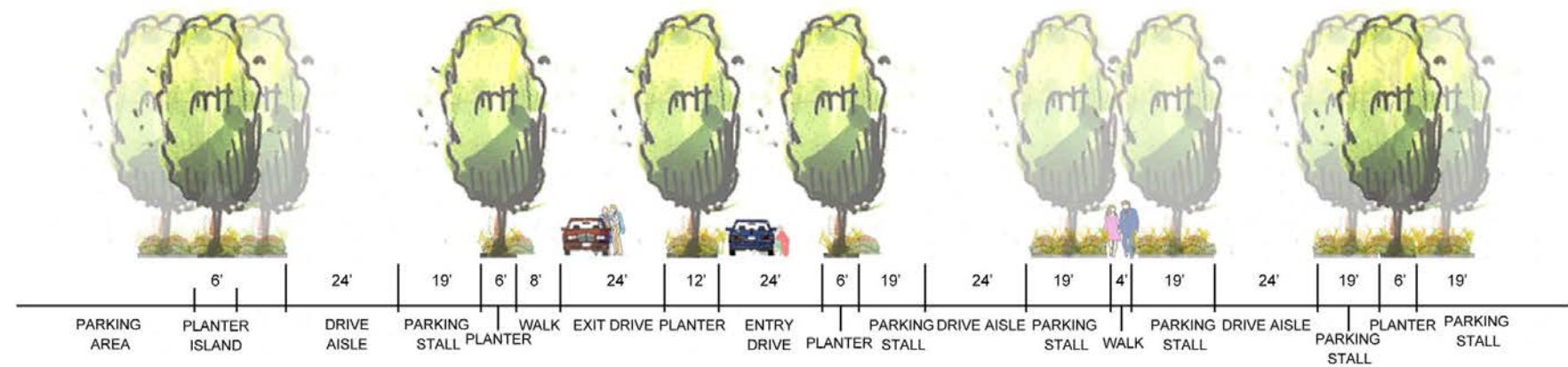
Typical Landscape Designs / Plans

The Primary Development Area of the Master Plan will be landscaped as part of each development phase but will following a consistent theme and project character. The following figures illustrate the typical landscape designs for the project.



Typical planting plan for full size landscape islands in parking fields

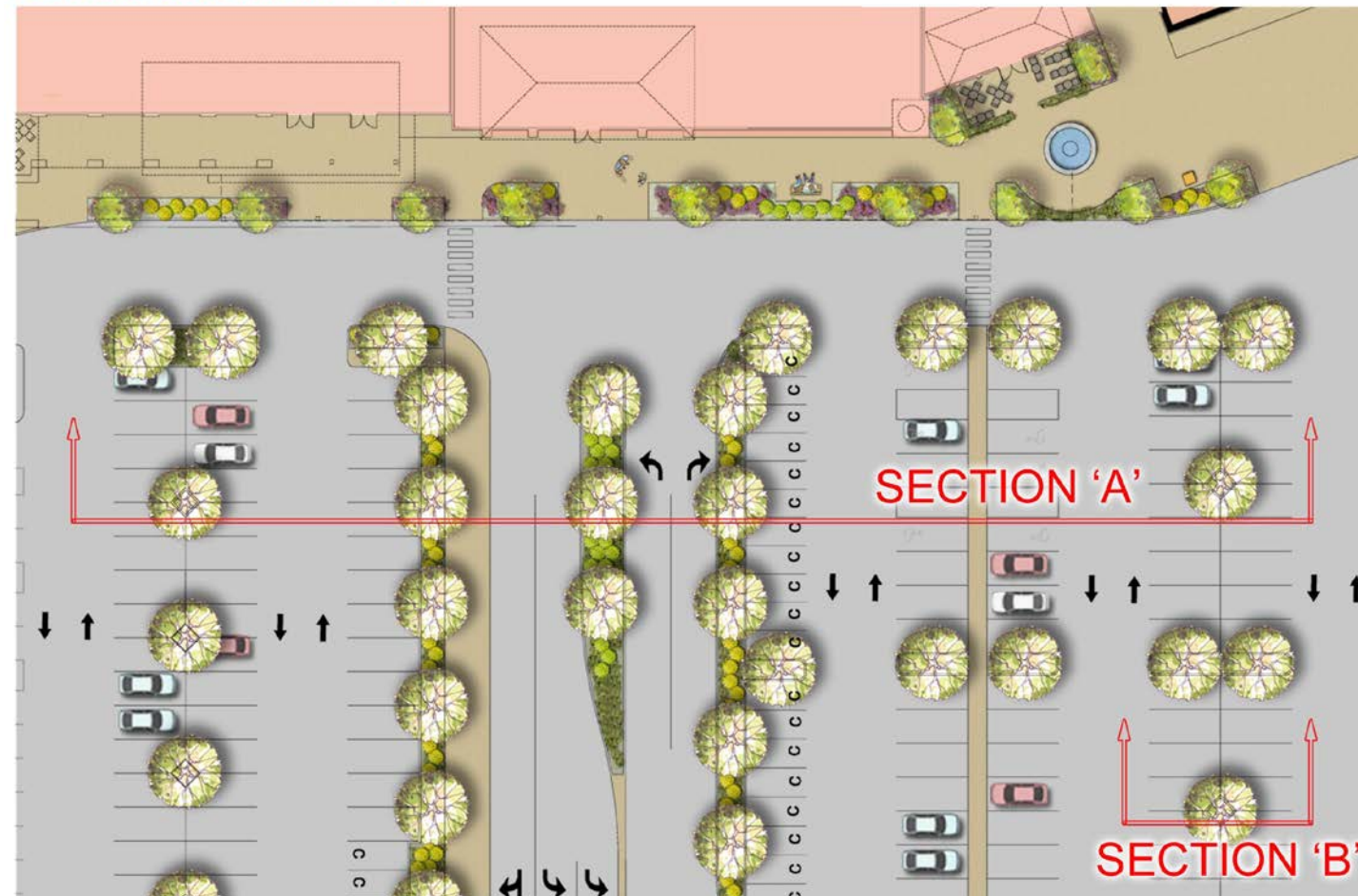
SECTION 'A'



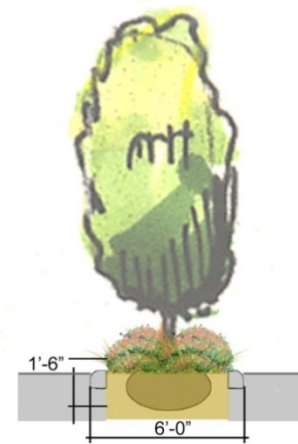
Section A illustrates the typical design for parking fields

ENLARGEMENT 'A'

Enlargement 'A' provided a typical design scheme for the pedestrian areas and parking fields central to the development



SECTION 'B'

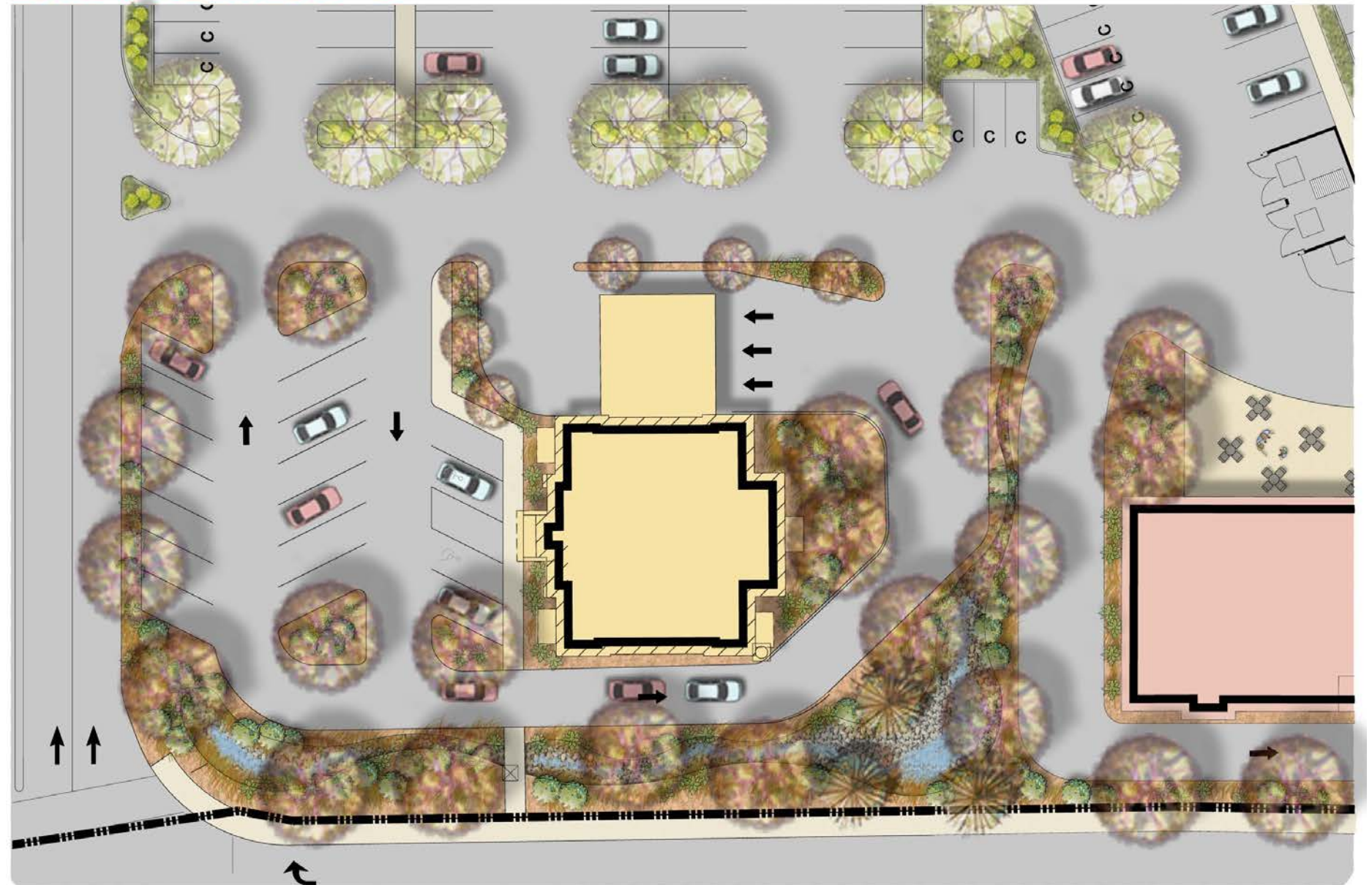


Section B illustrates the typical design for parking landscape diamonds

ENLARGEMENT 'B'



TOP: Open space areas may include sculptural elements to reinforce the overall project theme.
BOTTOM: Landscape themes will represent a native Oregon ecosystem.



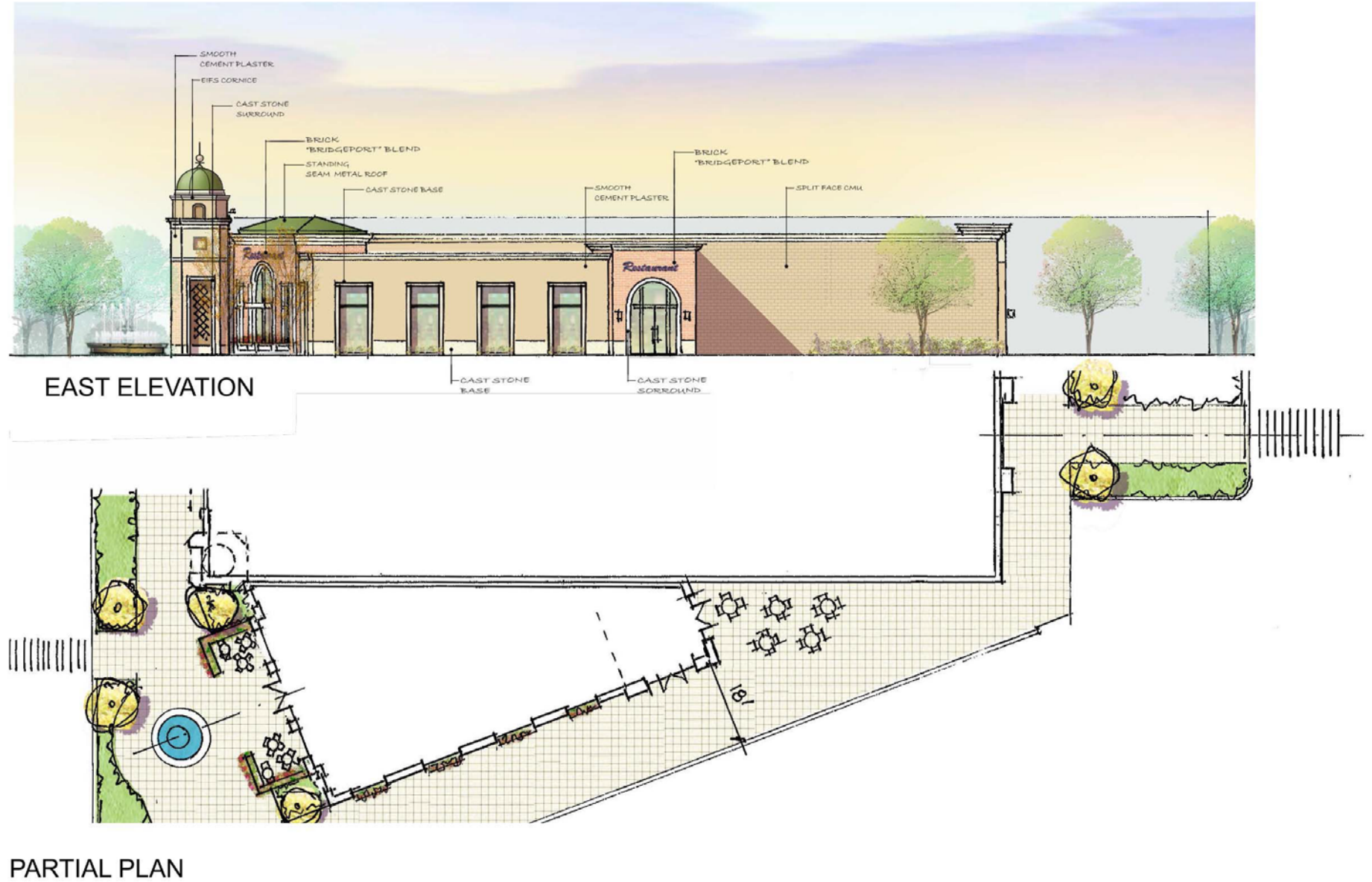
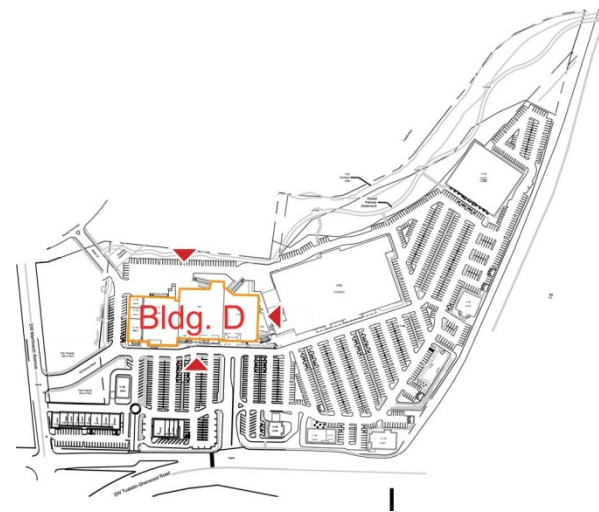
Enlargement 'B' provided conceptual design for a dry creek feature south of Building E-100 and portions along Nyberg Street

BUILDING DESIGN

The Nyberg Rivers master plan area will include a variety of architectural styles and eclectic mix of building styles with the intention of creating a distinct and fascinating development. The intent of the master plan is to provide preliminary designs for the existing and proposed buildings within the master plan area. The designs showcased here are intended to showcase the design approach for the site.

Multi-tenant building facades are articulated and incorporate various design elements to differentiate individual tenants. Awnings, pedestrian respite areas and landscaping assist with creating an inviting and attractive street frontage.

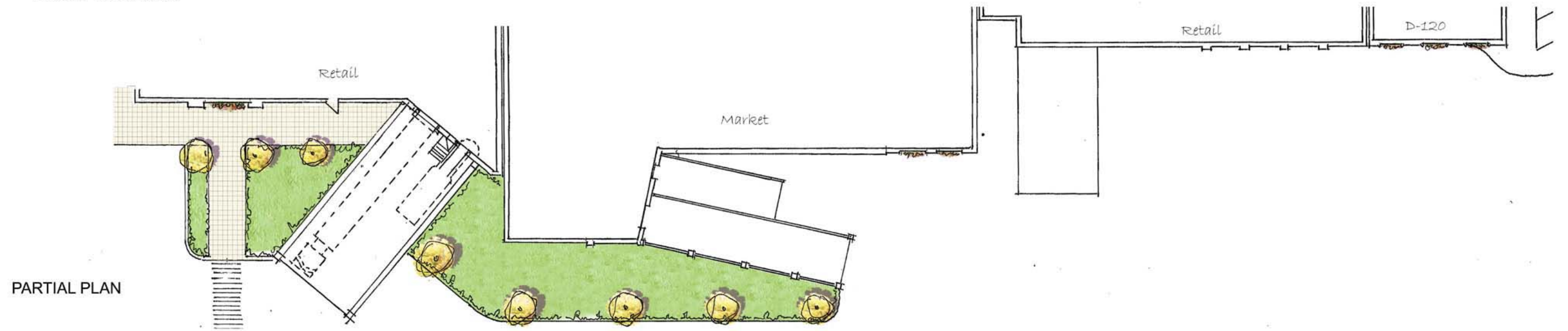
Standalone building pads in the master plan area have been designed with visual interest and architectural relief for each of the building facades. Each building is designed to encourage pedestrian connectivity throughout the master plan area. The mix of design elements, building materials coupled with landscaping provide for attractive buildings that contribute to the aesthetics of the development.







NORTH ELEVATION



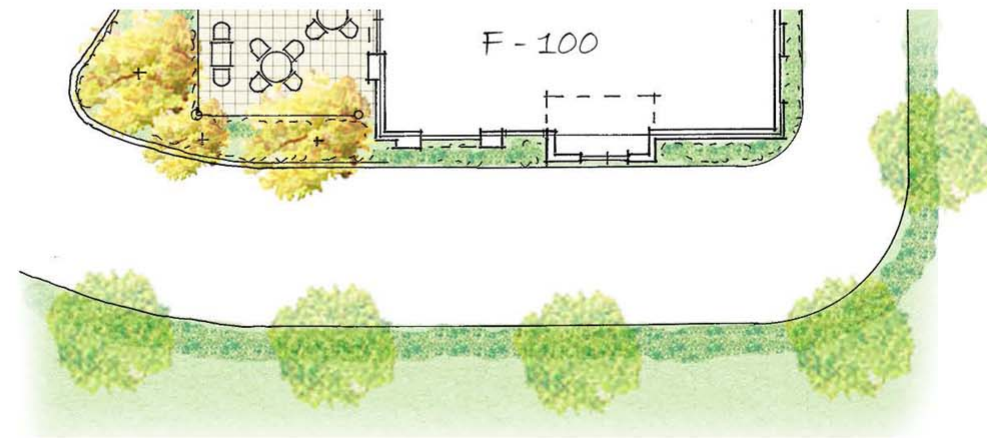
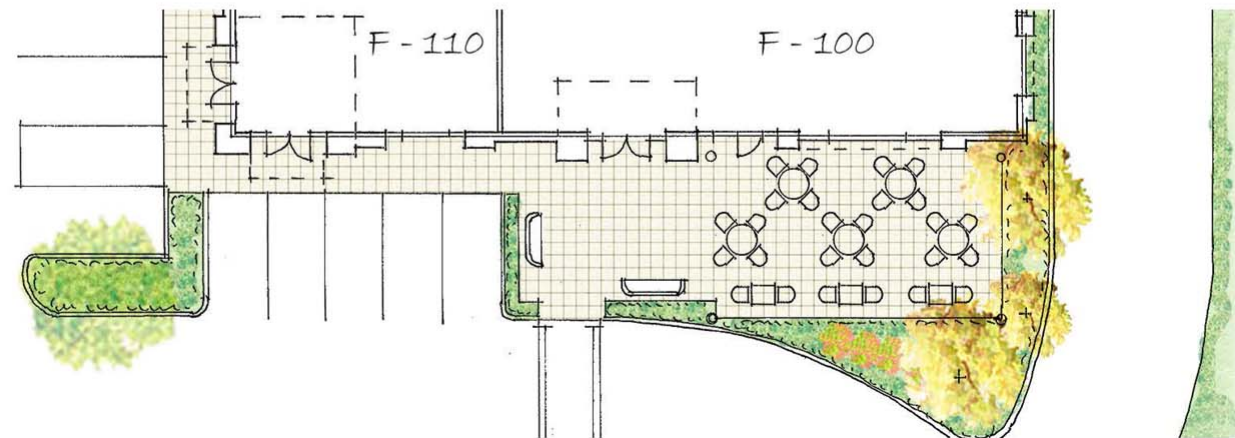
PARTIAL PLAN



1F - NORTH ELEVATION



2F - WEST ELEVATION

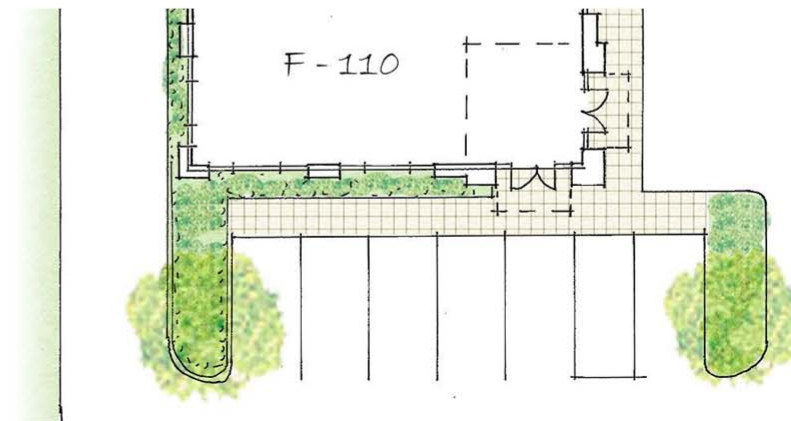
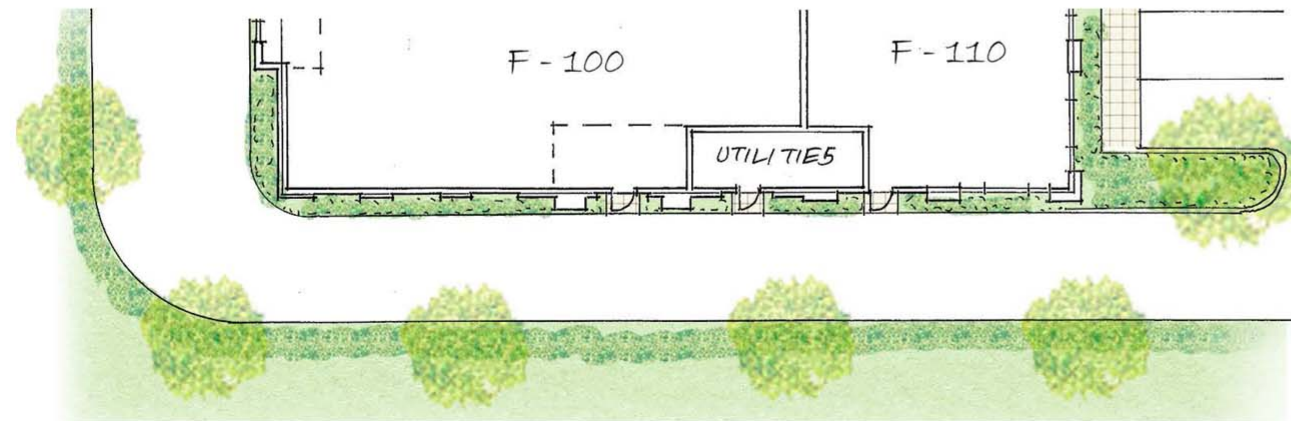


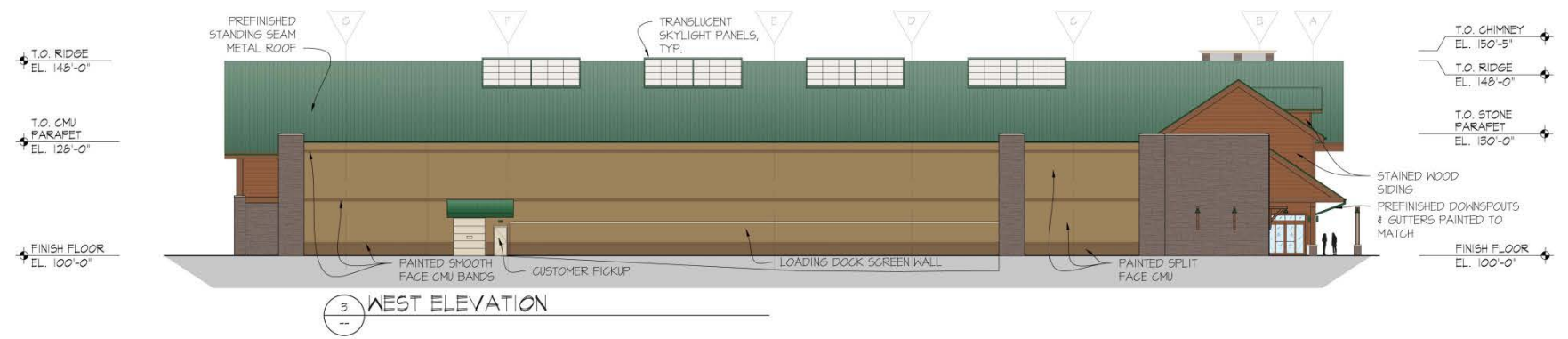


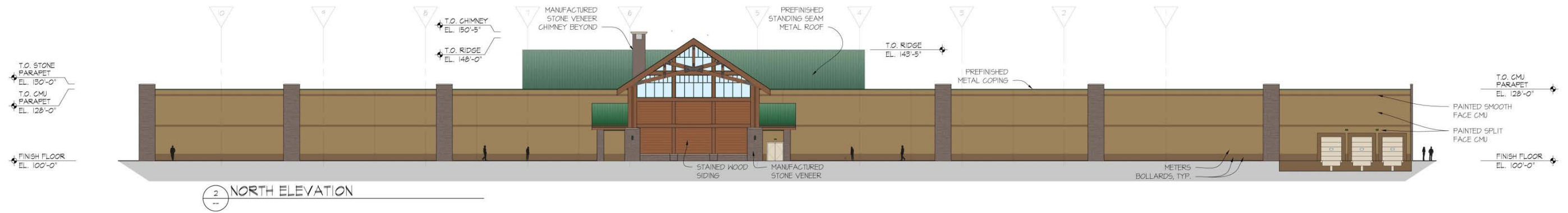
3F - SOUTH ELEVATION



4F - EAST ELEVATION

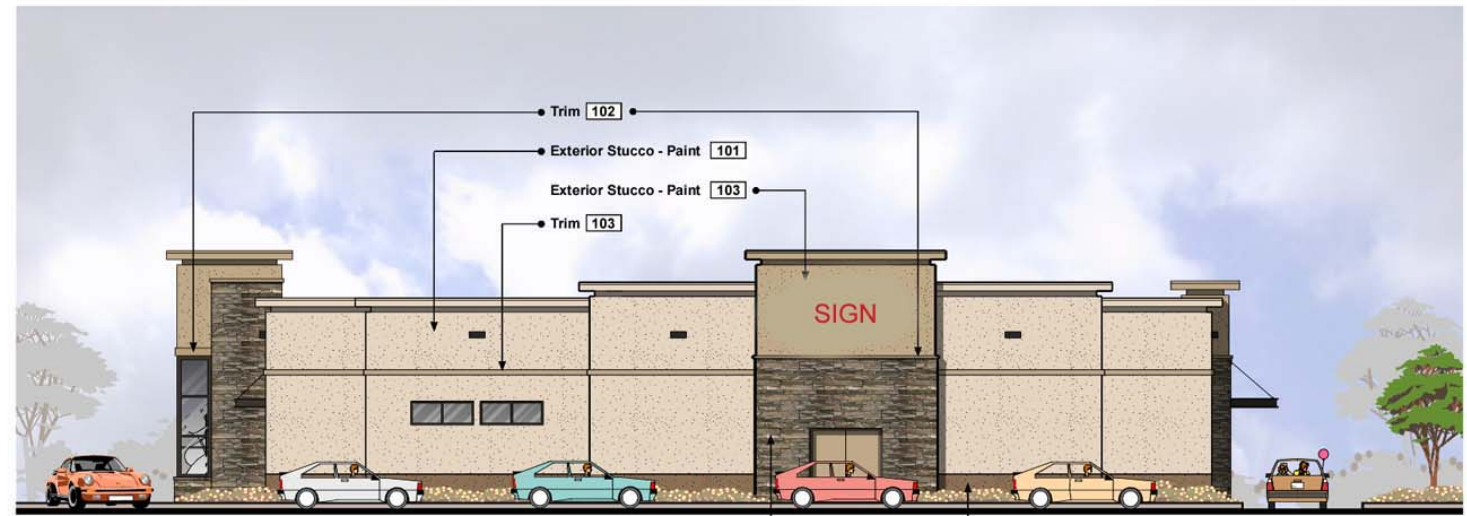








NORTHEAST ELEVATION



SOUTHEAST ELEVATION



SOUTHWEST ELEVATION



NORTHWEST ELEVATION

DEVELOPMENT STANDARDS

The following table lists the development standards that are unique to the Nyberg Rivers Master Plan. These standards are summarized below as started in the Urban Renewal Plan, Zoning Districts, and Community Design Standards.

Development Standards Overview Land Uses

Development Standards	
Lot Dimensions	
Minimum Lot Area	25,000 sf OR 0 sf for Residential Uses in the CG District
Minimum Lot Width	40-ft
Minimum Average Lot Width	None
Setbacks	
Front	0-ft
Side	5-ft
Rear	5-ft
Corner	0-ft
Parking and Vehicular Circulation	5-ft
Height	
Maximum Height	60-ft
Parking	
Standard Stall Dimensions	9-ft X 18.5-ft
Compact Stalls Dimensions	7.7-ft X 15-ft
Drive Aisle Width	12-ft (one-way) 24-ft (two-way)
Landscaping	
Minimum Landscape Area	15 percent total development site
Foundation Planting	5-ft wide beds OR May be provided along nearby curbs
Parking Landscaping	
Parking Island Quantity	25-ft per stall
Minimum Island Width	5-ft
Minimum Tree Ratio	1 per 4 stalls
Density	
Maximum	25-dwelling units per acre (RH District)

MASTER PLAN PROCEDURES

Master Plan

As stated in the City of Tualatin’s Central Urban Renewal Plan, “Prior to approval of applications for development projects within Blocks 1, 2, 3, 4, 5, 13, 25, 26, 27, 31, 32, and 33, applicants will be required to submit and gain City approval of a master plan governing development within the Block(s). Master plans for Blocks 1, 2, 3, 4, 5, 13, 25, 26, 27, 31, 32, 33, as well as subsequent modifications to those plans, must be approved by the City Council at a public hearing. The public hearing shall be called and conducted in the manner provided for in Section 1.031 of the Tualatin Development Code. In approving a master plan, the City Council may attach conditions that it finds necessary to achieve the objectives of the Urban Renewal Plan.”

Master plan approval and any proposed amendments to the plan must be submitted to the City Community Development Department as a master plan application. The project plans and enclosed project narrative must address the following reports and code provisions as they apply to the scope of work:

- > Applicable Central Urban Renewal Plan--- goals and objectives
- > Tualatin Municipal Code
 - o Title 2: Public Works and Financing
 - o Title 3: Utilities and Water Quality
- > Tualatin Development Code
 - o Chapters 1-29: the goals and objectives of the Community Plan, essentially a codified Comprehensive Plan
 - o Chapter 30: Tualatin Urban Renewal Plan
 - o Chapters 40-69: Planning District uses, lot sizes, setback requirements, and structure heights
 - o Chapter 73: Community Design Standards
 - o Chapter 74: Public Improvement Requirements
 - o Chapter 75: Access Management on Arterial Streets

In addition, master plans should address how the proposed development provides site access, transportation, sewer, water, storm drainage, internal circulation, building location, building design and materials, parking, landscaping and pedestrian facilities.

Architectural Review Board

Pending Master Plan approval, any site development or proposed changes to a building exterior or site plan elements such as landscaping or parking require Site Plan review, defined as Architectural Review by the City of Tualatin. The Architectural Review process includes a single application that is addressed in two decisions which run concurrently:

- > Architectural Features
 - o Building design
 - o Site design
 - o Landscaping
 - o On-site parking
 - o Circulation
 - o Loading
 - o Outdoor storage
- > Public Utility Facilities
 - o Sewer
 - o Water
 - o Stormwater management
 - o Street systems
 - o Environmental

Architectural Review is subject to staff review and decision unless the following uses and intensities are proposed:

- > Commercial: 50,000 SF building area or greater
- > Industrial: 150,000 SF building area or greater
- > Residential:
 - o 100 or more multi-family units
 - o Any multi-family units adjacent to a Low-Density Residential (RL) Planning District

These thresholds require Architectural Review Board (ARB) approval. The ARB Architectural Features Decision may be approved, approved with conditions, or denied. If a Variance is requested, it must first be decided by the City Council. The ARB Architectural Features Decision and the City Engineer’s Public Facilities Decision are appealable to the City Council.

Plans required for ARB submittal include the following:

- > Site Plan
- > Grading Plan
- > Tree Preservation Plan
- > Building Elevations
- > Public Facilities Plan—existing and proposed streets and utilities
- > Landscape Plan

Building Permits

After ARB decision, public works permit review and Building Permit Plan Check Review must occur before the issuance of a Building Permit. Any required changes to the Architectural Review plans to meet conditions of approval should be turned into the Community Development Department as soon as possible after the ARB decision is final. After the Building Division completes Plan Check Review, they will circulate a sign-off form to all applicable departments. Each department must sign off before a Building Permit is issued. Before the Community Development and Engineering Departments sign the form, all conditions of approval of the Architectural Features and Public Facilities Decisions must be met. Prior to issuing a Certificate of Occupancy, the Building Division circulates a second sign-off sheet. Before the Planning Division signs off, a site inspection is conducted to determine the project complies with approved plans for the building exterior, parking, landscaping, etc.

Master Plan Amendments (Minor/Major Amendments)

A proposed change to the Nyberg Rivers Master Plan will be processed as a Master Plan Amendment. The proposed modification may be processed as either a Minor or Major Amendment. A Minor Amendment is an administrative review subject to staff review and approval, while a Major Amendment A request for a Nyberg Rivers Master Plan amendment shall contain:

- a) The nature of the application and a description of the proposed amendment. Please provide a brief summary identifying the reasons for the Master Plan amendment.
- b) A Site Plan including the location of structures, easements, curb cuts, sidewalks and street right-of-way lines and the area of proposed amendment.
- c) Fees or application

Minor Amendments

Proposed minor amendments shall be submitted to the City of Tualatin Community Development Department for administrative review and approval. The Department shall approve a proposed Minor Amendment to the Nyberg Rivers Master Plan only if it determines that the amendment complies with all of the following criteria:

- 1) The amendment is consistent with the stated purpose of the planning district and the stated purpose of the existing Nyberg Rivers Master Plan.
- 2) The amendment only includes uses permitted by right in the planning district in which the project is located.
- 3) The amendment complies with all dimensional requirements for the district in which the land is located.
- 4) The amendment only approves:
 - a) Changes to the location or design of required parking, loading, or landscape areas that do not reduce the total amount of parking, loading, or landscape area shown in the approved master plan; or
 - b) Temporary facilities or structures that are consistent with the overall intent of the adopted master plan; or
 - c) Physical additions to buildings or changes in building footprints which add no more than fifteen (15) percent additional square feet of gross building area, or changes to the architectural styling's or building façade.

Major Amendments

Proposed major amendments shall be submitted to the City of Tualatin Community Development Department to initiate the quasi-judicial review process. Note that a neighborhood/developers meeting is required before submittal. The Community Development Department will refer the proposed amendment to the City Council together with its recommendation based on the stated purpose of the Master Plan development standards applicable to the proposed amendment. The City Council shall approve a proposed Major Amendment to the Nyberg Rivers Master Plan only if it determines that the amendment complies with all of the following criteria:

- 1) The amendment is consistent with the stated purpose of the planning district and the stated purpose of the existing Nyberg Rivers Master Plan.
- 2) The amendment only includes uses permitted by right in the planning district in which the project is located.
- 3) The amendment complies with all dimensional requirements for the district in which the land is located.
- 4) The amendment only approves:
 - a) Changes to the existing Master Plan boundary, as demarcated by the most recently amended boundary line.
 - b) Additions to buildings or changes in building footprints greater than 15% of the gross building area.



Perkowitz + Ruth
ARCHITECTS



NYBERG RIVERS

Tualatin, Oregon

Response to City of Tualatin Letter

Dated June 3, 2013

Addendum #1 to the Master Plan submitted March 19, 2013

Applicant:

CenterCal Properties, LLC

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Phone: (503) 968-8940

Contact: Hank Murphy

Prepared by:

Cardno WRG

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Portland, Oregon 97221

Phone: 503-419-2500

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21198310

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EXHIBIT SUMMARY

- Exhibit A - Updated Site Plan
- Exhibit B - Cross-Section A-A
- Exhibit C - Cross-Section B-B
- Exhibit D - Cross-Section C-C
- Exhibit E - Cross-Section D-D
- Exhibit F - Cross-Section E-E
- Exhibit G - Cross-Section F-F
- Exhibit H - Cross-Section G-G
- Exhibit I - Conditional Use Graphic
- Exhibit J - Landscape Plant Material Schedule
- Exhibit K - "Enlargement C" Landscape Diamonds
- Exhibit L - Pedestrian & Bicycle Plan
- Exhibit M - Transportation Plan
- Exhibit N - Tree Removal Plan
- Exhibit O - Response to TIA Comments
- Exhibit P - South Elevation Perspective
- Exhibit Q1 & Q2 - Building Frontage Landscape Plan
- Exhibit R - Conceptual Signage Plan
- Exhibit S - Entry Landscaping Plan

Alice Cannon Rouyer
Assistant City Manager
City of Tualatin
18880 SW Martinazzi Avenue
Tualatin, OR 97062

RE: Review Comments: Nyberg Rivers Master Plan (MP-13-01)

Dear Alice:

Thank you for your letter of June 3, 2013 with comments on the Nyberg Rivers Retail Center Master Plan and Conditional Use application. This letter responds to your comments. We have organized our response by the categories you established in your June 3rd letter for ease of reference. Your comment is shown in italics followed by our response.

Our responses here also reflect amendments we were able to make to the submittal based not only on your comments in the June 3rd letter but also based on the comments made by the Architectural Review Board in our courtesy review with that Board on June 19, 2013.

CATEGORY 1: High Priority Master Plan Issues

GENERAL MASTER PLAN AND CONDITIONAL USE PERMIT ISSUES:

1. *Provide a status update on ODOT's surplus property transaction and summarize the status of other property and lease rights acquisitions.*

CenterCal is currently negotiating with ODOT and all other jurisdictions that need to approve the acquisition of the ODOT surplus land and the right hand turn lane on Nyberg Road. CenterCal expects to have a Memorandum of Understanding prior to the July 22, 2013 City Council Master Plan Hearing or will be able to agree to an appropriate condition of approval ensuring that the Nyberg Road transportation improvements detailed in the master plan and in the Kittelson Traffic Impact Analysis and supplemental memorandums are completed in the first phase of the redevelopment of the center.

CenterCal is also in the final stages of Lease negotiations for the McBale property and corresponding easement over Nyberg property as a result of the closing of the 75th Street access point.

CenterCal

2. *Clearly state what approvals the applicant seeks through the master plan process,*

for example the request for design approval.

CenterCal is seeking master plan and conditional use approval for all uses shown on the updated Site Plan included with this letter. Specifically, CenterCal is requesting the following:

- Secure the required Master Plan approval for Blocks 1, 2, 3, 4, & 5
- Approve the general site layout and land uses as part of the Master Plan.
- Approve and permit retail uses within the Office Commercial (CO) designated portions of the property.
- Allow parking serving commercial and non-residential parking in the High Density Residential (RH) designated portions of the property.
- Allow one new (Bldg H-100) and one relocated (F-100) drive-thru restaurant service window within the Central Commercial (CC) designated portions of the property.
- Allow up to 307,000 sf of building area on the property.
- Accept a shared pathway easement along the Tualatin River to allow for a future public trail.
- Allow Street "A", the east-west storefront drive and the north-south divided drive to satisfy the Transportation System Plan (TSP) future minor collector connections over the property.
- Allow all plant material listed in the Master Plan in addition to all species otherwise approved by the City.
- Approval of the approach and design for landscaping, including minimum landscape dimensions of 5-feet and general locations as shown on the Master Plan.
- Approval of the parking lot landscape diamonds as designed and shown on the "Enlargement C" exhibit within the Landscaping Theming Plan included in the Nyberg Rivers Master Plan.
- Allow the style and materials for building elevations as generally depicted in the Master Plan
- Adopt/approve the development standards (dimensional) as listed in the Master Plan and apply to all future development on the site.
- Approve the review procedure as defined in the Master Plan.
- Approve right-of-way vacation of the Oregon Department of Transportation property along Nyberg Road. This vacation would be done with the recognition that final approval is subject to coordination and review by ODOT.
- Approve the proposed street designs which are provided as separate cross-section exhibits. The following design standards either deviate from the City completeness memo comments issued June 3, 2013 or those standards outlined in the February 2013 TSP:
 - **Cross-section A-A: Nyberg Entrance**
 - A 4 to 7-foot planter strip on the east side with curb, streetlights, and trees. The City requested a 6-foot planter strip.
 - A 4-foot planter with curb, streetlights, and groundcover and shrubs. Allowed by the City with the provision of the 14-foot path with tree wells

- (3) southbound travel lanes. (1) 12-foot southbound travel lane and (2) 11-foot southbound travel lanes for a total of 34-feet. The City requested (3) 12-foot travel lanes for a total of 36-feet.
- **Cross-section B-B: Michaels Frontage**
 - A 11-12-foot pedestrian walkway on the north side with tree wells. City requested a 12-foot path with tree wells.
 - (2) 13-foot travel lanes. The City requested (2) 14-foot travel lanes.
 - (1) 5-foot sidewalk on the south side. The City requested a 6-foot sidewalk.
- **Street “A”: Reflected on cross-section D-D**
 - (2) 12-foot travel lanes with (1) 6-foot bike lane on the east side. The City requested (2) 14-foot travel lanes with the 6-foot bike lane.
- **Nyberg Street between the entrance of the site and Martinazzi Avenue: cross-section F-F**
 - A 4-6-foot planter strip with trees. This planter does not include curbs and streetlights, which are placed on the curb-tight sidewalk. The City requested a 6-foot planter strip with curb, streetlights, and trees.
 - A 5-6-foot curb-tight sidewalk on the north side of Nyberg Road. The City requested a 6-foot sidewalk.
 - No proposed changes to the existing 11-foot (approximately) westbound travel lanes.
- **Nyberg Street between the entrance of the site and I-5: cross-section G-G**
 - The applicant is proposing a 4-foot planter strip with curb, streetlights, and trees. With direction received from ODOT (who has jurisdiction over this section of roadway), the City has requested a 6-foot planter.
 - A 15-foot westbound right-turn lane, which is greater than the requested 12-foot lane.

3. *The Central Urban Renewal Plan requires that Master Plan applications represent the entire block. The applicant met this requirement by showing “Future Development” areas on Blocks 4 and 5 however the entirety of Block 2 is not show in the Master Plan Boundary. Please revise the Development Plan to include the entire Block 2 in the Master Plan Boundary.*

The Development Plan has been revised to include the entirety of Block 2, as requested. The updated Nyberg Rivers Master Plan document has been updated to reflect this request. The Site Plan, attached as Exhibit A, dated 6/17/2013, does show the entirety of Block 2.

4. *In parallel with the Conditional Use Permit Application (CUP-13-04), Please provide information on the proposed commercial retail uses in the Commercial Office (CO) portion of the property.*

The Nyberg Rivers Conditional Use Exhibit attached as Exhibit I and dated 6/13/2013, is a responsive memorandum from Cardno that clearly articulates the area of the Cabela's building that is located in the CO zone. There are no other commercial retail uses in the CO zone that are conditional uses in that zone. All other uses in the CO zone are uses that are permitted outright in that zone. The area of the outdoor storage and sales comprises 6,993 square feet and the area of the building that is located in the CO zone comprises 23,923 square feet.

5. *The application does not clearly state the location, size and merchandise proposed for the outside sales and display areas. A second conditional use permit may be required to locate outside sales and storage in the Central Commercial (CC) Planning District if such sales are not physically connected to a main building. Outside sales and storage is not an allowed use either outright or conditional in the CO Planning District.*

The outdoor storage and sales area is illustrated in the attached Nyberg Rivers Conditional Use Exhibit, Exhibit I, dated 6/13/2013. This area is entirely within the CC District and is not located in whole or in part in the CO District. The outdoor storage and sales area is accessory to the use it is attached to, Cabela's, and is not dedicated to any other use on the site. The size of this area is 6,993 square feet and the merchandise sold in this area is the merchandise that will be sold in the primary use. This merchandise is recreational equipment and sports outfitting.

6. *On Page 7 of the Master Plan, under "Proposed Uses", the applicant states that drive-through service windows will be retained for Buildings, A, B, C and E. Please clarify. Bldg. B does not currently have a drive-through use.*

Building B does not currently have a drive-through. This error on the plans has been corrected and the master plan document has been edited to remove the reference. The attached Site Plan, Exhibit A, dated 6/17/2013 reflects these updates.

CURD GOAL 1: COMMERCIAL DEVELOPMENT

In informal discussions with the community and City Council prior to the submittal for the Master Plan, the applicant represented that the site would offer new quality restaurant options to Tualatin, improving the quality of the development on the site and offering an extension of a downtown setting. The applicant also indicated that the existing drive-through restaurant on the site would likely be relocated (as is now proposed on the Master Plan) but that no new drive-through restaurants would be added to the site. The Master Plan now shows the addition of a drive-through restaurant. The site currently has three drive-through banks and one drive-through restaurant. The addition would result in five drive-through uses. This is inconsistent with an area that is considered an eastern extension of downtown Tualatin. Please reconsider the addition of a new drive-through use.

CURD Goal 1 states:

“To encourage and facilitate commercial development in the Urban Renewal Area with an emphasis on establishing a visible and viable central business district that encourages community and business activity on weekdays, evenings and weekends.”

The proposed project is entirely consistent with, and directly implements, this Commercial Development Goal. The project is a commercial retail center that will restore and enhance an existing retail center and bring new and active uses to the center during weekdays, evenings and weekends. The new tenant mix includes Cabela’s, a sport’s outfitter with stores across the United States and Canada, a New Seasons market and an LA Fitness facility along with a mix of other uses such as Michaels, restaurants and smaller retail. This mix of retail, and critical mass of co-located retailers, will encourage business and community activity on all days of the week and evenings as well. With these new uses also comes the removal of older uses with less desirable active use such as Jiggles.

This emphasis on expansion of quality tenants will put a focus on a visible and viable central business district. Not only will the building design be vastly improved and updated and subject to ARB review and approval, the horizontal infrastructure will connect the site to downtown and integrate a native landscape to the site that will attract and encourage use on weekdays, weekends and evenings. The landscape plan is described within the master plan by the Landscape Theming Plan and the Plant Material Schedule (attached as Exhibit J and dated 6/18/2103) to describe specific landscape elements. These elements take into consideration specific theming elements that create a sense of place and destination defined by different planting ecosystems that will tie into the existing grove and natural area located along the Tualatin River. Furthermore, the site landscape amenities for the property perimeter, open space areas, foundation/building landscaping, parking lot, plant/species list, and the typical landscape sections. These sections follow the Theming Plan to display cross sections for the central Nyberg Entry (Enlargement A), a dry creek feature south of Building E-100 (Enlargement B) and the diamond landscape islands within the parking area (Enlargement C). Enlargement C is attached as Exhibit K, dated 6/12/2013.

Together, the significant investment in an existing retail center to current City design standards, together with a pedestrian and vehicular connection to the downtown and river will encourage and facilitate commercial development in the Urban Renewal Area and establish an active and attractive commercial center that is busy on weekdays, evenings and weekends.

This Goal is also implemented through several objectives, two of which are relevant here:

C. Encourage the development of existing Central Commercial designated land before-designating other land within the Urban Renewal Area as Central Commercial.

D. Support Central Commercial designated land for development by assisting in the marketing and promotion of Central Tualatin as a place to visit shop and conduct business.

All of the uses proposed for the site are uses that are specifically permitted in the Central Commercial District. Two elements of the Cabela's are conditional uses: (1) the portion of the Cabela's building which overlaps the adjacent CO zone; and (2) the outdoor storage and sales area within the CC zone at the front entrance to the Cabela's. Both of these areas are discussed in the conditional use exhibit attached as Exhibit I and included with this letter.

The City's support of these proposed uses that are permitted in the CC zone, "encourages the development of existing Central Commercial designated land," in compliance with Objective C. The City has acknowledged that each of these retail uses is permitted in the zone and that the new retail center does not contain any uses not allowed by the zone. Further the Central Urban Renewal Plan also does not prohibit or minimize any of the projected uses. Drive-through facilities are permitted in the CC District as well as restaurants and grocery stores. The applicant acknowledges that restaurants with a drive-through are regulated differently, and appropriately so, in the Central Design District. They are not similarly limited on the subject site which is outside of the Central Design District.

Despite these allowances, the City has asked the applicant to reconsider the addition of a drive-through restaurant. The applicant will consider the City's request but also recognizes that such a use is permitted on the site under the CC District and is not discouraged through any specific provision of the Urban Renewal Area Plan.

CURD GOAL 4: CIVIC DEVELOPMENT

Include detailed plans that show the scale and features of plazas that identify any potential conflicts with bicycles and pedestrians, and that show public benefit. The function of plazas and public spaces also serves a portion of the overall goal of the Central Urban Renewal Plan to strengthen social and economic development and encourage outdoor uses. The currently proposed public spaces and plazas should be revised to make the spaces larger in order to contribute to community gathering spaces. In the main shopping center area, no portion of any sidewalk extending from the western storefront to the eastern storefront should be less than 12 feet in width. The current plans show smaller dimensions in some places.

Goal 4 states:

"To promote civic facilities including community gathering spaces and other pedestrian amenities, a community center, library expansion and a City Hall in the Urban Renewal Area, which is supportive of other civic and private uses in the area."

The applicant has proposed a plaza on site as well as a network of streets and sidewalks that provide community gathering spaces and pedestrian amenities. These gathering spaces and pedestrian amenities are best displayed within the Nyberg Rivers Master Plan document under the Pedestrian & Bicycle Plan and the Southern Building Elevations. Amenities include cove and bench seating, patios, tree grates, sculptures, water features, a pedestrian promenade, and larger sidewalks to promote pedestrian interaction and safe access through the central shopping corridor, as well as linkage to the north/south pathways into and through the parking areas and remainder of the site. All of these elements combine to create a sense of place to invite users into and through the site during all hours of the day.

A revised Exhibit Q reflects the proposed changes CenterCal has incorporated into the Plaza design as a result of the City's June 3rd letter to CenterCal.

CURD GOAL 5: TRANSPORTATION

In reviewing the application materials, it has been noted that the 2001 Transportation System Plan (TSP) was used. The Master Plan should be updated to address the 2013 TSP and TDC Chapter 11, 74 and 75.

The Master Plan has been updated to refer to the 2013 TSP. The Master Plan previously addressed the 2013 TSP and TDC Chapter 11, 74 and 75. The date reference was in error in the previous submittal and has been corrected in this response.

Additionally, the plan sheets are inconsistent throughout the document. For example, Cross Section B-B shows a 12 foot multiuse path on the north side but in a later drawing it is shown to be only 10 feet wide. As mentioned above, no portion of this sidewalk in this cross-section and subsequent plans should be less than 12 feet in width.

The plan sheets have been corrected and show a path width of 11 to 12 feet, with variation provided for tree wells. The updated Site Plan, attached as Exhibit A and dated 6/17/2013, does show these paths.

Traffic Impact Analysis (TIA) - *The TIA was submitted as part of the Master Plan; however, there are numerous concerns that need to be addressed during the Master Plan process:*

1) *ODOT reviewed the submitted information for their facilities (I-5 and Nyberg Street). Although, the underlying model artificially limits queues and the settings do not meet ODOT standards, ODOT reran the analysis using the correct settings. Based on this analysis the proposed improvements mitigate the impact of the development on ODOT facilities (see attached comments from ODOT). City staff provides comments below on the TIA, which will require the applicant to revise the TIA. ODOT will need to review the updated TIA to confirm whether the proposed improvements still mitigate the impact of the development on ODOT facilities. Final design may indicate the need for additional right-of-way.*

Kittelsohn has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The response addresses this comment on pages 1-2.

2) *Washington County also reviewed the information and they have provided a list of conditions and measures to mitigate impacts on Nyberg Street and Tualatin Sherwood Road (please see attached comments from Washington County). City staff provided comments below on the TIA, which will require the applicant to revise the TIA. ODOT will need to review the updated TIA to confirm whether the proposed improvements still mitigate the impact of the development on Washington County facilities. Final design may indicate the need for additional right-of-way.*

Kittelsohn has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The attached response addresses this comment at page 2.

3) *The City reviewed the TIA to ensure that internal circulation is consistent with the TSP and that the new development improves traffic circulation on Martinazzi, the City's portion of Nyberg, Boones Ferry and other nearby roadways. After the Master Plan was submitted, a list of questions and concerns was sent and a meeting was held with Kittelson & Associates to review the issues. Kittelson submitted information to address some of those concerns on May 20, 2013. Even with both submittals, the City still has the following concerns with the information provided:*

In this comment, the City cites a new standard for measuring traffic impacts that is not consistent with current state law, Washington County standards, ODOT standards or City of Tualatin standards. An applicant is not required to demonstrate that new development "improves traffic circulation." Instead an applicant is required to demonstrate that it meets the level of service or vehicle capacity ratios established by the governing jurisdictions. Both ODOT and Washington County have confirmed in each of their responses to the Master Plan and conditional use submittal that the project as proposed, together with the mitigating transportation improvements, will meet ODOT and County standards. The TIA and this supplemental response both demonstrate that the project also meets the level of service standards established by the City of Tualatin. While the applicant's proposal will indeed improve certain traffic circulation in the area it will also mitigate for and meet all applicable level of service standards for those transportation facilities.

a. On Page 44 of the TIA submitted with the Master Plan, the applicant provides queuing analysis for Nyberg Road and the freeway. This same level of analysis is needed for Martinazzi, Boones Ferry Road the proposed Seneca Street, Street A and the existing driveway easement from the driveway to Martinazzi. The submitted analysis should include:

- Existing queue storage length*
- Proposed queue storage length that is required for new development; and*
- An analysis of whether additional queue space is needed.*

Kittelson has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The response addresses this comment on pages 3-5.

b. The report assumes that very little traffic will use Martinazzi Avenue and Street A to access the development. Based on existing conditions, the City believes that is inaccurate. Most people coming from/going to the west and south will not access the site from Nyberg Street but will use Martinazzi Avenue or Boones Ferry Road. Additionally, the report does not assume truck traffic on those roadways which is inconsistent with the submitted Master Plan that shows those roadways being the main truck route. Please revise the TIA with assumptions that better match expected travel patterns.

Kittelson has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The response addresses this comment on pages 5-6.

c. The report utilizes conflicting assumptions of the driveway access on Martinazzi Avenue. Part of the evaluations assumes all three driveways remain open, yet another section assumes

only one access connects to Martinazzi Avenue. The TIA needs to be consistent throughout the study. Any revisions may impact the queue length analysis listed above. Please make this change before completing the new queue length analysis.

Kittelsohn has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The response addresses this comment on pages 6-7.

d. More information is needed on the timing of the traffic studies. It is unclear if the studies were completed when Kmart was open or closed (or both) and which data set was used.

Kittelsohn has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The response addresses this comment on page 7.

e. The applicant's traffic consultant does not draw any conclusions on the adequacy of the existing City driveway/easement taking into account the traffic generation from the proposed development, other driveway closures, and queuing issues on Martinazzi Avenue. The applicant needs to analyze this and make a conclusion about the adequacy of the existing driveway to serve this development.

Kittelsohn has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The response addresses this comment on page 8.

f. On Page 7 of the Master Plan, the applicant has indicated that the Primary Development Area will be redeveloped to support traditional shopping center related uses. The applicant has used a trip generation rate for Shopping Centers throughout the TIA. This is applied to all of the uses on the site. City staff questions if this results in a lower than expected trip generation. In informal discussions with the applicant, staff is aware that a specialty grocery tenant is proposed for Bldg. 1005, a stand-alone 45,000 fitness club is proposed for Building N-100 and a new drive-through restaurant use is proposed in Building H-100 - in addition to the applicant's proposal to retain drive-through uses on Buildings A, B, C, and a relocated F-100 (we believe that retaining drive-through uses on Bldg B is in error, as stated above). Staff believes it is inappropriate to apply a Shopping Center trip generation rate when so many of these proposed uses are auto-intensive and don't have traditional shopping center characteristics. In the revised submittal, please clarify the proposed uses for each building so that an accurate trip generation can be analyzed on the site. Based on our understanding of the proposed uses from informal conversations, staff believes that the following uses should be analyzed separately from the Shopping Center trip generation rate:

- i. The two drive-through restaurants (Buildings F-100 and H-100);*
- ii. The grocery store (Bldg 1005); and*
- iii. The 45,000 square foot stand-alone health club (N-100)*

Kittelsohn has prepared a response memo to the TIA comments. That memo is attached under Exhibit O. The response addresses this comment on pages 8-11.

Based on this response to the City's transportation-related questions, the TIA does not need to be re-submitted to the City. The previously submitted TIA demonstrates that the project

continues to meet all applicable provisions of the City's transportation standards. The TIA is consistent with the City's previous scoping agreement with the Applicant and the Applicant has responded to each additional City inquiry with substantial evidence demonstrating compliance with all applicable transportation standards. The record of this Master Plan and Conditional Use review will contain the submitted TIA and all of the supplemental memorandums in response to the City's comments.

***Public Streets** - The Master Plan Application should indicate the closure of the driveway access point along Martinazzi Avenue between the right-out only access and the proposed Seneca Street. In addition it should provide cross-sections for Boones Ferry Road at the intersection with Street "A," Nyberg Street between the entrance of the site and I-5, and Nyberg Street between the entrance of the site and Martinazzi Avenue. The details needed and/or revisions required for each cross-section were listed in the June 3rd letter and are not repeated here for brevity. The cross-sections are provided as specific Exhibits B through H.*

Cardno has responded to this request by providing the requested cross sections in the attached exhibit and a summary of those cross sections provided as follows:

- **Exhibit F: Boones Ferry Road at the intersection with Street "A":**
 - Shown on cross section E-E
 - Features (5) travel lanes, with (4) 12-foot travel lanes and (1) 14-foot center turn lane/median
 - 6-foot bike lanes
 - 6-foot planter strips with curb, streetlights and trees
 - 6-foot detached sidewalks on both the north and south side
 - The center median will be lengthened to restrict westbound traffic. This is reflected on the Site Plan

- **Exhibit H: Nyberg Street between the entrance of the site and I-5:**
 - Shown on cross section G-G
 - 6-foot sidewalk on the north side of Nyberg Road
 - The applicant is proposing a 4-foot planter strip with curb, streetlights, and trees, which differs from the City request for a 6-foot planter.
 - A 15-foot westbound right-turn lane, which is greater than the requested 12-foot lane.
 - A 6-foot bike lane
 - No proposed changes to the existing west and east-bound turn lanes

- **Exhibit G: Nyberg Street between the entrance of the site and Martinazzi Avenue:**
 - Shown on cross section F-F

- A 4-6-foot planter strip with trees. This planter does not include curbs and streetlights, which are placed on the curb-tight sidewalk. The City requested a 6-foot planter strip with curb, streetlights, and trees.
 - A 5-6-foot curb-tight sidewalk on the north side of Nyberg Road. The City requested a 6-foot sidewalk.
 - A 6-foot bike lane
 - No proposed changes to the existing 11-foot (approximately) westbound travel lanes.
 - The north-south crosswalk across Nyberg Street will have a dedicated pedestrian/bicyclist-activated sequence. This will be noted within the master plan narrative.
- **Exhibit E: Street “A”:**
 - Shown on cross section **D-D**
 - A 12-foot multi-use path on the west side
 - A 4-foot planter strip with curb, streetlights, and trees.
 - (2) 12-foot travel lanes with (1) 6-foot bike lane on the east side. The City requested (2) 14-foot travel lanes with the 6-foot bike lane.
 - (1) 5-foot sidewalk on the east side
 - The pork chop at the intersection of Boones Ferry Road will be mountable for emergency vehicles.
 - Street “A” is proposed as a secondary access for truck movement through the site.
 - **City Parking Lot/Heron’s Landing/Access to Street “A” and intersection with the greenway:**
 - Reflected on Site Plan (Exhibit A)
 - The accessway is located as far away from Boones Ferry Road as possible, without conflicting with the multiuse path
 - The accessway shown is 40-feet wide
 - The multiuse path crossing is located south of the accessway.
 - The crossing will include striping and bump-outs
 - **Exhibit D: Cross-section C-C:**
 - Cross-section as submitted is acceptable
 - **Exhibit C: Cross-section B-B:**
 - A 11-12-foot pedestrian walkway on the north side with tree wells. City requested a 12-foot path with tree wells.
 - (2) 13-foot travel lanes. The City requested (2) 14-foot travel lanes.
 - (1) 6-foot planter on the south side

- (1) 5-foot sidewalk on the south side. The City requested a 6-foot sidewalk.
- **Exhibit B: Cross-section A-A:**
 - A 4 to 7-foot planter strip on the east side with curb, streetlights, and trees. The City requested a 6-foot planter strip.
 - A 4-foot planter with curb, streetlights, and groundcover and shrubs. Allowed by the City with the provision of the 14-foot path with tree wells
 - A 14-foot shared path with tree wells
 - (3) southbound travel lanes. (1) 12-foot southbound travel lane and (2) 11-foot southbound travel lanes for a total of 34-feet. The City requested (3) 12-foot travel lanes for a total of 36-feet.
 - (2) northbound 12-foot travel lanes
 - A center median consisting of an 18-inch concrete median, with striping on both sides for a total of 2.5-feet. The cross-section does show a width for the median.

Private “TSP Loop Road Amenities” The applicant is proposing a private street system to demonstrate conformance with the Loop Road as envisioned in the 2013 TSP and the previous 2001 TSP. The Master Plan Application should outline the closure of 75th Avenue and the delineation of access easements to all remaining lots (as required by ODOT to accommodate the closure of this access point).

The applicant is no longer providing for a connection to 75th Avenue. Please reference Exhibit A which does not include a connection for 75th Avenue for more detail.

In addition, the Master Plan should offer more detail in the cross- sections of the onsite street network. The details needed and/or revisions required for each cross-section are listed below:

Street “A”, City Parking Lot/Heron’s Landing/Access to Street “A” and intersection with Tualatin River Greenway, Cross-section B-B and Cross-section A-A.

The detail contained in your June 3rd letter is not repeated here for brevity. However, the Cardno Response provides revised cross sections incorporating or responding to each of your design requests.

Street “A”: Cross-section D-D attached as Exhibit E and dated 6/11/2013 contains each of the City’s comments and the applicant’s response.

City Parking Lot/Heron’s Landing/Access to Street “A” and intersection with Tualatin River Greenway: This portion of the site is displayed on the Site Plan

Cross-section B-B and Cross-section A-A: updates provided. Note cross-sections A-A (Exhibit B) and B-B (Exhibit C), with revisions dated 6/11/2103.

Truck Circulation - As proposed, truck access will have substantial traffic, noise and safety impacts for adjoining residential and City Campus developments. Please provide a plan for truck access that does not rely on SW Martinazzi Avenue and SW Boones Ferry Road access features. A lot of pedestrians use this area to access the library and City services. It is inappropriate as a freight route. Please resubmit with a new proposed freight route on Master Plan Summary Page 8 and any other sheets that need the corrected reference.

The Cardno Response provides a new truck circulation route as requested by the City. That route is shown on the Transportation Plan, Exhibit M, provided with this letter. The truck access area provides 26-foot drive aisles and has been re-designed to minimize privacy, safety and noise concerns consistent with this request.

CURD GOAL 8: UTILITIES

Fire Access Aisles Width - Fire Department accesses need to be clearly located and identified. Onsite drive aisles that are a part of the Fire Department Access must be a minimum of 26 feet in width and provide proper radius for maneuvering emergency vehicles. Currently, the plan indicates a 24 feet width in most locations. Please adjust the Master Plan site plan(s) accordingly and identify the fire access routes (see attached comments from TVFR).

Fire Department access is clearly shown on the updated Transportation Plan under Exhibit M and is provided at a minimum width of 26-feet. We understand from later discussions with the City that there may be some flexibility to reduce the width to 24 feet in order to add 2 feet to the plaza. We could accommodate this request but need to be assured that such a width is also acceptable to the Fire Bureau.

Fire Access Points - The Fire Access points do not meet the requirement that they must be located no more than one-half the diagonal of the entire site. Based on our assessment of the site plan, this means that fire access is required at two locations, one of them being the Nyberg Street traffic signal. The second access needs to be provided in some configuration that would likely include access from Martinazzi Avenue at an extended Seneca Street or other alternative.

The current easement access between the Council Building and Library does not work well due to the extremely limited turning radius. In the unlikely event that the current easement is used to provide access from Martinazzi to the proposed development, this situation must be addressed.

The Cardno Response shows 3 fire access points at 3 locations. With one access at the Nyberg Street traffic signal, secondary access is provided at the Street "A"/Boones Ferry Road entrance and the SW Seneca Street/SW Martinazzi Avenue signal. The Site Plan has been

designed to accommodate fire access through the site, with 26-foot drive aisles and truck circulation to provide safe access through the site. This circulation is shown on the attached Transportation Plan, provided under Exhibit M. The applicant will continue to engage with the fire department to ensure the fire access point requirements are met including providing sprinkled protection systems and utilizing appropriate building materials.

The Kittelson Response addresses the utility of the existing access easement between the Council building and library at page 8.

CURD GOAL 9: PARKS

Construction of Pathway, Trail Heads, River Overlooks, and Sculptural Elements

In earlier informal discussions with the community and with individual City Council members, the Applicant stated that a Shared Tualatin River Greenway Pathway would be constructed from Boones Ferry Road to connect to the Access Ramp on the east boundary of the Nyberg Woods retail development (east of I-5), as well as trail heads, river overlooks and art features. In a revised submittal, please explain why construction is now not proposed. We anticipate the City Council, Architectural Review Board and Tualatin Park and Recreation Advisory Committee (TPARK) having questions about this.

The Applicant has agreed to dedicate the shared pathway easement. The Applicant also continues to reiterate its willingness to construct the pathway improvements. However, before agreeing to also fund the pathway improvements the Applicant requires further discussion and agreement with the City on the cost of all of the public improvements on and off the site and a determination of SDC credits that will be available for these improvements. Without this allocation, the Applicant cannot reach a final determination on path construction.

The Applicant is confident that this discussion can be resolved quickly with the City and before the master plan is heard by the City Council.

Dedication of Shared Pathway Easement - On Page 115 of the applicant's written statement, the applicant proposes to dedicate a Shared Pathway Easement (without mention of a term limit) for acceptance by the City prior to issuance of building permits. In earlier discussions, the Applicant stated they would provide a 75-year land lease following the format of the existing Nyberg Woods lease. An easement in perpetuity is preferred. Please clarify what the applicant is proposing.

The Shared Pathway Easement will run concurrent with the CenterCal land lease, which is a 75-year land lease.

CURD GOAL 11: DESIGN CONSIDERATIONS

Preliminary building elevations were submitted as part of the Master Plan. We have noted a number of concerns with the design that will need to be addressed during the Master Plan process. We anticipate the Applicant will receive more comments from the Architectural Review Board during the courtesy review on June 19. Please submit revised information which addresses these issues:

1. *Revise building elevations to show architectural features on all four sides of the building. Elevations should increase the quantity of windows and increase the complexity of features.*
2. *The Shopping Center elevations and sporting goods store elevations on the far east side of the shopping center give the appearance of “turning their back to the river.” In informal discussions with the community and City Council prior to the submittal of the Master Plan, the applicant:*
 - a. *Represented that the design and site plan would address and improve the appearance and access to the Tualatin River. The design would also present an attractive design to neighboring residential properties that would promote and provide an attractive environment for outdoor activity areas such as seating, strolling, nature appreciation and cultural attractions to activate the natural space. Please address this issue and revise the Master Plan accordingly.*
 - b. *Represented that the sporting goods store would provide a building entrance on the north -- river side -- or at the NE corner of the store. Please respond to this issue and revise the building elevations to address this issue and concern.*

The attached Exhibits Q1 and Q2 demonstrate the Nyberg Rivers central plaza elements and pedestrian amenities to be provided. There are no additional changes proposed at this time.

3. *The existing Sign Regulations for this location are found in TDC Chapter 38 and Section 38.220. Please provide information on intentions for signage on the site. Will the applicant be seeking variances to the sign code on behalf of the development and its tenants?*

A conceptual sign package is included with this letter, attached under Exhibit R.

4. *Do not use the Parking Diamonds shown on Master Plan, page 19, as they do not serve the purposes of landscaped islands and provide inadequate soil volume for the long term growth of the required shade trees. Show and explain parking area design concept including number of stalls in a row (8 Maximum), the width and size of parking area planters, parking lot planter configuration (linear planters vs. “diamonds”) and layout of parking lot trees (1 deciduous shade tree/each 4 stalls minimum).*

As shown on the updated Site Plan and in the “Enlargement C” graphic provided under the Landscape Theming Plan portion of the Master Plan document, parking lot landscape diamonds are designed to provide adequate space and soil volume or the long-term longevity of the required trees. These landscape diamonds are provided for every 8 consecutive stalls. The landscape diamonds are dimensioned 6-feet by 6-feet, with an interior plant and soil area of 5-feet by 5-feet. As shown in the typical diamond cross-section under “Enlargement C”, the mature rootball of a tree can fit within the 6 x 6-foot area. The typical diamond will provide

enough soil to plant a canopy tree, but may not be sufficient to provide the adequate drainage for tree roots. If trees are placed in these diamonds, the likelihood is high that water from irrigation or seasonal rain will pool at the bottom and create a ‘bath tub.’ This additional moisture will slowly cause trees to decline and eventually die. Adding a layer of drain rock will create a water storage layer in the bottom of the planter below the elevation of tree roots. The added perforated pipe network will provide a necessary outlet for the excess water. The trees will now drain properly under summer irrigation and winter rain, reducing the potential for mortality. A specific summary of parking lot trees will be addressed pending finalized updates to the Site Plan (i.e. once CenterCal signs off on a final site plan).

CATEGORY 2: Medium Priority Master Plan Issues

CURD GOAL 1: COMMERCIAL DEVELOPMENT

In respect to Central Urban Renewal Plan objectives for housing and office uses in the downtown area, please provide information on the prospects of “mixed use” residential or office with the big box, retail, restaurant and fitness club uses. The ARB members may ask about this at the June meeting. We also expect Council and community members to request the applicant to speak to why the proposed tenant mix was selected for this site, as opposed to a development with a stronger mix of uses - including housing and office development.

CURD Goal 1 states:

“To encourage and facilitate commercial development in the Urban Renewal Area with an emphasis on establishing a visible and viable central business district that encourages community and business activity on weekdays, evenings and weekends.”

The Goal is then implemented through several objectives that are relevant here:

C. Encourage the development of existing Central Commercial designated land before re-designating other land within the Urban Renewal Area as Central Commercial.

D. Support Central Commercial designated land for development by assisting in the marketing and promotion of Central Tualatin as a place to visit shop and conduct business.”

On pages 3-4 above we explained how the proposed uses for the site are expressly encouraged and allowed by the Commercial Development Goal and the Central Commercial District.

The City also now asks the applicant to address the prospects of mixed use on the site under CURD Goal 1. CURD Goal 1 addresses commercial development and is addressed above. There is no reference in CURD Goal 1 that would provide a rational basis for concluding that CURD Goal 1 requires or encourages mixed use on the subject site.

CURD Goal 2 addresses housing and states:

“To encourage multi-family housing in the Urban Renewal Area as supportive of commercial development.”

Objective A then states:

“Review and revise land use requirements and planning district designations, where necessary, to focus housing efforts on those areas most suitable.”

Both the Goal and the objective are directed at the City to encourage multi-family development and revise regulations where necessary to focus on suitable locations for housing.

The City seems to have acted consistently with this Goal by amending sections of the CC and CO District to permit multi-family housing on Blocks 2 and 3 on the project site. That same code also permits commercial development as a permitted use on Blocks 2 and 3 and does not require the applicant to build either permitted use, commercial or residential. Neither is there any code requirement or Urban Renewal Plan requirement to build mixed use commercial and residential projects. Rather, the site is zoned to allow either or both.

The Urban Renewal Plan and CC District also recognize multiple Blocks within the URA that may be appropriate for housing including Blocks 2, 3, 15, 16, 17, 18, 19, 20, 22 and 23. Housing could be built on a majority of these Blocks some of which do not currently contain an existing retail center. The Urban Renewal Plan again reiterates at page 33 that “multi-family dwellings are appropriate uses in certain blocks within the District.” The Plan does not require an applicant to build one permitted use over another, does not require a certain percentage of dwelling units per square footage of commercial uses and does not mandate the mix of uses.

To the extent the City is asking why we are proposing one permitted use over another, the answer is this location is currently developed as a retail center, it is well suited to continue as a retail center and the improved design and critical mass of retailers on this site will be completely consistent with the City’s stated commercial goals for the CC District and the Urban Renewal Area. This site will serve the commercial needs of nearby residential uses and may encourage more multi-family housing within the core. The site is also directly adjacent to an existing multi-family development that will be well served by the site. In fact, the City has requested, and the applicant has agreed, to provide a new easement for access from the residentially developed land to the new Street A with direct ingress and egress to the redeveloped retail center.

Lastly, the pedestrian amenities on the site will encourage use by nearby residential uses. The Pedestrian and Bicycle Plan within the submitted Master Plan is a map highlighting the pedestrian amenities on site. These include: patios, sculptures, fountains, and larger sidewalks to promote pedestrian interaction and safe access through the central shopping corridor and to the surrounding residential uses and downtown area. As shown on Exhibit L, the Pedestrian & Bicycle Plan, a user would be able to cross into the site from SW Seneca Street or Boones Ferry Road along designated pedestrian pathways featuring landscape planters and street trees. Upon crossing the Street “A” entrance and drive aisle, the user would encounter expansive sidewalks with tree wells and landscape strips to buffer the user from vehicle traffic. These

expansive walkways would pass by the shops, patios, and display areas before connecting with north-south pedestrian paths for access through the remainder of the site. These walkways would provide an enhanced pedestrian experience not currently available with the existing development.

The Plans show commercial use parking improvements within the High Density Residential (RH) Planning District on Tax Lot 1601, CURD Block 4. Parking and commercial uses are not permitted uses in the RH District. Please identify compliance with the TDC or propose a process to obtain approval of commercial parking in RH.

CURD Goal 1 does not address or regulate commercial parking in the RH zone. Thus, the applicant's response will relate to the applicable provisions of the Urban Renewal Area Plan while addressing the City's question. In early meetings with the City, the applicant provided a zoning code analysis of how the commercial parking in the RH zone complied with the provisions of the CC and RH District. The City did not readily agree with that analysis but offered an alternative path to approval of that parking. The City correctly cited the applicant to Section 1(F), Land Use, of the Urban Renewal Plan which states in relevant part:

“Land Use within the Urban Renewal Area is governed by the Planning District Standards contained in the Tualatin Development Code...In some cases, the Plan calls for additional considerations to be applied to those land uses within the Urban Renewal Area.”

Table 3, Summary of Planning District Standards in the Urban Renewal Area, then states under the RH zone:

“High Density Residential (RH):Within the Central Urban Renewal Area uses permitted may be mixed with uses permitted in the Central Commercial Planning District.”

The CC District permits “parking lot, parking structure or underground parking.” TDC 53.020 (33). Therefore the parking proposed to serve the CC District is an expressly permitted use in the RH zone under the Central Urban Renewal Area Plan.

The City also asked what process we propose for the review and approval of the proposed parking. The Urban Renewal Plan and the TDC require that the parking be made part of the master plan and ARB approval process. The applicant has conformed to this process requirement by filing this application for master plan review which will be followed by an application for ARB approval consistent with the TDC.

CURD GOAL 2: HOUSING

Please respond to the CURD objectives that value mixing residential development with commercial development and emphasizes a pedestrian orientation. As noted above, we anticipate that some members of the ARB, City Council and community will ask why you selected the proposed tenant mix without providing housing on the site.

This comment was previously addressed above on pages 19-20.

CURD GOAL 4: CIVIC DEVELOPMENT

The CURD Plan identifies the Nyberg Rivers site as part of the Tualatin Downtown. The proposed Master Plan does not clearly show or explain the project's elements and connections to downtown. Please refine the Master Plan to address how the proposal addresses this issue.

Goal 4 states:

“To promote civic facilities including community gathering spaces and other pedestrian amenities, a community center, library expansion and a City Hall in the Urban Renewal Area, which is supportive of other civic and private uses in the area.”

The applicant has proposed a plaza on site as well as a network of streets and sidewalks that provide community gathering spaces and pedestrian amenities. As shown on Exhibit Q 1 and Q2 attached with this letter, there are several amenities provided to create an enhanced pedestrian experience throughout Nyberg Rivers. Amenities include cove and bench seating, patios, tree grates, sculptures, water features, a pedestrian promenade, and larger sidewalks to promote pedestrian interaction and safe access through the central shopping corridor, as well as linkage to the north/south pathways into and through the parking areas and remainder of the site.

CURD GOAL 6: PEDESTRIAN AND BIKEWAYS

Please revise the appropriate plans mentioned below and resubmit.

- 1) Buildings D.1, D.2, and 1005: The Pedestrian & Bicycle Plan conflicts with the Site Plan (C1.0). The map denotes a walkway along the south side of the east-west drive aisle spanning the width of Buildings D.1, D.2 and 1005. The site plans show no such walk way. Please correct the discrepancy by the showing the walkway on a revised site plan.*

As shown on the updated Site Plan, a walkway is provided along the south side of the east-west drive aisle spanning the width of Buildings D.1, D.2, and 1005. This walkway now correlates to the walkways shown on the Pedestrian & Bicycle Plan. The South Elevation and Partial Plan within the master plan document have been updated to correct the discrepancy.

- 2) Building E-100 and F-100: No walkway connections are shown between Building E-100 and F-100 on the Development Plan, Site Plan or Pedestrian & Bicycle Plan.*

Building E-100 is an existing restaurant with drive-thru with queuing lanes located to the south and east of the building. The drive-thru is between Building E-100 and F-100, created a conflict for pedestrian and bikeway linkage. The applicant does provide pedestrian and bike access to the north of Building F-100, with bike and pedestrian access from E-100 only onto the Nyberg Road bicycle lane and sidewalk. The Nyberg Rivers Master Plan—Pedestrian & Bicycle Plan has been updated to reflect these connections.

- 3) Building A and B: There is a discrepancy between the Site Plan (C1.0) and the*

Development Plan regarding a landscaped island to the east of Building A. The landscaped island does not appear in the Site Plan. Although the Pedestrian & Bicycle Plan show a connection between Building A and B there is no connection shown on the Development Plan or the Site Plan (C1.0).

Buildings A and B are both existing buildings separated by a secondary driveway entrance and drive aisles. Building B does provide access to the north portion of the site from both the east and west sides of the building, while there are no additional pedestrian and bicycle paths provided from Building A. The Nyberg Rivers Master Plan—Pedestrian & Bicycle Plan has been updated to reflect these connections.

Arterial Paths connecting to Development- Show how pedestrian and bicyclist safety will be addressed in these areas where the paths lead to and cross the parking lot and primary vehicular circulation, such as with wide, raised crosswalks.

As shown on the street cross-sections provided with this letter, pedestrian paths will primarily feature detached sidewalks protected from vehicle lanes with landscape planters, with striping provided at vehicle crossing areas.

Tualatin River Greenway Shared Pathway width - Show Shared Pathway as 12' wide with 2' shoulders as indicated on Master Plan, page 11.

The updated Site Plan and master plan graphics show a 16-foot wide easement to accommodate a 12-foot wide pathway with 2-foot shoulders.

North/ South Shared Pathway: Safe Crossing of Primary Vehicular and Primary Truck Circulation - Show a safe bicycle and pedestrian crossing at the point where the pathway connects with the Tualatin River Greenway (where it crosses both the Primary Vehicular Circulation and Primary Truck Circulation), such as textured paving or with wide, raised crosswalks.

As shown on the Site Plan and cross-section A-A, the 14-foot north/south shared pathway does provide a striped crosswalk as the path crosses the east/west drive aisle in front of Buildings 1005 and 1010. An additional striped crosswalk is shown as the pathway continues north through the shopping center, and across the primary truck circulation area to connect to the Tualatin River trail.

Cross Section on Master Plan, Page 19 -Correct Section A as shown on Master Plan, page 19, to show Shared Pathway as 12' wide to be consistent with site plan and text on page 11.

Cross-section A-A has been updated to show a 14-foot shared pathway with tree wells. The Site Plan and accompanying text have also been updated to reflect the new cross-section A-A and 14-foot shared pathway.

Tualatin River Crossing - Acknowledge that a Shared Use Pathway is planned to cross the Tualatin River and indicate a willingness to provide an agreement to dedicate an easement (or acceptable land lease) in the future to accommodate a ramp and connecting pathway

for the future bridge over the Tualatin River.

The Applicant can agree to this additional easement and is willing to provide that easement or accept a conditional of approval to provide that easement in the future to accommodate a ramp and connecting pathway for the future bridge to the Tualatin River.

CURD GOAL 9: PARKS

Provision for Shared Pathway in Service Provider Letter, Enhancement, and Mitigation

1. *Confirm that the Applicant will amend the Service Provider Letter (or obtain a new one, if that is what CWS's requires) to provide for the Shared Pathway through the natural area and under I-5.*
2. *When the Service Provider Letter is amended, reconcile it to agree with Master Plan, page 11 which cites 12' width with 2' shoulders for clearance.*
3. *The rest areas shown on the Master Plan are not shown on the Service Provider letter, nor are any river access points, and they should be incorporated into the Service Provider Letter when amended.*
4. *Indicate that Shared Pathway location will be preserved if vegetated corridor enhancement is undertaken before pathway construction.*
5. *Identify when and where offsite mitigation will occur.*

CenterCal has provided and illustrated an easement for the Shared Pathway. This easement is shown on the updated Site Plan and accompanying master plan exhibits. The applicant is willing to build this Shared Pathway as part of this development project, subject to an important condition precedent. The proposed project has been evaluated for its impact on the transportation facilities in the area including pedestrian, bicycle and pedestrian facilities. Based on that evaluation, the applicant has proposed to provide adequate facilities to mitigate for any reasonably related impacts in direct proportion to the magnitude of those impacts. In addition to its proportionate share of mitigation measures, the applicant has also agreed to secure the Shared Pathway easement. It is the applicant's position that requiring the applicant to also construct this shared pathway exceeds the constitutional limitations on exactions and should not also be requested by the City under this application. As shown on Exhibit A, the Site Plan, and Exhibit L, the Pedestrian & Bicycle Plan, the applicant does provide connectivity and pedestrian linkage both into and through the site in both east/west and north/south direction. These connections draw the user into the site and provide safe and efficient access from the parking area to the central commercial area.

Despite these findings, the Applicant can agree to build the pathway improvements subject to a discussion and agreement with the City on the costs of the on and off site public improvements already proposed for the project and the allocation of the SDC credits available to the site and the project. The Applicant is confident that this issue can be resolved with the City prior to the master plan hearing before the City Council.

Tualatin River Greenway -

Describe the Tualatin River Greenway in the Application and show it on the Master Plan Documents. Identify the agency (City or Clean Water Services) to which the natural area tract or lot will be granted to ensure compliance with Service Provider Letter and/or Tualatin River Greenway resource protection requirements.

From our understanding, and based on research into the Tualatin River Greenway, there is no specific physical delineation of the Tualatin River Greenway is proposed to align, aside from general maps showing a trail on the south side of the Tualatin River. The applicant does show the trail within the proposed 16-foot easement for that portion of the applicant's property, but does not show where that trail may extend to the east or the west into the adjacent properties. Thus, the Greenway has been illustrated on the Site Plan and Nyberg Rivers Master Plan—Pedestrian & Bicycle Plan within the applicant's property. The natural area tract will be granted in fee simple to the City of Tualatin or Clean Water Services to ensure compliance with the Greenway resource protection requirements.

Shared Pathway Location-

- 1. The Shared Pathway needs to connect with Boones Ferry Road via a connection with the Library with a safe crossing of Street A and avoiding a crossing of the access driveway for Future Development Area 4.*
- 2. Clarify if the Memorial Rose Garden will be impacted by the Shared Pathway.*
- 3. Consider consolidating the existing sidewalk on city property on the west side of the City Office Building with the Shared Pathway by relocating and/or replacing the existing shade trees in order to create more landscaping separation between the parking stalls and the Shared Pathway and within the cross section of that segment of Street A.*
- 4. Show possible connections with the apartments in Future Development Area 4.*

The Cardno Response shows the Shared Pathway connection to Boones Ferry Road with a safe crossing of Street "A" on both the updated Site Plan and cross-section D-D. The connection provides a striped crosswalk across Street "A" and the driveway shown on the south side of Street "A", before connecting to the 12-foot wide shared pathway connection to Boones Ferry Road. The Memorial Rose Garden will not be effected or impacted by the Shared Pathway as shown on the updated Site Plan and Nyberg Rivers Master Plan—Pedestrian & Bicycle Plan. The existing sidewalk on the City property on the west side of the City Office Building has been consolidated with the Shared Pathway as shown on the updated Site Plan (Exhibit A) and Nyberg Rivers Master Plan—Pedestrian & Bicycle Plan (Exhibit L). The connections with the multi-family development in Future Development Area 4 are shown on both the Site Plan and Pedestrian & Bicycle Plan. These connections are made through a new easement linking the multi-family

development and Area 4 to Street A and the retail center as well as the 12-foot Shared Pathway with connection to Boones Ferry Road and the sidewalks along both side of Martinazzi Ave.

Trail Heads and River Overlooks - Clarify why the trail heads and river overlooks that were shown on earlier plans and in discussions do not appear on the proposed Master Plan Documents.

These improvements are part of the development of the shared pathway. Our comments on this issue have been provided above. If the Applicant develops the shared pathway, these pathway elements will be included in that project.

Art walk - The Art Walk can be shown and/or noted as extending from the Library to the mastodon sculpture, Cabela's, and other art identified on the Master Plan, if the Applicant wishes.

The Nyberg Rivers Master Plan—Pedestrian & Bicycle Plan (Exhibit L) has been updated to show a linkage of the Nyberg Rivers pedestrian network with the existing Art Walk path. The Art Walk is shown to extend from Boones Ferry Road and SW Seneca Street into the site.

Ice Age Discovery Trail - A master plan for an Ice Age Discovery Trail is being developed. It will overlap the Art Walk, Tualatin River Greenway Trail, and the North/South Shared Pathway. It can be shown and/or noted, if the Applicant wishes.

The Ice Age Discovery Trail is located west of Nyberg Rivers and the downtown area. The applicant will not preclude connection to the Ice Age Discovery Trail on the property. The City has not yet delineated an alignment on this property, the applicant is willing to work with the City to establish an alignment on the property that is mutually acceptable.

CURD GOAL 11: DESIGN CONSIDERATIONS

Urban Forestry:

Tree Removal -Indicate the trees that will be removed for all that are greater than 8" diameter at 4' height.

Exhibit N, the Tree Removal Plan, illustrates all of the trees that are to be removed that are greater than 8 inches in diameter at 4 feet in height.

Street Trees -Clarify the specific species of trees proposed to be planted along all the interior and exterior roadway frontages to ensure that the trees serve the purpose of the Street Tree Program and will fit in the locations proposed.

The selected trees for the interior and exterior roadway frontages are shown on Exhibit J, the Landscape Plant Material Schedule included with this letter. Each of these trees serves the purpose of the Street Tree Program and will fit in the locations proposed.

Topping - Indicate that all the trees on the site that were previously topped will be removed and that replacement trees will not be topped as either a horticultural practice or to increase the visibility of stores and/or signs.

All previously topped trees will be removed and future topping will be prohibited as either a horticultural practice or to maintain sign visibility.

Tree Protection - The submitted plans do not provide information on tree protection. Please include information on preservation plans for the prominent Nyberg House tree grove (Tax Lot 2502) and the large conifer trees on Tax Lot 2700.

The applicant is not proposing to remove any protected trees from the site. Prior to commencing site planning activities on the site the applicant met with the City planning department to identify any protected resources on the site. The applicant's site plan avoids any protected resource consistent with the City's acknowledged comprehensive plan. The trees proposed for removal on Tax Lot 2502 and 2700 are not protected resources. Those trees to be preserved or left untouched are noted on the Tree Removal Plan included with this response letter. Those trees located within tax lot 2502 are all proposed to be removed, while those trees outside the conservation area within tax lot 2700 are proposed to be removed.

New Trees - The submitted plans show small to medium deciduous trees on the site's east boundary adjoining I-5. No conifer or evergreen trees are shown in the landscape concept plans. Conifer or evergreen trees would provide additional interest and buffering for the development to the freeway and a mix of trees types consistent with the characteristic tall conifers in the central part of Tualatin and along the river. Please provide information on proposed conifer tree planting locations adjacent to I-5 frontage.

As shown on the Landscape Theming Plan provided in the Nyberg Rivers Master Plan, the site is divided into 3 distinct ecosystems. The frontage along I-5 includes both the Central Oregon and Tualatin River ecosystem. Under the legend displaying proposed plantings for each ecosystem, specified trees include Doug Firs, Bristlecone Pines, Alpine Firs, and Western Red Cedars. These trees are all classified as coniferous trees. Proposed plantings are identified within the Landscape Plant Materials Schedule, provided with this letter under Exhibit J.

Bicycle Parking - Show where covered and uncovered bicycle parking will be located.

Bicycle parking and specific locations for covered and uncovered bicycle stalls will be provided at the time of ARB submittal.

Loading and Service Areas - The proposed Nyberg Rivers loading/service area is adjacent to residential development and will be adjacent to future greenway and the multi-use paths that will be used by the general public. The appearance of a loading area, conflicts between public and loading activities, potential for noise disturbances associated with loading and truck activities create issues for consideration in the Master Plan. Please provide additional information on proposed loading area design concepts including loading dock locations,

orientations, screening, sound walls, truck maneuvering areas, truck circulation and access routes, fencing, gating, buffering to residential areas.

The Loading and Service Areas were also addressed above under the truck circulation discussion. To reiterate, the revised plans show primary truck access using the Nyberg Road entrance into the site, circling the shopping center in a counterclockwise loop to the loading and service areas, before returning on the west side to the southbound Nyberg Road exit. These truck access areas all feature 26-foot drive aisles to meet the minimum requirement.

Urban Design:

a. All the proposed Nyberg Rivers buildings are one-story. The CURD Plan calls for more intensive downtown development that can be achieved with multi-story buildings, variation in building height, roof and wall architecture. Building 1040 has large gabled roof at mid-building with relatively little vertical relief at parapet. Please provide additional building levels and variation in building height.

The applicant has provided additional architectural details that demonstrate varied building heights, roof and wall architecture. The building envelopes proposed for the site meet all of the applicable building mass requirements for the CO and CC zones in which they are located. The applicant concurs that this additional design work, illustrated in the Building Elevations provided in the master plan will add a design richness to the site that will directly implement the CURD Plan objectives and vision.

b. The proposed sporting goods store (Building 1040) has large expanses of windowless walls on the south, east and west elevations. Little to no visual connection between the store interior and the exterior including walkways and parking areas is available as proposed. No visual connection between the 1040 Building and the Tualatin River and Greenway area is provided. The CURD Plan calls for attractive buildings in the downtown, a strong pedestrian environment and orientations to the river. To achieve this, please provide a Master Plan proposal that provides additional large scale windows on the Building 1040 south, east and west elevations. This comment reinforces comments already provided in the High Priority section.

As shown on the updated Site Plan and Pedestrian & Bicycle Plan within the master plan, Building 1040 does include a pathway from the river side of the building out to the natural area shared pathway. The applicant will work with the tenant and tenant's architect to develop building elevations with greater glazing and large scale windows on the south, east and west elevations. Also, additional vertical design elements will be addressed at the time of ARB submittal.

c. Buildings 1040, F-100 thru J-100 have a limited range of distinguishing design feature and material. Corporate "branded" designs dominate. This takes away from the CURD objectives for development consistent with Tualatin's downtown and the Tualatin Commons. Please introduce opportunity for architecture and design closer to a chosen thematic concept and incorporating more of Northwest style architectural elements.

The design of the site is a function of the built and landscape environment. The landscape plan is an aggressive and creative approach to the site design that specifically reflects the Northwest Style. As shown on the Landscape Theming Plan included with the master plan, the landscape elements are differentiated between the Coast Range, Central Oregon, and Tualatin River ecosystem. These ecosystem elements are created through a variety of tree, shrub, and groundcover plantings that transition as a user passes through the site in and east/west direction.

d. Please explain parking needs in respect to individual uses in the shopping center, compliance with minimum and maximum parking

A breakdown of individual uses and the parking requirement per building is summarized in the table below.

OFF-STREET PARKING BREAKOUT BASED ON SPECIFIC TENANT USES

BUILDING	SF	USE	MINIMUM PARKING RATIO	MINIMUM PARKING	MAXIMUM PARKING RATIO	MAXIMUM PARKING
1005	30,000	Retail Shop	4/1000	120	5.1/1000	153
1010	21,750	Retail Shop	4/1000	87	5.1/1000	111
1030	2,900	Restaurant Shopping	10/1000	29	19.1/1000	55
1040	110,000	Center	4.1/1000	451	5.1/1000	561
A	12,500	Retail Shop	4/1000	50	5.1/1000	64
B	5,850	Retail Shop	4/1000	23	5.1/1000	30
C	3,950	Bank	4.3/1000	17	5.4/1000	21
D	32,459	Retail Shop	4/1000	130	5.1/1000	166
E	3,285	Bank Drive Up	4.3/1000	14	5.4/1000	18
F	5,500	Restaurant	9.9/1000	54	12.4/1000	68
G-100	6,200	Restaurant Drive Up	10/1000	62	19.1/1000	118
H-100	4,679	Restaurant	9.9/1000	46	12.4/1000	58
J-100	5,734	Restaurant	10/1000	57	19.1/1000	110
M-100	8,000	Retail Shop	4/1000	32	5.1/1000	41
N-100	45,000	Health Club	1/1000	45	1.3/1000	59
	297,807		TOTAL	1,218		1,632

OFF-STREET PARKING BREAKOUT BASED ON A SHOPPING CENTER USE

Total Area	297,807	Shopping Center	4.1/1000	1,221	5.1/1000	1,519
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As shown on the Site Plan included as Exhibit A, there are 1,294 stalls provided at Nyberg Rivers. As demonstrated in the associated tables provided above, the applicant does provide

adequate parking to fit within the minimum and maximum parking ratio requirements, whether the breakdown is provided for each specific tenant use or if the requirement is based on an overall shopping center use designation.

e. Please explain any proposals for oversized parking stalls (Campers, RVs, Trailers, Boats), and any concepts for allowing overnight parking. As we have discussed in previous meetings, overnight parking is not permitted in Tualatin. No overnight parking w/RV.

No overnight parking is proposed on the site. The over-sized RV stalls will serve users who visit the site in RVs. Such users are not permitted to overnight in the parking stalls and no accommodations for that kind of use are proposed in this application.

The City's June 3rd letter also requested a response on additional issues but asked that these be included in an application for Architectural Review. The applicant will address those issues as requested by the City in the Architectural Review.

Thank you for your attention to this project. We believe this response will help the City present a favorable staff report to the City Council and that your questions and our responses and modifications will result in a better outcome and a more successful City Council Master Plan hearing on July 22. As requested we have submitted these comments by June 24, 2013 in anticipation for the July 22, 2013 scheduled Council hearing.

Best regards,

Hank Murphy

Enclosures

PROJECT SUMMARY

MASTER PLAN AREA:	44.15 ACRES
FUTURE DEVELOPMENT AREAS: (by others)	12.24 ACRES
<hr/>	
PRIMARY DEVELOPMENT AREA:	
GROSS AREA:	31.91 ACRES
NATURAL AREA:	5.33 ACRES
NET AREA:	26.58 ACRES
REQUIRED LANDSCAPE AREA:	15% / 4.78
ACRES	
LANDSCAPE AREA PROPOSED:	10.34 ACRES
FLOOR AREA RATIO:	0.265
TOTAL PERMISSIBLE BUILDING AREA:	307,000 SF

BUILDING	AREA
BLDG 1005	33,562 SF
BLDG 1010	21,750 SF
BLDG 1030	2,900 SF
BLDG 1040	110,093 SF
BLDG A	12,500 SF
BLDG B	5,850 SF
BLDG C	3,950 SF
BLDG D	32,459 SF
BLDG E	3,285 SF
BLDG F	5,500 SF
BLDG G-100	6,500 SF
BLDG H-100	4,526 SF
BLDG J-100	5,797 SF
BLDG N-100	45,000 SF
TOTAL:	293,672 SF

ADDITIONAL POTENTIAL BUILDING AREA: 13,328 SF

TOTAL PROVIDED STALLS:	1,320 stalls
PARKING RATIO:	4.49/1,000 SF
PARKING STALL DIMENSIONS:	STANDARD 9-ft X 19-ft COMPACT 7.7-ft X 16-ft

- Notes:
- "Site Area" includes only the areas of Tualatin Urban Renewal Blocks that are subject of this development proposal. Other phases of the Master Plan may be developed by others.
 - Required Landscaping based on Gross Site Area
 - Building areas listed in table may differ from actual footprint size to allow for interior walls and architectural elements.
 - For design detail of the handscape and landscaping along shops of buildings D.2, 1005, 1010, 1030 and 1040, reference Exhibit Q-1 Building Frontage Landscape Plan.



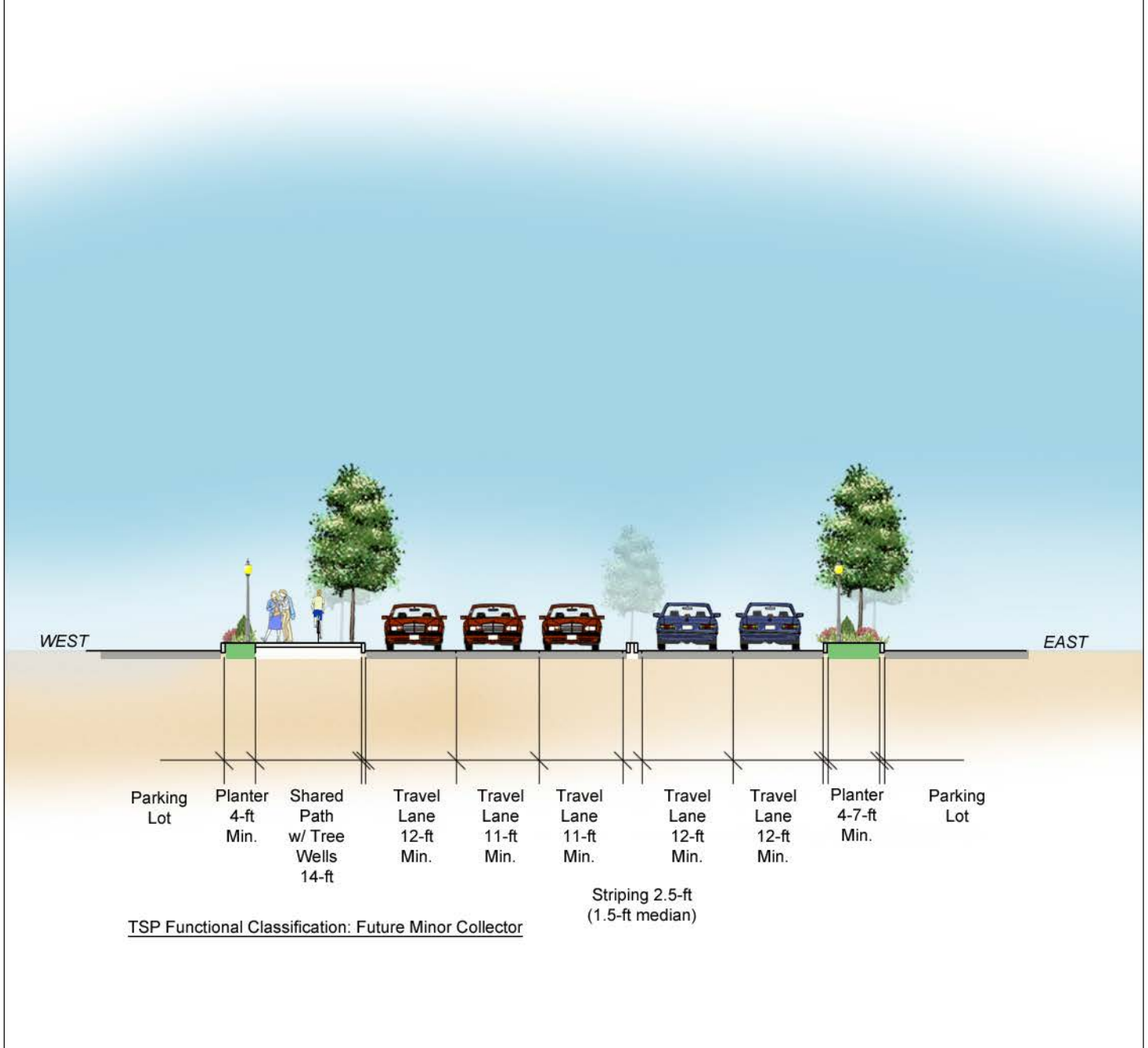
Delta Summary

2013 TSP Minimum Standards

- No on-street bicycle lanes
- No east side sidewalk
- Shared pathway in lieu of sidewalks
- No planter along western travel lane

City Comments (June 3, 2013)

- East side planter strip is 4 to 7-ft between curbs
- One 12-ft southbound travel lanes, other are 11-ft



Nyberg Rivers

A-A- Nyberg Main Entry

DATE: 06-11-2013

TUALATIN, OREGON



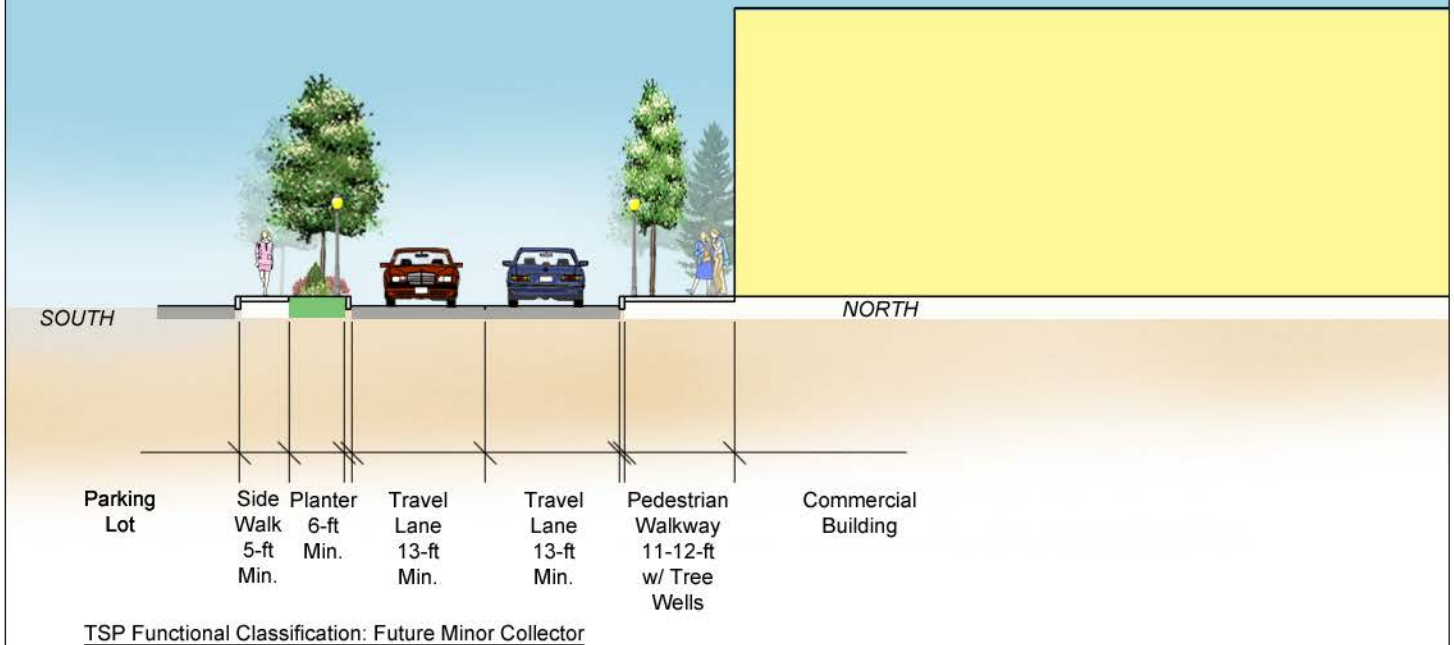
Delta Summary

2013 TSP Minimum Standards

- No on-street bicycle lanes
- No planter along northern travel lane

City Comments (June 3, 2013)

- No Planter along northern travel lane
- 5-ft Sidewalk on south side



Nyberg Rivers

B-B - Michaels Frontage

DATE: 06-11-2013

TUALATIN, OREGON



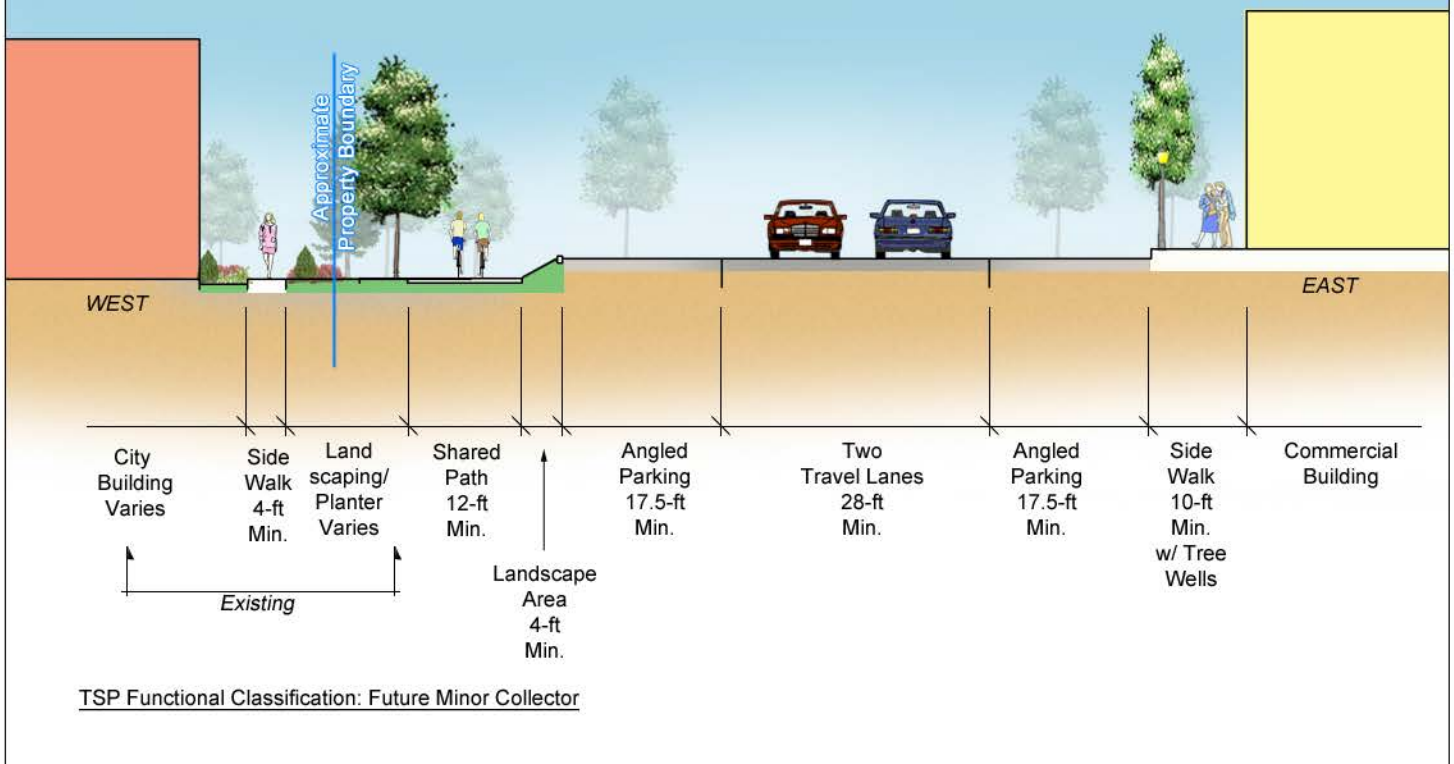
Delta Summary

2013 TSP Minimum Standards

- On-street angled parking along both sides
- No on-street bicycle lanes
- No planter along travel lanes
- Shared pathway in lieu of sidewalk on west side

City Comments (June 3, 2013)

- No-Objections



Nyberg Rivers

C-C - Retail Shop Frontage

MP-13-01 Attachment 102D, page 34

DATE: 06-11-2013

TUALATIN, OREGON



0 10' 20'

SCALE IN FEET

Exhibit D

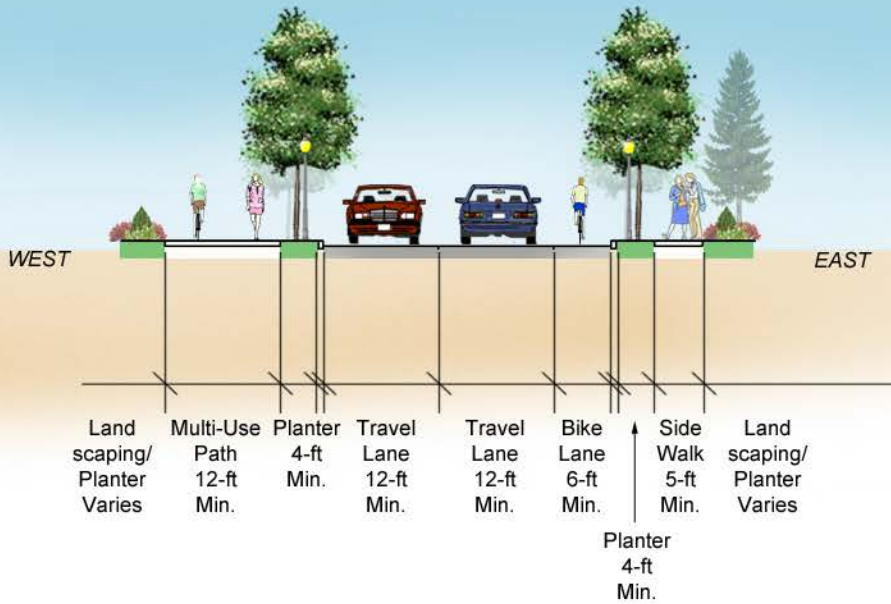
Delta Summary

2013 TSP Minimum Standards

- No Parking Strip
- 4-ft planters along travel lanes
- No on-street bicycle lanes along west travel lanes
- 12-ft Shared pathway in lieu of sidewalk on west side

City Comments (June 3, 2013)

- 12-ft travel lanes
- No pork-chop shown on cross section (to be shown on site plan)



TSP Functional Classification: Future Minor Collector

Nyberg Rivers

DATE: 6-11-2013



0 10' 20'

D-D - Street "A"

TUALATIN, OREGON

SCALE IN FEET

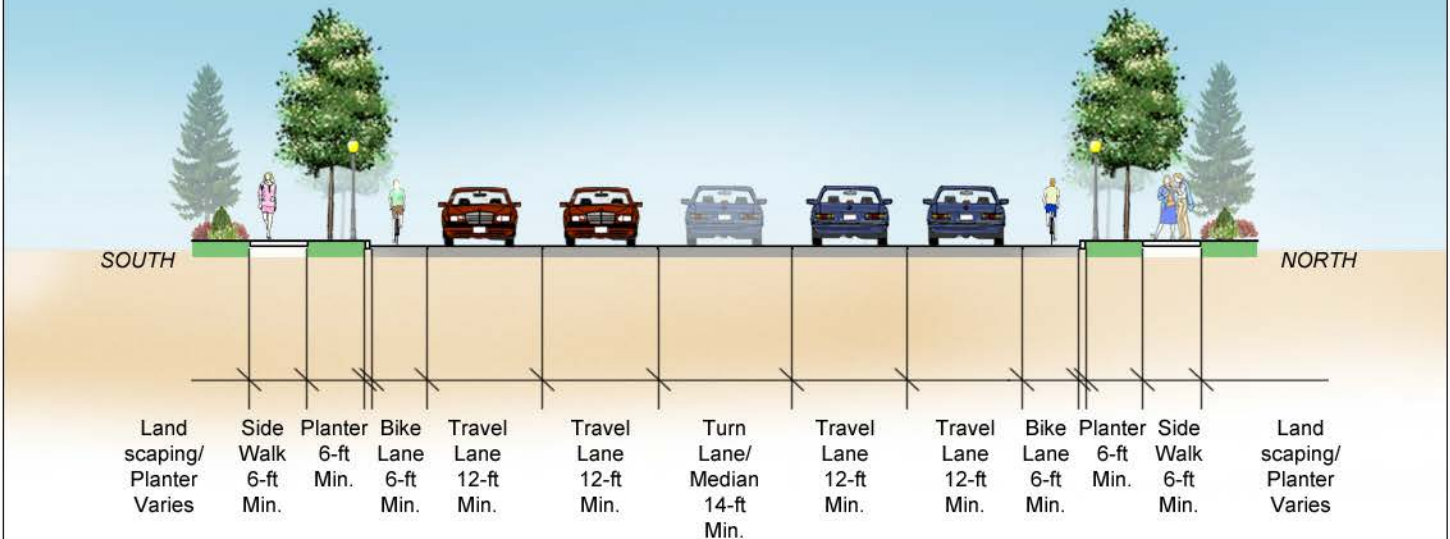
Delta Summary

2013 TSP Minimum Standards

- No Conflicts

City Comments (June 3, 2013)

- Four 12-ft travel lanes
- One 14-ft center turn lane/median
- No median shown on cross section (to be shown on site plan)



TSP Functional Classification: Major Arterial

Nyberg Rivers

E-E - Boones Ferry Road

DATE: 6-11-2013

TUALATIN, OREGON



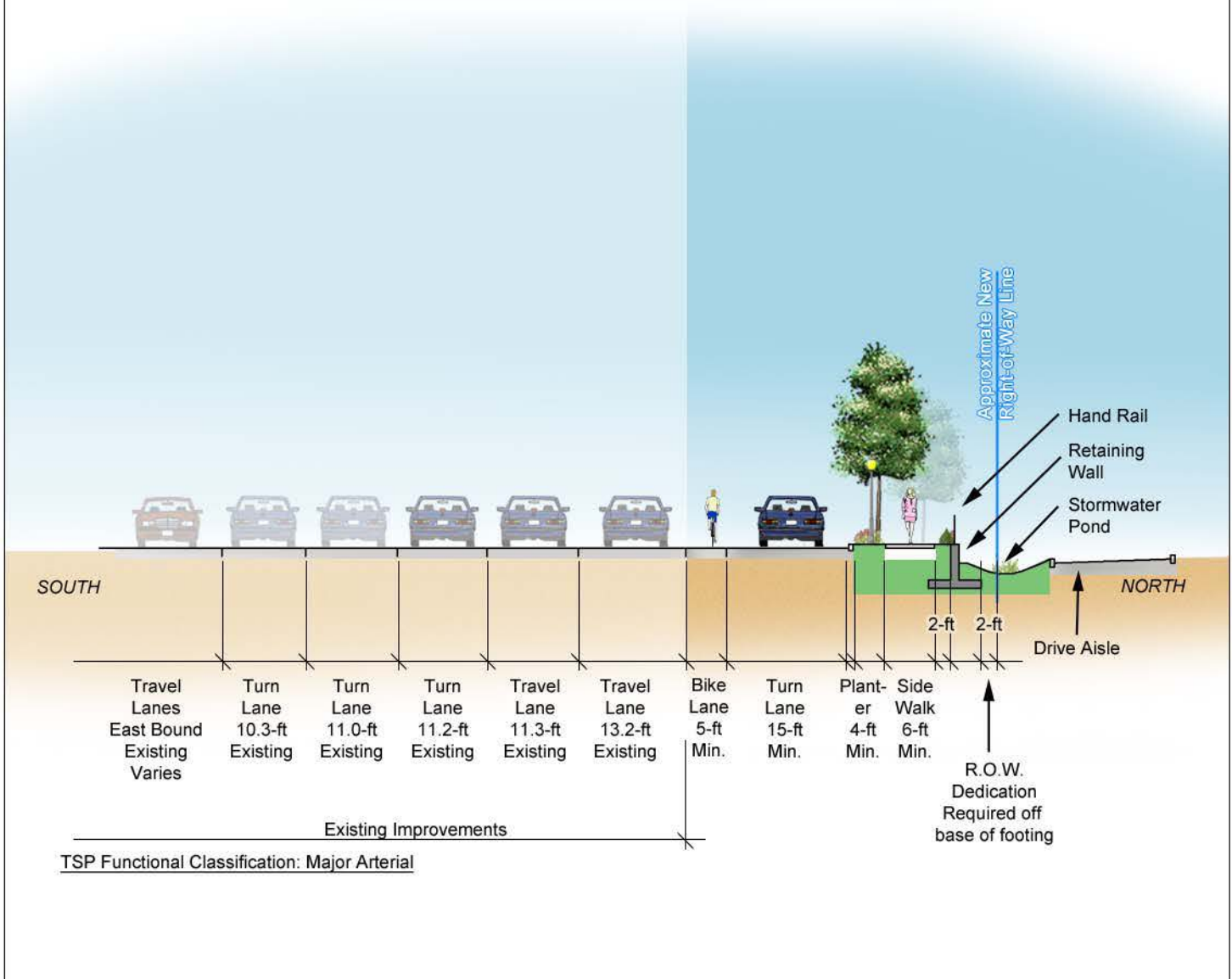
Delta Summary

2013 TSP Minimum Standards

- 15-ft turn lane north of bike lane
- 4-ft planter along north turn lane
- No change to existing travel lanes

City Comments (June 3, 2013)

- 15-ft turn lane north of bike lane
- 4-ft planter along north turn lane
- No change to existing travel lanes
- No cross walk notes added (to be addressed in development application)
- 5-ft bicycle lane



Nyberg Rivers

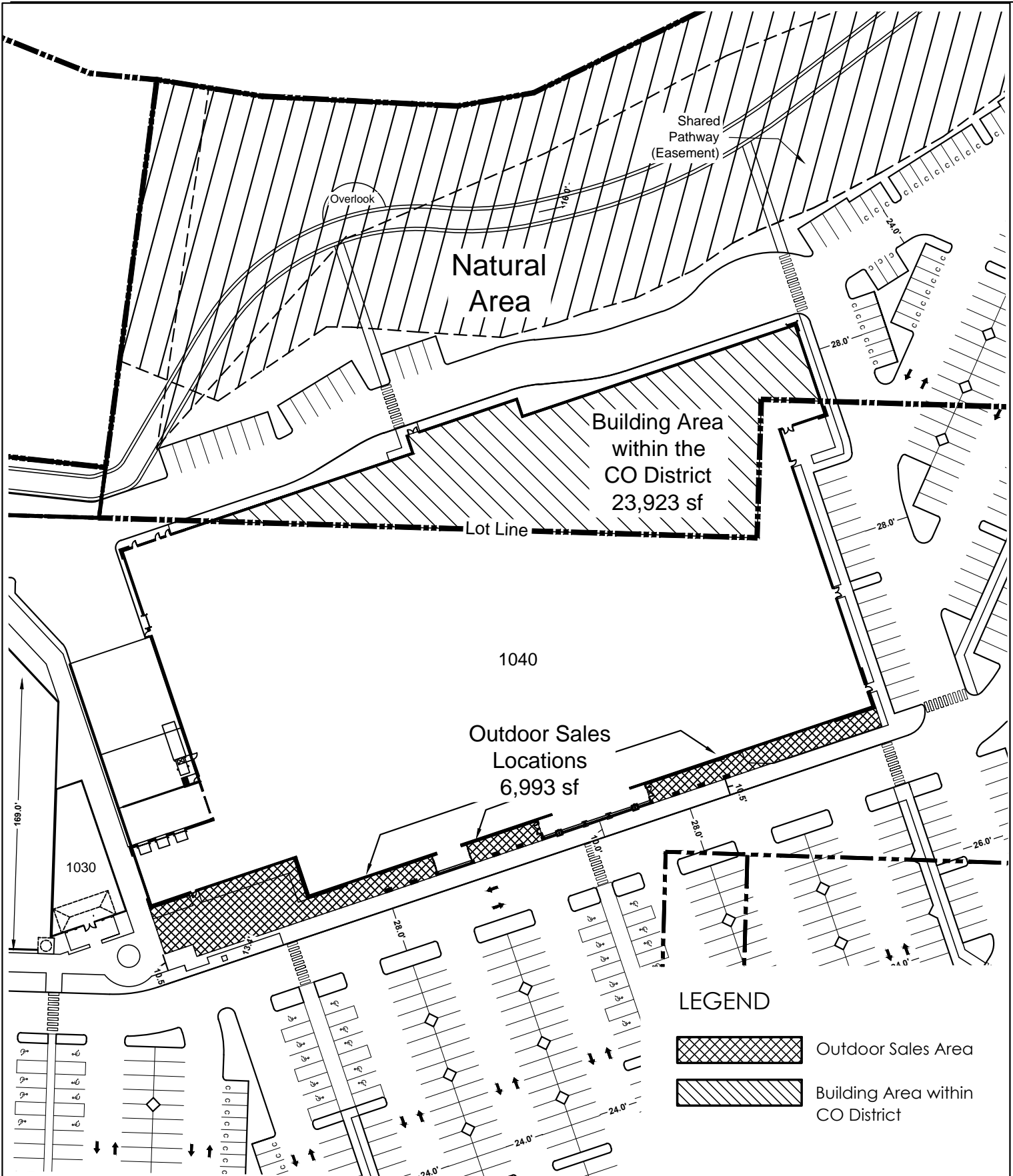
DATE: 6-25-2013



G-G - Nyberg Road - I-5 to Eastern Entrance TUALATIN, OREGON

MP-13-01 Attachment 102D, page 38

Exhibit H



Cardno
Shaping the Future

PORTLAND
5415 SW WESTGATE DR, STE 100, PORTLAND, OR 97221
TEL: (503) 419 - 2500 FAX: (503) 419 - 2600
www.cardno.com

Nyberg Rivers
Conditional Use Exhibit

CenterCal

PROJECT NO. 21198310
DATE: 06/13/2013
BY: RG
SCALE: 1" = 80'
SHEET NO. —



LANDSCAPE PLANT MATERIAL SCHEDULE

TUALATIN RIVER PLANTINGS		
ITEM	SIZE	QTY.
DECIDUOUS TREES		
OREGON WHITE OAK	2" CAL / B&B	399
WESTERN DOGWOOD	AS SHOWN	
WESTERN HAWTHORN		
PAPER BIRCH		
SCARLET OAK		
MARSHALL ASH		
EVERGREEN TREES		
WESTERN RED CEDAR	6-7 HT / B&B	33
DOUGLAS FIR	AS SHOWN	
SHRUBS / GROUNDCOVER		
BEARBERRY	1-3 GAL.	70,459 SF
OREGON GRAPE HOLLY		
NOOTKA ROSE		
SEDGES AND RUSHES		
CENTRAL OREGON PLANTINGS		
ITEM	SIZE	QTY.
DECIDUOUS TREES		
RIVER BIRCH	2" CAL / B&B	116
THORNLESS HONEYLOCUST	AS SHOWN	
TOBA HAWTHORNE		
SERVICEBERRY		
GOLDEN DESERT ASH		
EVERGREEN TREES		
BRISTLECONE PINE	6-7 HT / B&B	23
ALPINE FIR	AS SHOWN	
SHRUBS / GROUNDCOVER		
RABBITBUSH	1-3 GAL.	32,325 SF
BIG SAGE		
MOUNTAIN MAHOGANY		
POTENTILLA		
PIONEER JUNIPER		
COAST RANGE PLANTINGS		
ITEM	SIZE	QTY.
DECIDUOUS TREES		
COAST LIVE OAK	2" CAL / B&B	38
BEACH PLUM	AS SHOWN	
RED SUNSET MAPLE		
URBANTE ASH		
EVERGREEN TREES		
SHORE PINE	6-7 HT / B&B	3
MADRONE	AS SHOWN	
SHRUBS / GROUNDCOVER		
BEACH ROSE	1-3 GAL.	9,886 SF
PACIFIC WAX MYRTLE		
SALAL		
BUNCHBERRY		
AMERICAN DUNEGRASS		

Exhibit J

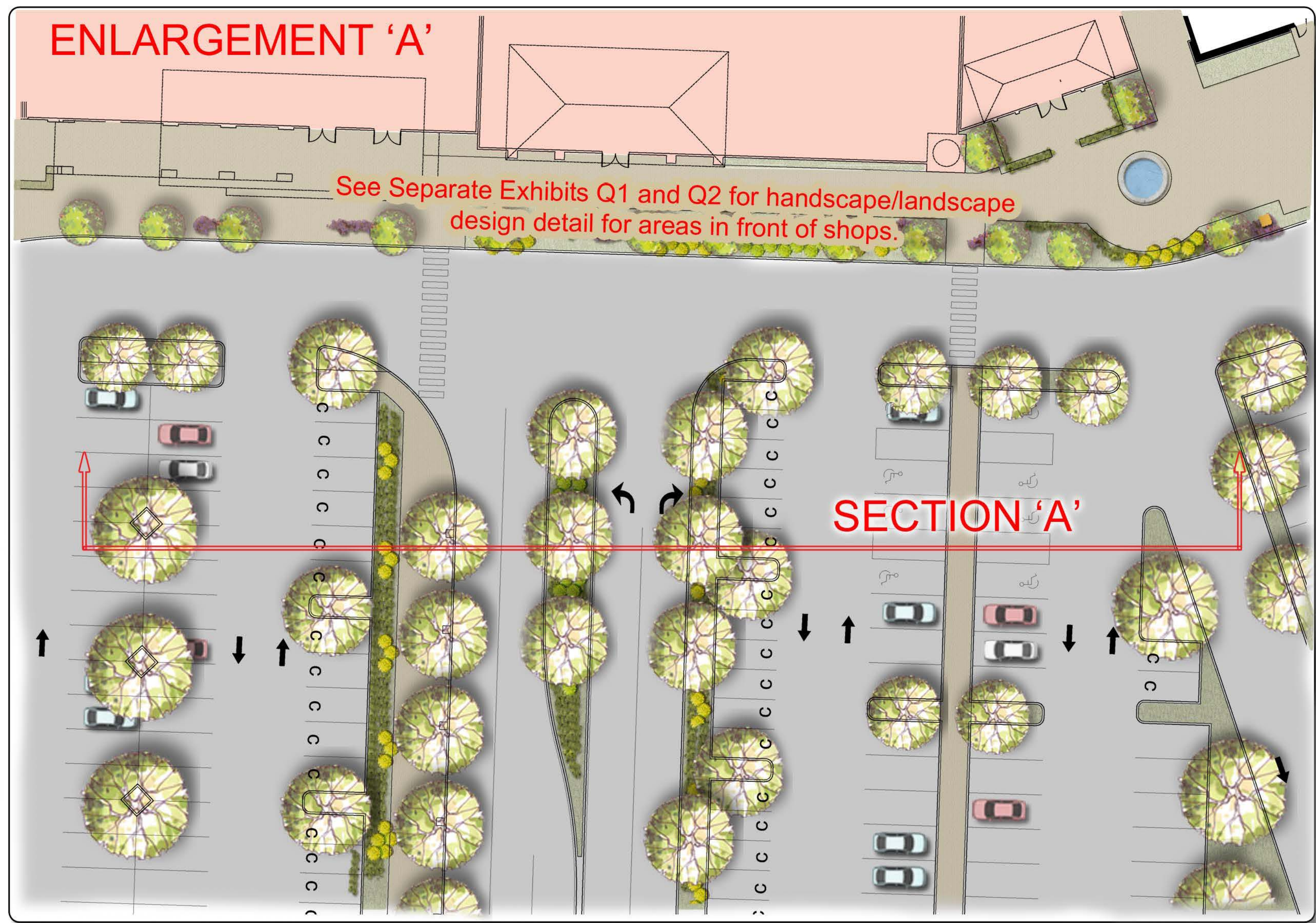
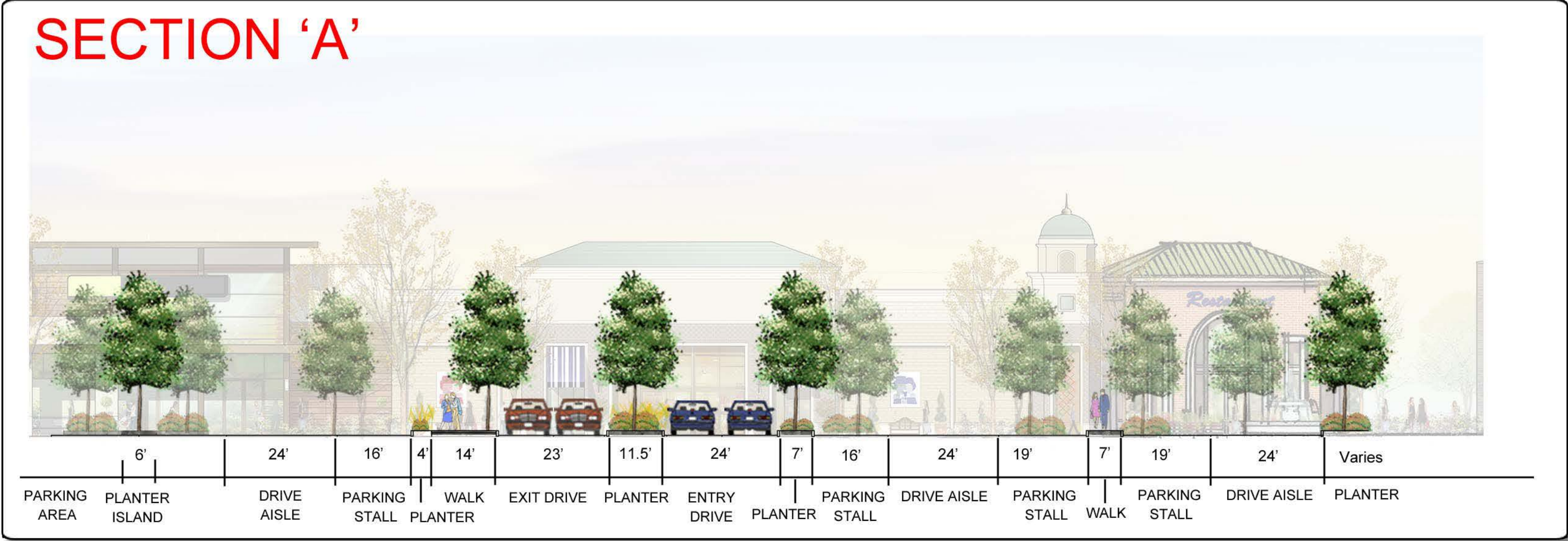


Exhibit K

Nyberg Rivers

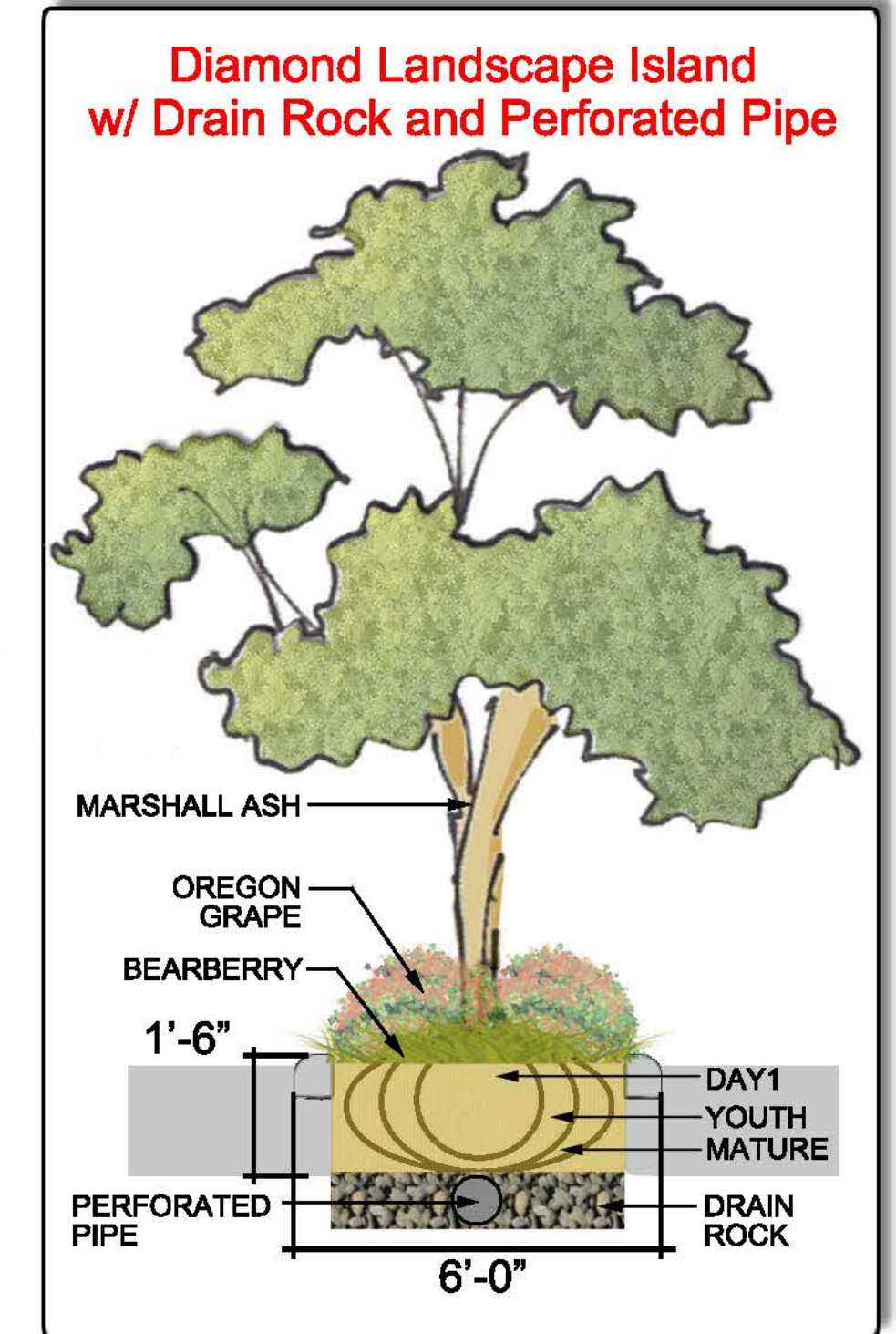
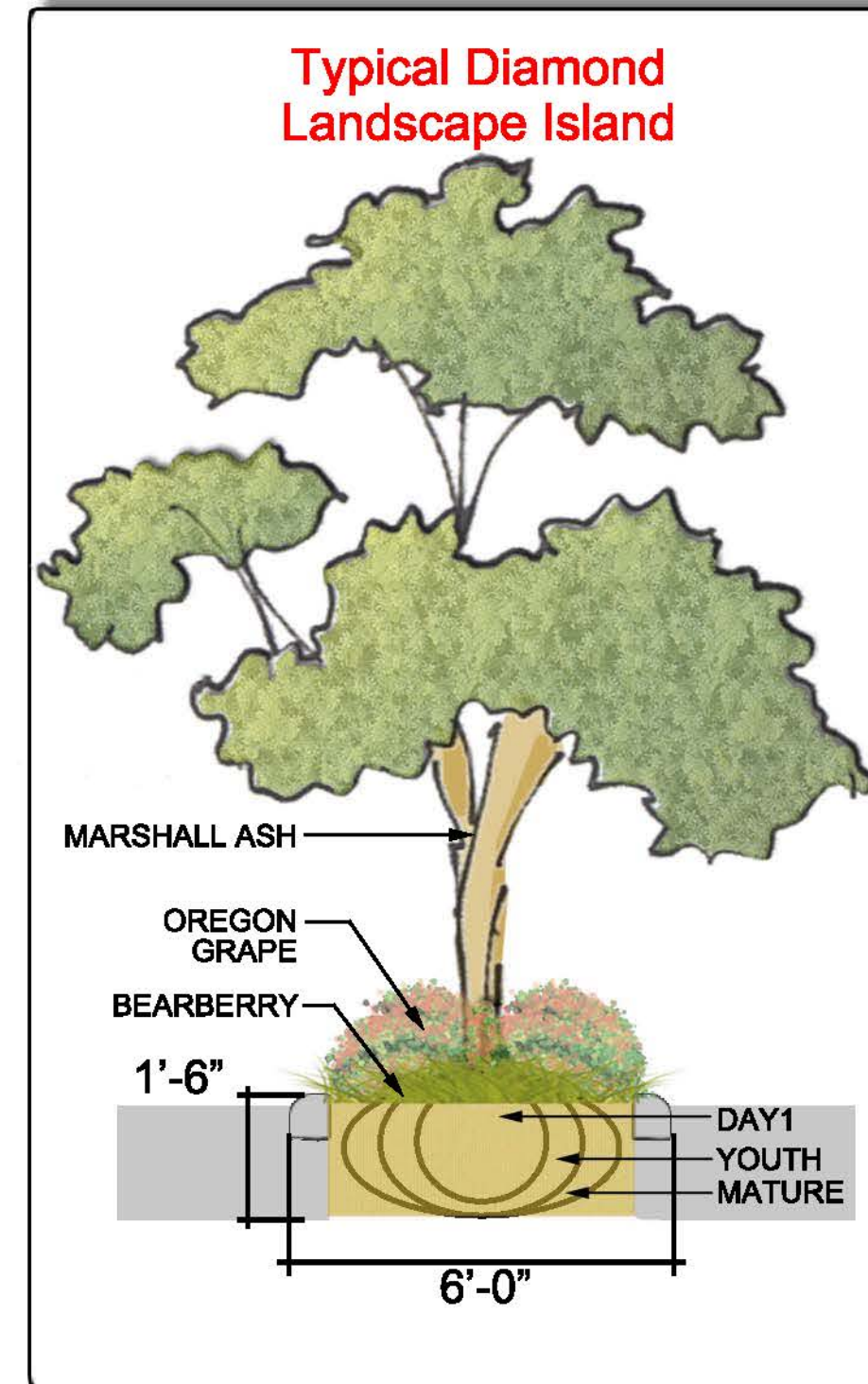
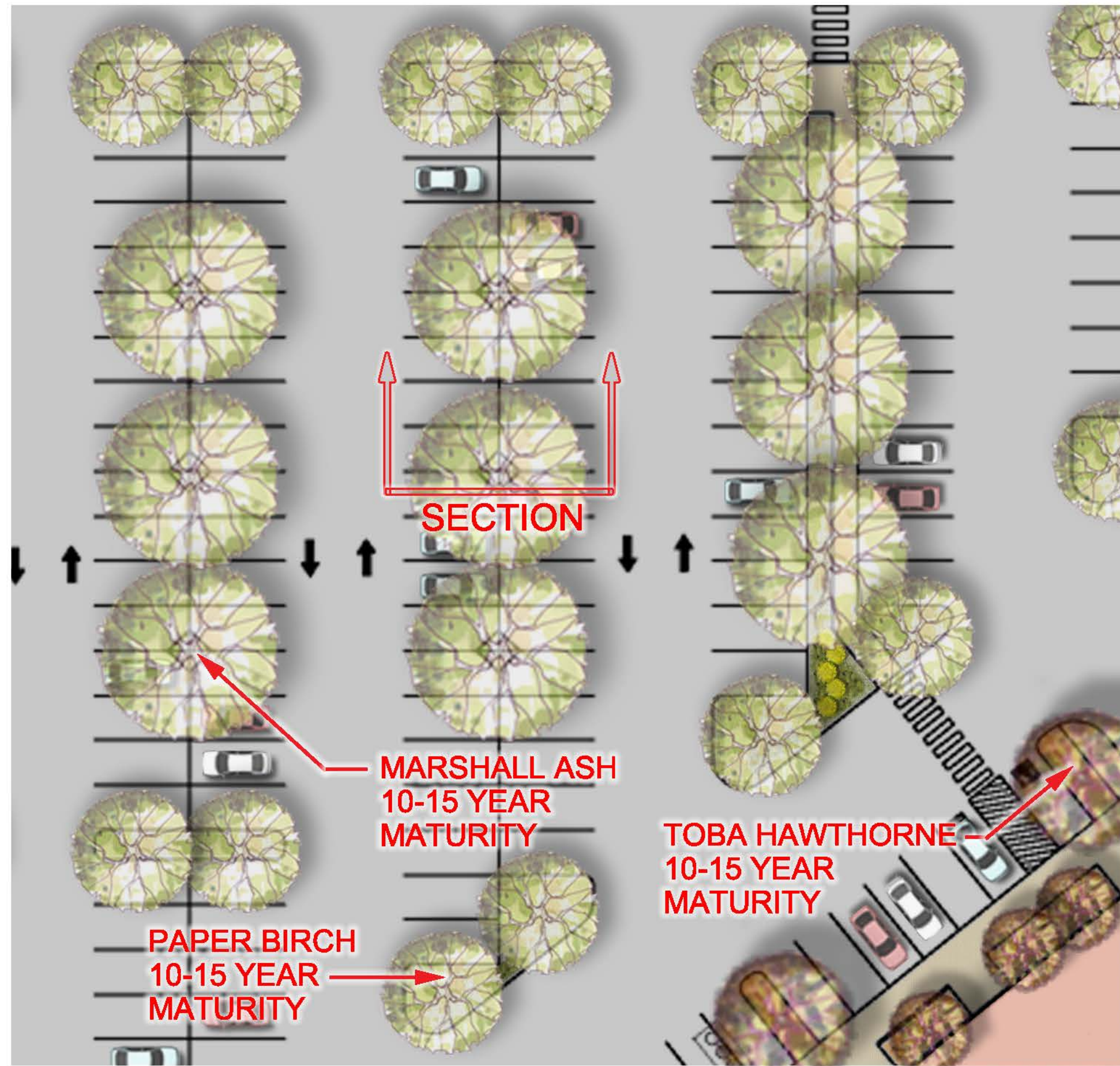
Enlargement 'A' Plan View and Section

CENTERCAL PROPERTIES, LLC

TUALATIN, OREGON

NOT TO SCALE
DATE: June 27, 2013
21198310

ENLARGEMENT 'C'



Nyberg Rivers

Enlargement 'C' Plan View & Sections

CENTERCAL PROPERTIES, LLC

TUALATIN, OREGON











NOT TO SCALE
0 50 100 200

DATE: 12 June, 2013
21198310



LEGEND

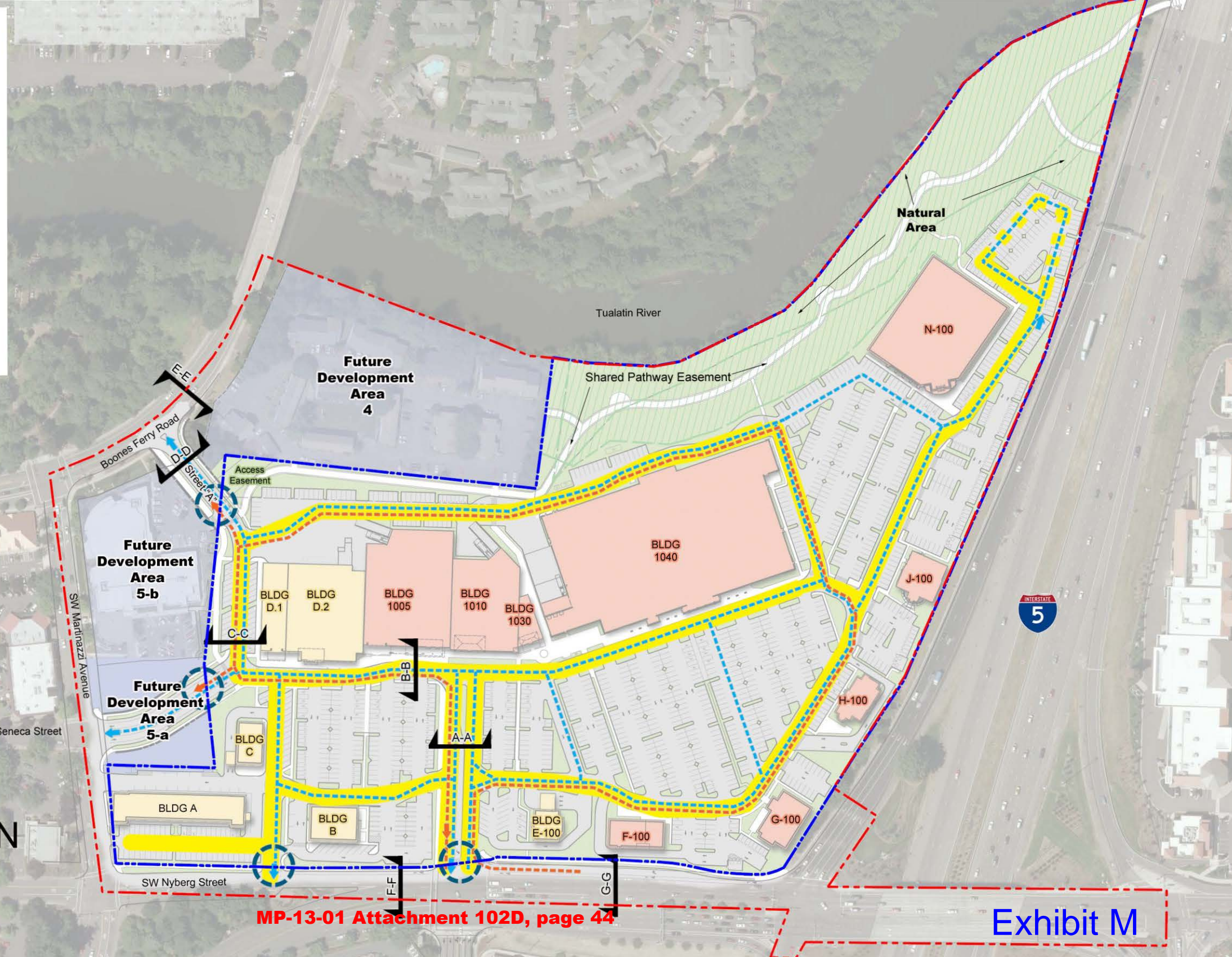
-  Primary Pedestrian Circulation Routes
-  Shared Pathway Easement
-  Future Bicycle Lanes (City)
-  Future Bicycle Lanes (Developer)
-  Existing Bicycle Lanes
-  Art Walk (Existing)
-  Master Plan Boundary
-  Primary Development Area



PEDESTRIAN & BICYCLE PLAN

LEGEND

- Primary Vehicular Circulation
- Primary Truck Circulation (Large Deliveries)
- Primary Site Vehicular Access Points
- Master Plan Boundary
- Primary Development Area
- Street Cross Section Locations
- Fire Access Drive Aisles
Two-Way 26-ft or Wider OR
One-Way 24-ft or Wider
- Accommodating Fire Access



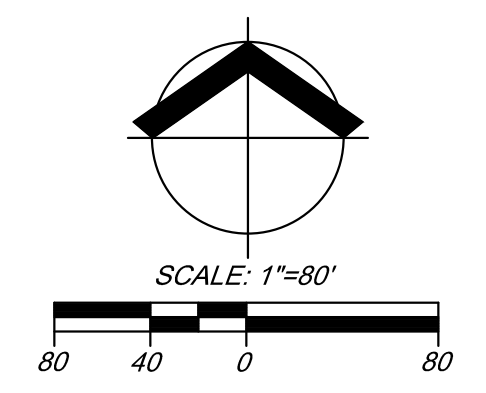
TRANSPORTATION PLAN



LEGEND

- PROPERTY LINE
- LOT LINE
- TEMPORARY CONSTRUCTION DRIVEN FENCE
- EXISTING TREE TO BE REMOVED
- PROTECT EXISTING TREE
- NATURAL AREA

- TREE NOTES**
- 1 EXISTING TREE TO BE REMOVED.
 - 2 EXISTING TREE TO REMAIN IN PLACE. INSTALL PROTECTIVE FENCE AROUND THE TREE. PROTECTIVE FENCE SHOULD BE PLACED 10' AROUND TREE FOR EVERY 1" OF THE TREES DBH (DIAMETER AT BREAST HEIGHT).
 - 3 TREES BEYOND NATURAL AREA LINE TO BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED. PROTECTIVE FENCE SHOULD BE PLACED AROUND ANY TREES IF EARTHWORK OR CONSTRUCTION IS TAKING PLACE NEARBY.
 - 4 INSTALL TEMPORARY CONSTRUCTION DRIVEN FENCE ALONG THE NATURAL AREA LINE FOR A PROTECTIVE BOUNDARY. CONSTRUCTION FENCE LINE TO BE SURVEYED FOR ACCURACY.
 - 5 EXISTING TREE IS LOCATED INSIDE THE NATURAL AREA LINE, HOWEVER EXISTING ROOT BASE MAY BE COMPROMISED BY CONSTRUCTION ACTIVITIES NEARBY. CONTRACTOR TO REMOVE EXISTING TREE AS NEEDED DURING CONSTRUCTION TO ENSURE WORKER SAFETY AND SURVIVABILITY OF TREE.
 - 6 NO REGRADING OR UTILITY CONSTRUCTION IN THIS AREA IS ANTICIPATED.



TREE REMOVAL PLAN
NYBERG RIVERS MASTER PLAN
TUALATIN, OREGON

Exhibit N

PROJECT NO.: 21198310
DATE: 06/24/13
DESIGNED BY: MJZ
DRAWN BY: MJZ
CHECKED BY: JRS

TREE REMOVAL PLAN
C6.0



June 21, 2013

Project #: 12116

Christe White
Radler, White, Parks & Alexander, LLP
111 SW Columbia Street, Suite 1100
Portland, OR 97201

RE: Response to City of Tualatin June 3, 2013 letter (Preliminary Review Comments: Nyberg Rivers Master Plan)

Dear Christe,

This letter addresses the Transportation Impact Analysis comments included in the City of Tualatin's *June 3, 2013 Preliminary Review Comments: Nyberg Rivers Master Plan (MP-13-01)*. Our response focuses on the City's comments regarding Central Urban Renewal District Plan (CURD) Goal 5: Transportation and specifically the Traffic Impact Analysis (TIA) comments on pages 3-5 of the City's letter. The City's comment/request for additional information is included in italics followed by our response.

TIA Comment #1

ODOT reviewed the submitted information for their facilities (I-5 and Nyberg Street). Although, the underlying model artificially limits queues and the settings do not meet ODOT standards, ODOT reran the analysis using the correct settings. Based on this analysis the proposed improvements mitigate the impact of the development on ODOT facilities (see attached comments from ODOT). City staff provides comments below on the TIA, which will require the applicant to revise the TIA. ODOT will need to review the updated TIA to confirm whether the proposed improvements still mitigate the impact of the development on ODOT facilities. Final design may indicate the need for additional right-of-way.

Response to Comment #1:

The City is correct that the signalized intersection operational analysis model used to for the TIA deviated from ODOT's Analysis Procedures Manual (APM). The changes made to the model were needed to accurately model the adaptive signal control system that operates the traffic signals that were studied along SW Tualatin-Sherwood Road. The statement "the underlying model artificially limits queues" is incorrect. The changes made to the model were implemented to more reasonably reflect queues resulting from the adaptive signal control system (adaptive traffic signal control is a relatively new technology implementation and is not currently explicitly analyzed by the model or the ODOT APM procedures).

ODOT has completed their independent review of the TIA and also conducted their own sensitivity analysis by applying the standard method outlined in the ODOT APM. ODOT staff concurred with the TIA findings and recommendations as it relates to ODOT facilities.

We respectfully disagree with the statement “*City staff provides comments below on the TIA, which will require the applicant to revise the TIA. ODOT will need to review the updated TIA to confirm whether the proposed improvements still mitigate the impact of the development on ODOT facilities*”. The remainder of this letter addresses each of the City staff comments and provides additional information requested where appropriate. As will be evidenced by our responses herein, none of the comments provided by the City warrant revising the TIA. Further, none of the City comments warrant any change to the results presented relative to ODOT facilities reviewed in the original TIA. As such, no new comments from ODOT staff are anticipated.

TIA Comment #2

Washington County also reviewed the information and they have provided a list of conditions and measures to mitigate impacts on Nyberg Street and Tualatin Sherwood Road (please see attached comments from Washington County). City staff provided comments below on the TIA, which will require the applicant to revise the TIA. Washington County will need to review the updated TIA to confirm whether the proposed improvements still mitigate the impact of the development on Washington County facilities. Final design may indicate the need for additional right-of-way.

Response to TIA Comment #2

Similar to the response above relative to ODOT, Washington County staff conducted an independent review of the TIA and concurred with the key findings and recommendations. No changes to the TIA were requested by County staff.

Similar to our response to TIA Comment #1, none of the City comments warrant any change to the results presented relative to Washington County facilities reviewed in the original TIA. As such, no new comments from Washington County staff are anticipated.

TIA Comment #3a

The City reviewed the TIA to ensure that internal circulation is consistent with the TSP and that the new development improves traffic circulation on Martinazzi, the City’s portion of Nyberg, Boones Ferry and other nearby roadways. After the Master Plan was submitted, a list of questions and concerns was sent and a meeting was held with Kittelson & Associates to review the issues. Kittelson submitted information to address some of those concerns on May 16, 2013. Even with both submittals, the City still has the following concerns with the information provided:

- a) *On Page 44 of the TIA submitted with the Master Plan, the applicant provides queuing analysis for Nyberg Road and the freeway. This same level of analysis is needed for Martinazzi, Boones*

Ferry Road the proposed Seneca Street, Street A and the existing driveway easement from the driveway to Martinazzi. The submitted analysis should include:

- i. -Existing queue storage length*
- ii. -Proposed queue storage length that is required for new development; and*
- iii. -An analysis of whether additional queue space is needed.*

Response to TIA Comment #3a

The original TIA and supplemental analysis provided queuing information for key locations serving the proposed development where queuing impacts could be pronounced. Queuing data was not provided at other locations in the original TIA because it was clear from the operational evaluation conducted at these intersections that the project would have either have a negligible impact on queues or (in the case of new intersections such as the Seneca extension or Street A) the proposed design provided more than sufficient queue storage.

The intent of the information provided to City staff in our May 16, 2013 letter was to confirm for the City's benefit the project's impact to queuing at the identified intersections. The information provided in the May 16, 2013 letter confirmed the project would have either have a negligible impact on queues or (in the case of new intersections such as the Seneca extension or Street A) the proposed design provided more than sufficient queue storage.

Table 1 below presents the existing available storage at each of the study intersections along with the 95th percentile queues documented in Table 3 of our May 16, 2013 letter. As confirmed once again in Table 1 below, the added traffic from the Nyberg Rivers project results in a negligible change in queuing at the study intersections.

Table 1 – 95th Percentile Queue Projections at the Study Intersections

Intersection	Movement	Estimated 95 th Percentile Queue (ft)				Storage Length
		Weekday PM Peak Hour		Saturday Midday Peak Hour		
		Background Traffic	Total Traffic	Background Traffic	Total Traffic	
SW Martinazzi Avenue/ SW Boones Ferry Road	NB LT	325	325	125	150	275 ¹
	NB RT	250	275	150	175	275
	WB LT	350	375	150	200	150 ²
	EB RT	150	175	75	100	200
SW Martinazzi Avenue/ City Library Driveway (Driveway #4)	SB LT	75	100	25	50	275 ¹
	WB LT	75	100	25	50	200
	WB RT	50	50	25	50	200
SW Martinazzi Avenue/ City Library Driveway (Driveway #4) (Assuming Driveway #6 is Closed)	SB LT	75	100	25	50	75
	WB LT	75	100	25	50	200
	WB RT	50	50	25	50	200
SW Martinazzi Avenue/ SW Seneca Street/ Potential Site Access Driveway*	SB LT	-	50	-	50	150
	SB THRT	-	125	-	75	200
	WB RT	-	100	-	75	200
	WB THLT	-	50	-	50	200
	NB THRT	-	200	-	100	225
	NB LT	-	50	-	25	75
SW Martinazzi Avenue/ Nyberg Road	SB TH	100	100	75	75	225
	NB THRT	125	150	125	125	275
	WB LT	100	100	75	75	275
	WB RT	150	150	125	125	275
SW Martinazzi Avenue/ SW Tualatin-Sherwood Road	SB THRT	350	350	225	225	325
	SB LT	250	250	175	175	275
	NB THRT	350	350	250	250	400
	EB LT	100	100	125	125	150
SW Boones Ferry Road/ Proposed Street A	NB RT	-	25	-	25	150

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound

LT = Left-Turn; TH = Through; RT = Right-Turn

* - Under the scenario that includes a Seneca Street extension into the project site

¹Represents the distance of the two-way center left-turn lane along SW Martinazzi Avenue and Driveway #4.

²Represents the striped WB LT storage distance. An additional 175 feet of full width storage distance is available before the lane narrows over the Tualatin River.

As shown in Table 1, adequate storage length exists for all but the following movements:

- The northbound left-turn at the SW Boones Ferry Road/SW Martinazzi Avenue intersection and the southbound left-turn at the SW Martinazzi Avenue/City Library Driveway #4.
 - Both of these movements share the same 275 feet of center left-turn lane. Field observations noted that there are periods of vehicle queue overlap between these two intersections during peak time periods. This situation was described in more detail on pages 2 and 3 of the May 16, 2013 letter. The Nyberg Rivers project has a negligible impact on this existing condition.
- The westbound left-turn movement at the SW Boones Ferry Road/SW Martinazzi Avenue intersection.
 - The total available full width storage for this movement is approximately 325 feet whereas the background 95th percentile queue is 350 feet. With the proposed development, the 95th percentile queue is forecast to marginally increase by an additional 25 feet (one car length) beyond background traffic conditions. There is no opportunity to increase westbound left-turn storage at the intersection short of widening the SW Boones Ferry Road bridge. There does not appear to be any turn lane extensions [proposed in the recently adopted City Transportation System Plan.
- The 95th percentile queue on the southbound shared through/right-turn movement at the SW Martinazzi Avenue/SW Tualatin-Sherwood Road intersection is forecast to exceed the available storage by one vehicle length.
 - This condition occurs under background traffic conditions regardless of site development. The proposed development does not increase the southbound queue length.

TIA Comment #3b

b) The report assumes that very little traffic will use Martinazzi Avenue and Street A to access the development. Based on existing conditions, the City believes that is inaccurate. Most people coming from/going to the west and south will not access the site from Nyberg Street but will use Martinazzi Avenue or Boones Ferry Road. Additionally, the report does not assume truck traffic on those roadways which is inconsistent with the submitted Master Plan that shows those roadways being the main truck route. Please revise the TIA with assumptions that better match expected travel patterns.

Response to TIA Comment #3b

We disagree with the City's assertion that the assignment of trips to SW Martinazzi and Street A is inaccurate. In our professional opinion, the trips assigned to both facilities represent a reasonable estimate of travel patterns upon build-out of the proposed Nyberg Rivers project.

As documented in the August 2012 scoping memo and the April 2013 TIA, we estimated that approximately 20 percent of the new trips will come from the north via SW Boones Ferry Road or SW Upper Boones Ferry Road. All of this traffic was assigned to either SW Martinazzi or Street A. Only five percent of the new trips are estimated to come from SW Martinazzi (south of SW Tualatin Sherwood Road). Of that five percent approximately half were assumed to use SW Martinazzi south of SW Nyberg Street to enter or egress the site and approximately half would enter or egress use travel to and/from the site from SW Tualatin Sherwood Road/SW Nyberg Street.

All of the assumptions discussed above and documented in the TIA are reasonable based on existing and estimated future travel patterns and can be relied upon by the City staff as they develop their own transportation findings and recommendations for the Nyberg Rivers project.

With respect to truck traffic, truck vehicle percentages were assumed on each of the roadways based on existing truck traffic counts. Delivery vehicles to and from commercial sites typically occur outside the weekday a.m. and p.m. peak hours and thus are not expected to have any material impact on the peak hour analysis results presented in the TIA.

TIA Comment #3c

- c) The report utilizes conflicting assumptions of the driveway access on Martinazzi Avenue. Part of the evaluations assumes all three driveways remain open, yet another section assumes only one access connects to Martinazzi Avenue. The TIA needs to be consistent throughout the study. Any revisions may impact the queue length analysis listed above. Please make this change before completing the new queue length analysis.*

Response to TIA Comment #3c

As noted in the April 2013 TIA and reiterated in the supplemental information provided in the May 20, 2013 letter, the driveway assumptions for the two access scenarios on SW Martinazzi (with and without the SW Seneca Street extension) only differ relative to the treatment of the driveway immediately south of SW Seneca Street (indicated as driveway 6 in the April 2013 TIA).

With the SW Seneca Street extension it was assumed driveway 6 would be closed. Without the SW Seneca Street extension, driveway 6 was assumed to remain open because the project has would have no impact on this driveway (driveway 6 is not part of the proposed development site).

If the City desires to close driveway 6 regardless of the SW Seneca Street extension, the impact would be a small increase in traffic to the existing City Hall driveway (indicated as driveway 4 in the April 2013 TIA) on SW Martinazzi. Table 2 below shows the impact of the reassignment of traffic at driveway 4.

Table 2 - Detailed Operations of the Driveway #4 SW Martinazzi Avenue/City Library Driveway Assuming Driveway #6 is Closed (2014 Total Conditions)

	2014 Total Traffic Conditions SW Martinazzi Avenue/ City Library Driveway (Driveway #4)	2014 Total Traffic Conditions SW Martinazzi Avenue/ City Library Driveway (Driveway #4) (Assuming Driveway #6 is closed)
SB LT Movement	LOS = B	LOS = B
	Control Delay = 12.1 sec	Control Delay = 12.2 sec
	V/C = 0.26	V/C = 0.27
WB LT Movement	LOS = E	LOS = E
	Control Delay = 43.4 sec	Control Delay = 44.3 sec
	V/C = 0.35	V/C = 0.35
WB RT Movement	LOS = C	LOS = C
	Control Delay = 15.7	Control Delay = 16.4
	V/C = 0.30	V/C = 0.36

As indicated in Table 2, closure of driveway 6 will have a very small impact to driveway 4 and driveway 4 will continue to meet City standards for unsignalized intersection operations.

TIA Comment #3d

- d) More information is needed on the timing of the traffic studies. It is unclear if the studies were completed when Kmart was open or closed (or both) and which data set was used.*

Response to TIA Comment #3d

The traffic counts used in the April 2013 TIA were collected when Kmart was open. The majority of the information presented in the supplemental May 16, 2013 letter also relied on the traffic counts taken when Kmart was open.

The supplemental field observations and capacity estimates conducted for the City Hall driveway on SW Martinazzi (documented on pages 2 and 3 of the May 16, 2013 letter) were collected after the Kmart had closed. However, the capacity estimates presented in Tables 1 and 2 in the May 16, 2013 letter are considered reasonable as the northbound and southbound through traffic on SW Martinazzi has the most significant impact on the capacity of the turning movements at the driveway. The closure of Kmart has likely resulted in very little change to the northbound and southbound through traffic on Martinazzi (most Kmart customers using Martinazzi would have turned left in or right out of the City Hall driveway and that total demand is represented in the existing traffic counts (from the April 2013 TIA) and factored into the total traffic projections.

TIA Comment #3e

- e) *The applicant's traffic consultant does not draw any conclusions on the adequacy of the existing City driveway/easement taking into account the traffic generation from the proposed development, other driveway closures, and queuing issues on Martinazzi Avenue. The applicant needs to analyze this and make a conclusion about the adequacy of the existing driveway to serve this development.*

Response to TIA Comment #3e

We believe several conclusions have been presented to the City regarding the operation of the City driveway (driveway 4 in the TIA). The most substantive conclusions are as follows:

- The City driveway currently meets the City of Tualatin's Level of Service standard and will continue to meet the standard with the added traffic from Nyberg Rivers.
- There are some existing operational deficiencies that exist at the City driveway under existing conditions due to the presence of standing queues on SW Martinazzi that occasionally extend to and beyond the City Hall driveway. The analysis presented to date has demonstrated that the Nyberg Rivers development will have very little impact on this existing condition.
- An option that would eliminate the City driveway and replace it with the extension of SW Seneca Street has also been studied. Under this scenario the new SW Seneca/SW Martinazzi intersection would be signalized and would result in a significant operational improvement relative to the existing condition at the aforementioned City driveway.

None of the above conclusions suggest that the City hall driveway "must" be closed as a result of the Nyberg Rivers development as this conclusion is not supported by the traffic engineering evidence. Representatives from CenterCal remain very willing to work with the City to implement solutions that improve the operations at the driveway (including helping to implement the Seneca Street extension).

TIA Comment #3f

- f) *On Page 7 of the Master Plan, the applicant has indicated that the Primary Development Area will be redeveloped to support traditional shopping center related uses. The applicant has used a trip generation rate for Shopping Centers throughout the TIA. This is applied to all of the uses on the site. City staff questions if this results in a lower than expected trip generation. In informal discussions with the applicant, staff is aware that a specialty grocery tenant is proposed for Bldg. 1005, a stand-alone 45,000 fitness club is proposed for Building N-100 and a new drive-through restaurant use is proposed in Building H-100 – in addition to the applicant's proposal to retain drive-through uses on Buildings A, B, C, and a relocated F-100 (we believe that retaining drive-through uses on Bldg B is in error, as stated above). Staff believes it is inappropriate to apply a Shopping Center trip generation rate when so many of these proposed uses are auto-intensive and don't have traditional shopping center characteristics. In the revised submittal, please clarify the proposed uses for each building so that an accurate trip generation can be*

analyzed on the site. Based on our understanding of the proposed uses from informal conversations, staff believes that the following uses should analyzed separately from the Shopping Center trip generation rate:

- i. The two drive-through restaurants (Buildings F-100 and H-100);
- ii. The grocery store (Bldg 1005); and
- iii. The 45,000 square foot stand-alone health club (N-100)

Please apply the correct trip generation rates in the revised submittal.

Response to TIA Comment #3f

We strongly disagree with the premise that the above uses should be separated from the shopping center for the purposes of the TIA. As noted in *Trip Generation, 9th Edition (published by the Institute of Transportation Engineers)*, “A shopping center is an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points.”

Separating the higher trip generating uses from the shopping center as the City suggests and continuing to apply the shopping center trip generation rate for the lower trip generating uses (which assumes a blend of higher and lower trip generating uses) would result in an unreasonably conservative estimate of trip generation. ITE practice would then dictate application of internal trip reductions between each of the site uses to account for internal trips that are inherently addressed in the shopping center trip data. To emphasize this point, a weekday p.m. peak hour trip generation calculation was performed where all of the major site uses were separated. A summary table of these calculations is shown in Table 3 below and the detailed breakout calculations are summarized in Appendix A.

Table 3 - Nyberg Rivers Trip Generation (with uses separated)

	ITE Code	Size (sq. ft.)	Weekday PM Peak Hour		
			Total	In	Out
Existing Site Driveways ¹	-	-	945	435	510
Less Existing Library ²	590	22,123	(160)	(75)	(85)
Less Existing Civic Uses ³	715	~10,000	(50)	(10)	(40)
Total Existing Retail			735	350	385
Proposed Site ⁵	820	307,000 ⁴	1,465	750	715
Less Existing Retail Driveway Counts			(735)	(350)	(385)
Sub Total			730	400	330
Less Internal Trips (20%)			(295)	(150)	(145)
Pass-by Trips (varies)			(310)	(155)	(155)
Net New Trips			125	95	30

Table 4 below compares Table 3 above with the original Trip Generation calculations in the *April 2013 Nyberg Rivers Traffic Impact Study*. The following key points can be taken from the comparison:

- Separating out the uses results in a total gross trip generation that is approximately nine percent higher during the weekday p.m. peak hour.
- However, the total driveway trips are approximately 15 percent lower when the uses are separated. The reason for the reduction is due to the assumption that 20 percent of the trips are captured internally when we separate the uses. There is no internal trip reduction for the shopping center because it is already incorporated in the trip generation rate.
- The total net new trips are substantially lower when separating out the uses. The reason for the substantial difference is related to the fact that the higher trip generating uses (banks and fast food restaurant) have a much higher pass-by rate than what is included in the shopping center rate.

Table 4 – Summary Comparison of Trip Generation Methodologies

	Trip Generation Summary from the Original April 2013 Traffic Impact Study (Weekday PM Peak Hour Trips)	Trip Generation Summary Separating All Proposed Site Uses (Weekday PM Peak Hour Trips)
Total Gross Trip Generation	1,350	1,465
Total Driveway Trips	1,350	1,170
Net New Trips	405	125

In summary, Table 4 clearly shows that separating out the site uses would result in a lower number of total driveway trips and a lower number of net new driveway trips. As such, the trip generation methodology used in the April 2013 is more conservative and provides a more robust estimate of the transportation related impacts associated with the proposed Nyberg Rivers development.

To provide further evidence that the using the ITE shopping center trip generation rate results in a reasonable yet conservative estimate of trip generation two local examples (Nyberg Woods and Bridgeport Village) were evaluated.

- In 2007 the total volume of driveway trips were counted for the three driveways serving Bridgeport Village. At the time Bridgeport Village had approximately 440,000 gross square feet of leasable retail floor area (GLA) which included a Wild Oats supermarket. The actual driveway counts revealed a total trip generation rate of 2.99 trips per thousand square feet of GLA during the weekday p.m. peak hour (4-6 p.m.). *Trip Generation, 9th Edition* suggests a 440,000 square foot shopping center would result in a trip generation rate of approximately 3.67 trips per thousand square feet of GLA evaluation, which is approximately 20 percent higher than the actual trip generation rate. On a Saturday peak hour the actual trip rate was found to be approximately 25 percent less than the ITE Shopping Center trip generation rate.

- Nyberg Woods (directly across the site from I-5) includes approximately 207,000 gross square feet of leasable floor area (GLA). Actual traffic counts were collected in 2012 which revealed a total trip generation rate of 3.74 trips per thousand square feet of GLA during the weekday p.m. peak hour (4-6 p.m.). *Trip Generation, 9th Edition* suggests a 207,000 square foot shopping center would result in a trip generation rate of approximately 4.71 trips per thousand square feet of GLA evaluation, which, similar to Bridgeport Village is approximately 20 percent higher than the actual trip generation rate. On a Saturday peak hour the actual trip rate was found to be approximately 7 percent lower than the ITE Shopping Center trip generation rate.

Based on these two local retail centers and the mix of uses they reflect, we remain confident that use of the ITE shopping center data is not only appropriate, but likely represents a conservative (overestimates) the impact of the proposed development.

We trust this local trip generation data helps City staff to confirm the reasonableness of applying the Shopping Center trip generation rate for the proposed Nyberg Rivers project.

Thank you for the opportunity to respond to staffs questions and comments. We would be happy to further discuss these or other issues as needed and look forward to finalizing the on- and off-site mitigation needs associated with the project.

If you have any questions, please contact us.

Sincerely,
KITTELSON & ASSOCIATES, INC.



Mark Vandehey, P.E.

Appendix A Detailed Trip Generation
Calculations

Nyberg Rivers Calculated Trip Generation Values for Weekday PM Peak, Including Existing Development

Land Use	ITE Code	Size (SF)	Discount Rate	Total Trips	Trips In	Trips Out
Sporting Goods Superstore				185	89	96
Internal Trips			0.2	37	18	19
Pass-by Trips	861	110,093	0	0	0	0
Net New Trips				148	71	77
Furniture Store				10	5	5
Internal Trips			0.2	2	1	1
Pass-by Trips	890	21,750	0.53	4	2	2
Net New Trips				4	2	2
Specialty Retail				182	80	102
Internal Trips			0.2	36	16	20
Pass-by Trips	826	66,777	0	0	0	0
Net New Trips				145	64	81
Drive-in Bank				230	115	115
Internal Trips			0.2	46	23	23
Pass-by Trips	912	9,485	0.47	87	43	43
Net New Trips				98	49	49
Fast-Food Restaurant with Drive-Through Window				262	136	126
Internal Trips			0.2	52	27	25
Pass-by Trips	934	8,026	0.5	101	50	50
Net New Trips				109	59	50
High-Turnover Sit-Down Restaurant				121	73	48
Internal Trips			0.2	24	15	10
Pass-by Trips	932	12,297	0.43	33	17	17
Net New Trips				64	41	22
New Seasons Grocery Store				318	162	156
Internal Trips			0.2	64	32	31
Pass-by Trips	850	33,572	0.36	90	45	45
Net New Trips				165	85	80
Health/Fitness Club				159	91	68
Internal Trips			0.2	32	18	14
Pass-by Trips	492	45,000	0	0	0	0
Net New Trips				127	72	55
	Total SF	307,000	Total Net New Trips	859	443	416

Summary of Nyberg Rivers Calculated Trip Generation Values for Weekday PM Peak					
Land Use	ITE Code	Size (SF)	Total Trips	Trips In	Trips Out
Existing Site					
Existing Site Driveways	-	-	945	435	510
Less Existing Library	590	22,123	160	75	85
Less Existing Civic Uses	715	~10,000	50	10	40
Total Existing Retail			735	350	385
Future Site					
Future Site Driveways (sporting goods superstore, furniture store, specialty retail, drive-in bank, fast-food restaurant, sit-down restaurant, supermarket, health/fitness club)	861, 890, 826, 912, 934, 932, 850, 492	307,000	1467	750	717
Less Existing Driveway Counts			735	350	385
Sub-Total			732	400	332
Less Total Internal Trips			293	150	143
Less Total Pass-by Trips			314	157	157
Total Net New Trips			124	93	31



Perkowitz + Ruth
ARCHITECTS

NYBERG RIVERS
TUALATIN, OREGON
SOUTH ELEVATION - SITE
MP-13-04 Attachment 102D, page 59
DATE PREPARED : MAY. 21, 2013

Exhibit P



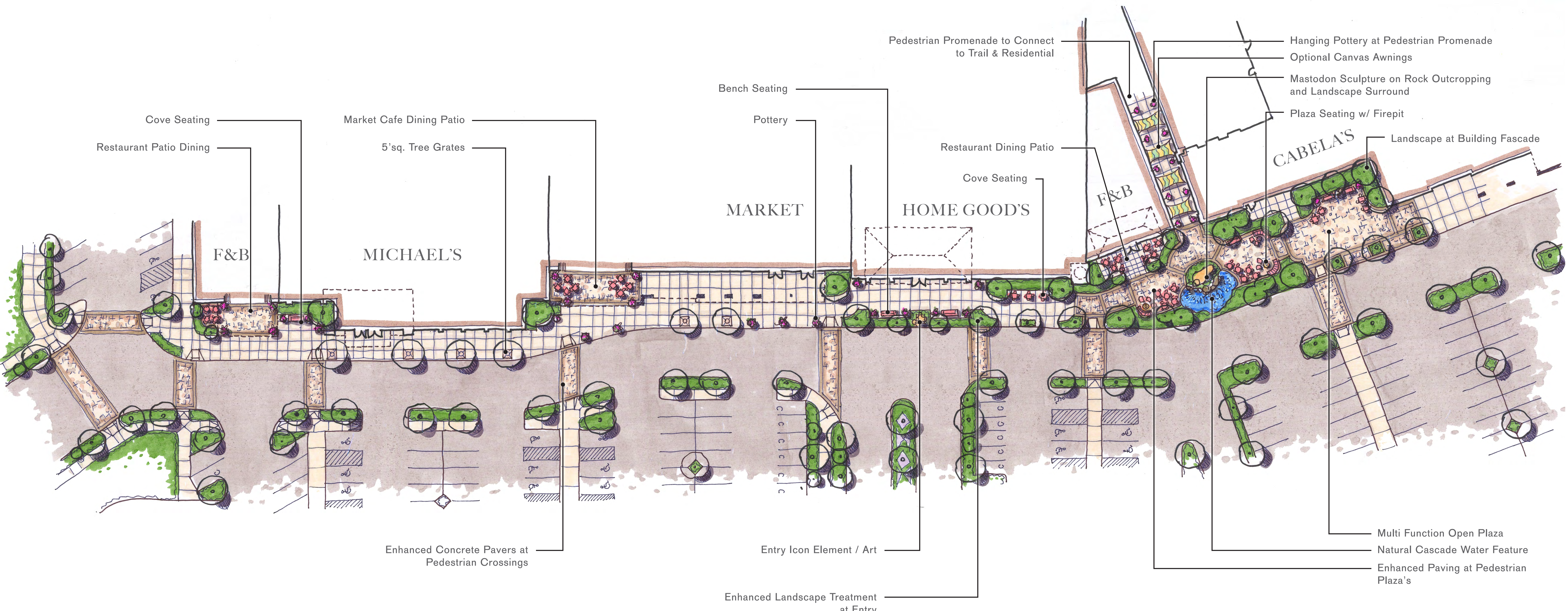


EXHIBIT Q 1-BUILDING FRONTAGE LANDSCAPE PLAN

June 26, 2013 | scale 1"=20'-0"

0 10 20 40



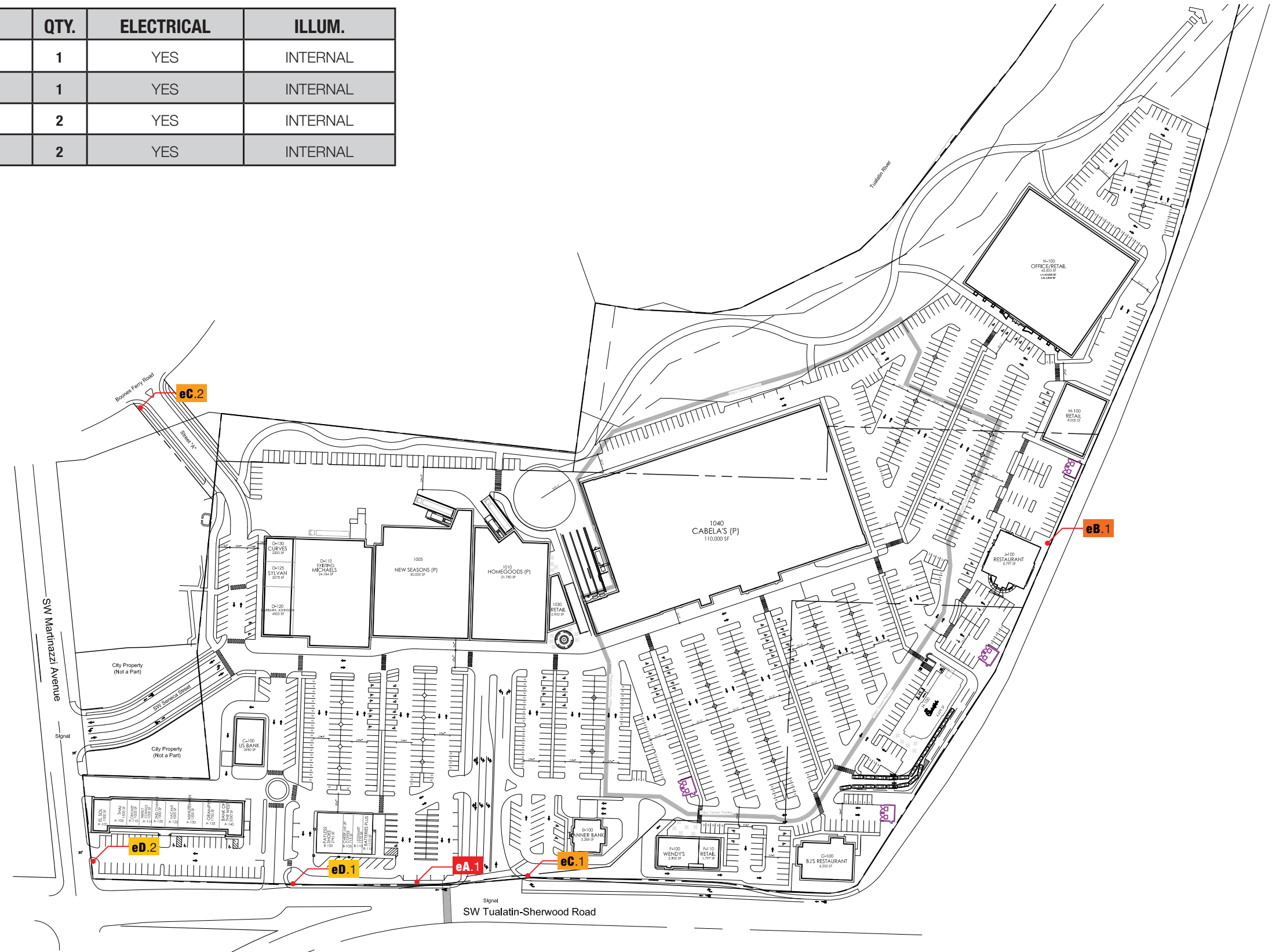


CONCEPT DESIGN PACKAGE

MAY 17, 2013

EXTERIOR SIGNS

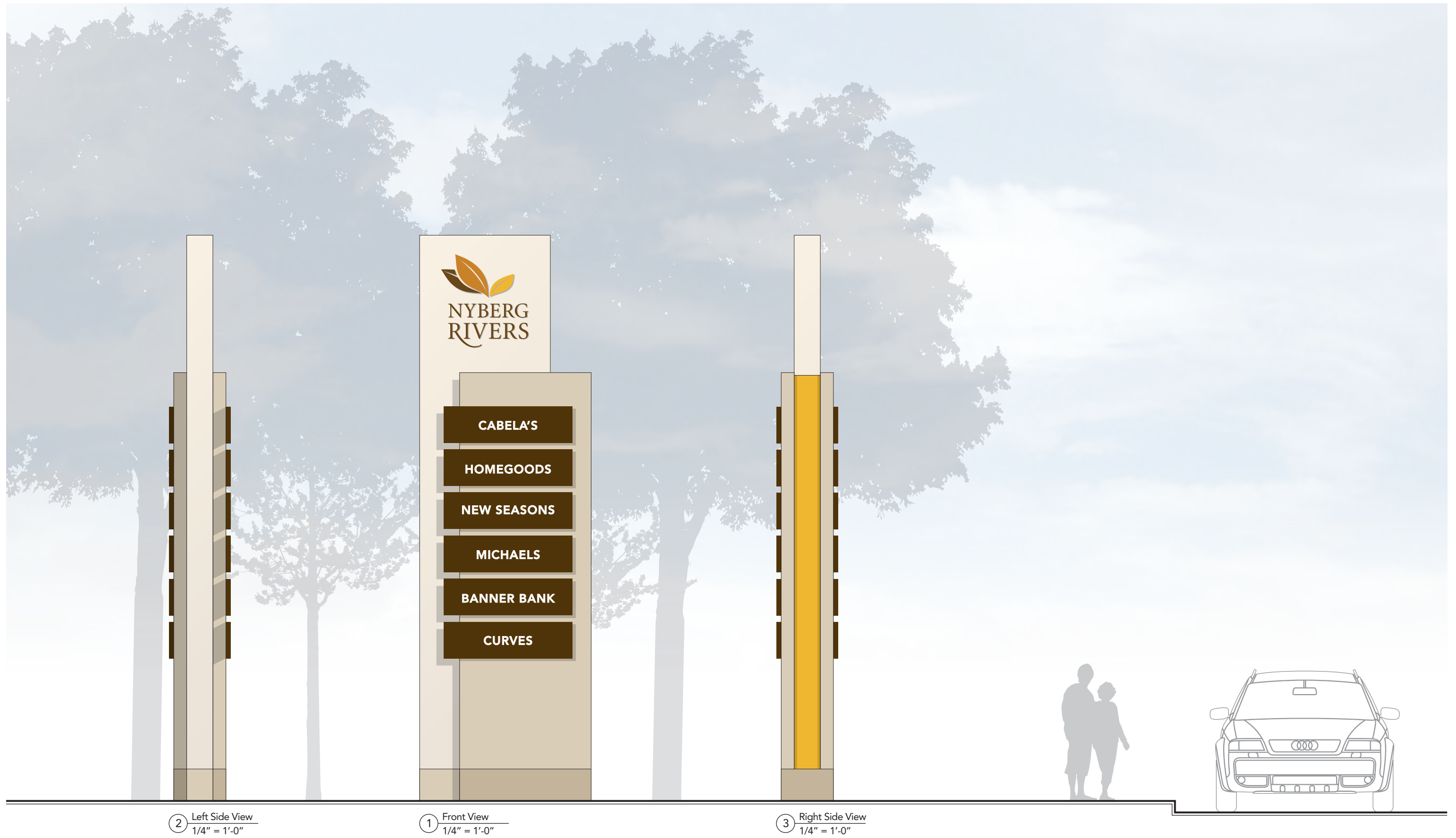
CODE	DESCRIPTION	QTY.	ELECTRICAL	ILLUM.
eA	PRIMARY ENTRY SITE IDENTITY PYLON	1	YES	INTERNAL
eB	FREEWAY TENANT PYLON	1	YES	INTERNAL
eC	PRIMARY MONUMENT	2	YES	INTERNAL
eD	SECONDARY MONUMENT	2	YES	INTERNAL



PROGRAMMING PLAN AND SIGN SCHEDULE



SIGN FAMILY A



② Left Side View
1/4" = 1'-0"

① Front View
1/4" = 1'-0"

③ Right Side View
1/4" = 1'-0"



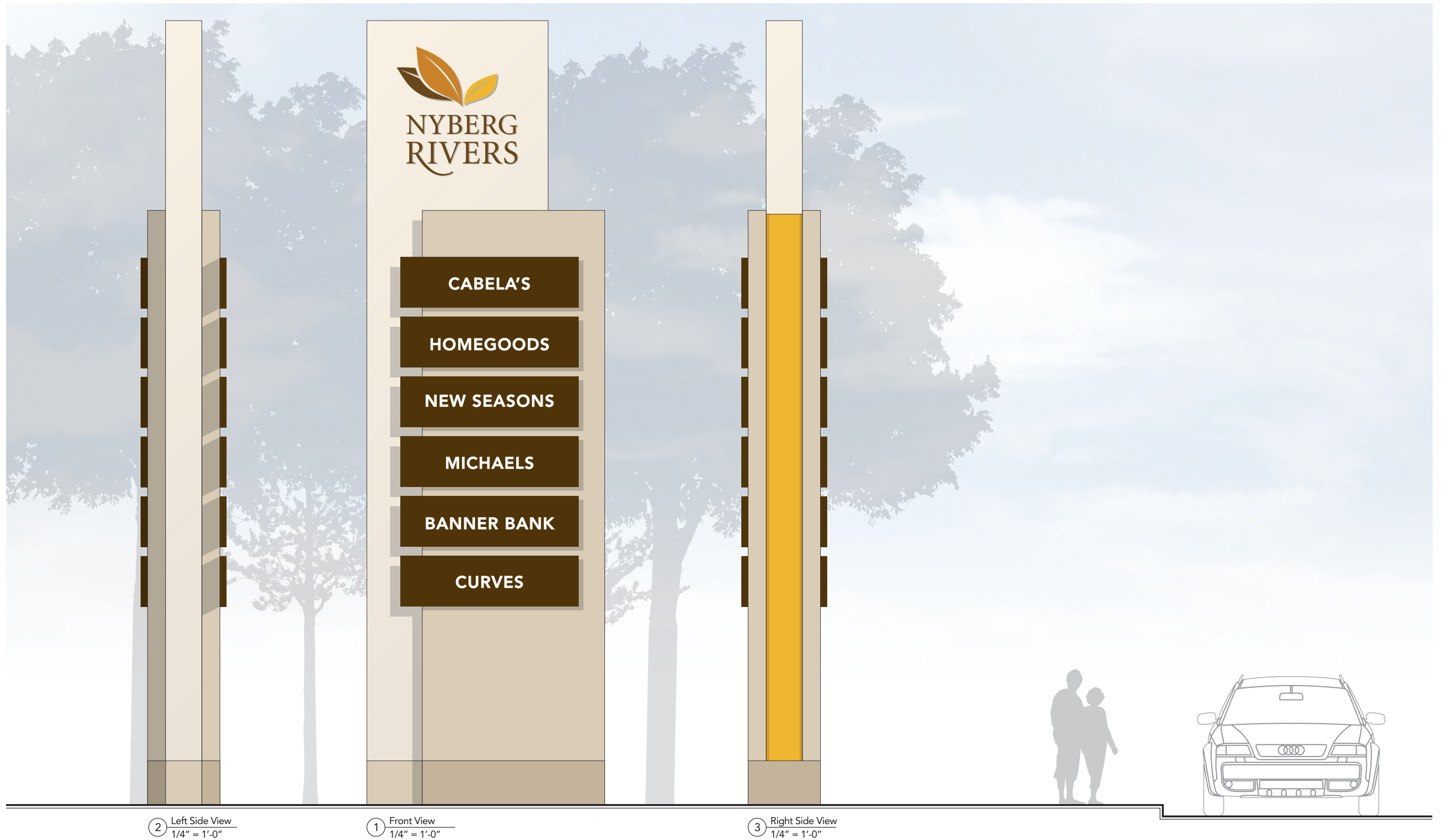
② Left Side View
1/4" = 1'-0"

① Front View
1/4" = 1'-0"

③ Right Side View
1/4" = 1'-0"

eA - PROJECT ENTRY SITE IDENTITY PYLON - NIGHT VIEW

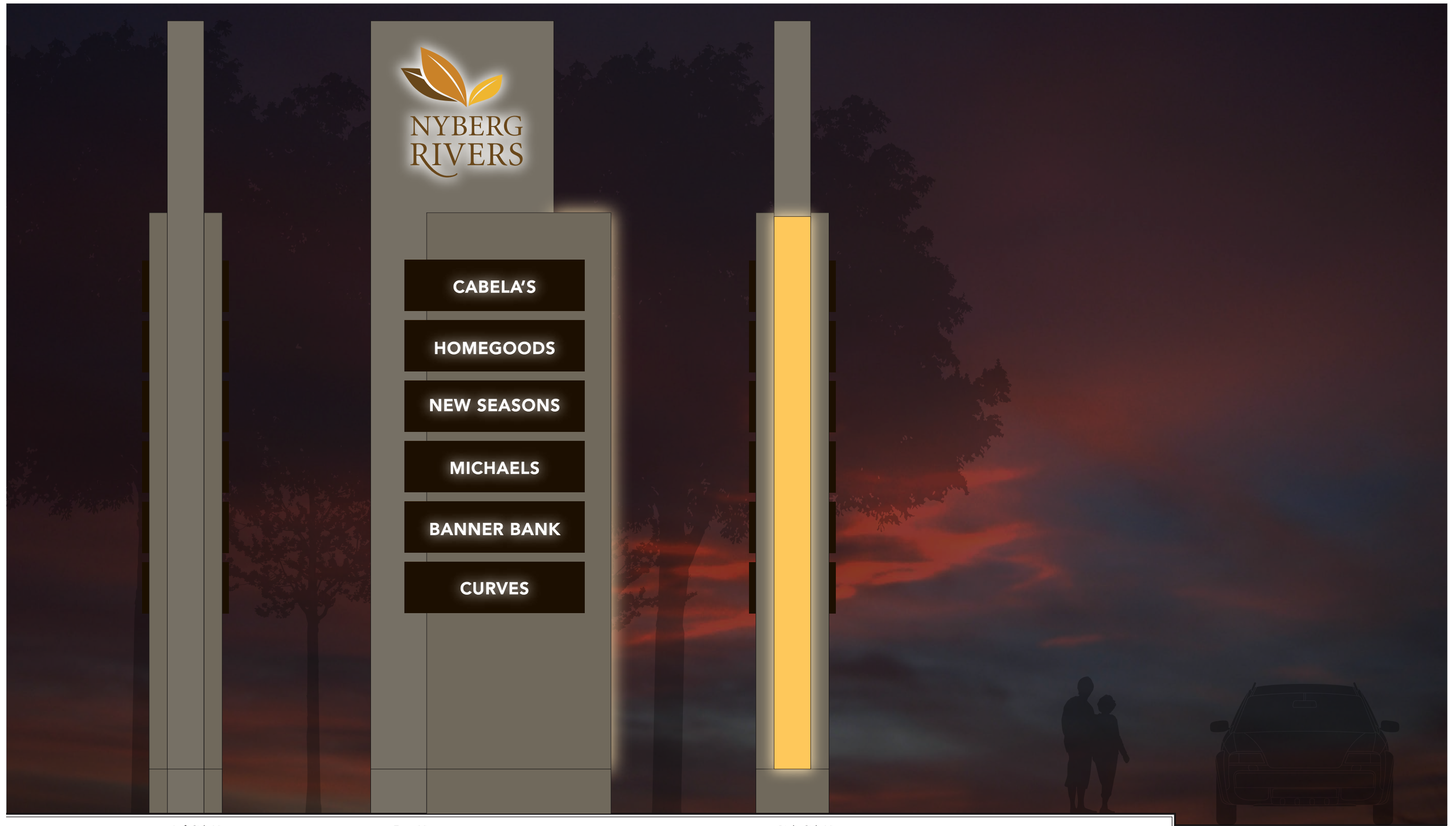
SIGN FAMILY A



② Left Side View
1/4" = 1'-0"

① Front View
1/4" = 1'-0"

③ Right Side View
1/4" = 1'-0"



② Left Side View
1/4" = 1'-0"

① Front View
1/4" = 1'-0"

③ Right Side View
1/4" = 1'-0"

eB - FREEWAY TEANT PYLON - NIGHT VIEW

NYBERG RIVERS - Concept Design Package - May 17, 2013

SIGN FAMILY A



③ Right Side View
3/8" = 1'-0"

② Left Side View
3/8" = 1'-0"

① Front View
3/8" = 1'-0"

eC - PRIMARY MONUMENT

NYBERG RIVERS - Concept Design Package - May 17, 2013

SIGN FAMILY A



eD - SECONDARY MONUMENT

NYBERG RIVERS - Concept Design Package - May 17, 2013

SIGN FAMILY A



SIGN FAMILY B



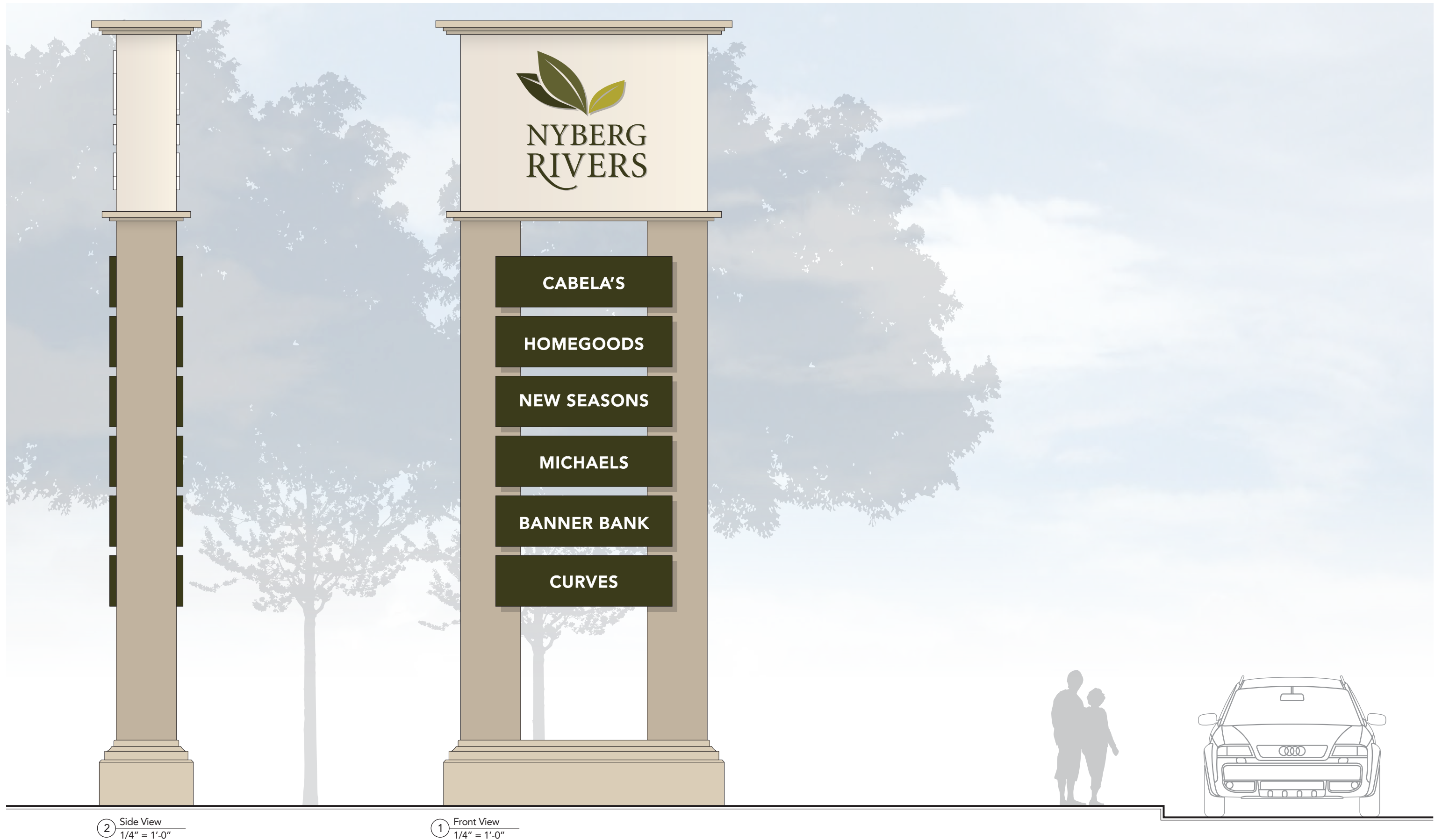
② Side View
1/4" = 1'-0"

① Front View
1/4" = 1'-0"



② Side View
1/4" = 1'-0"

① Front View
1/4" = 1'-0"



eB - FREEWAY TEANT PYLON

NYBERG RIVERS - Concept Design Package - May 17, 2013

SIGN FAMILY B



② Side View
1/4" = 1'-0"

① Front View
1/4" = 1'-0"



② Side View
3/8" = 1'-0"

① Front View
3/8" = 1'-0"

eC - PRIMARY MONUMENT

NYBERG RIVERS - Concept Design Package - May 17, 2013

SIGN FAMILY B



② Side View
3/8" = 1'-0"

① Front View
3/8" = 1'-0"

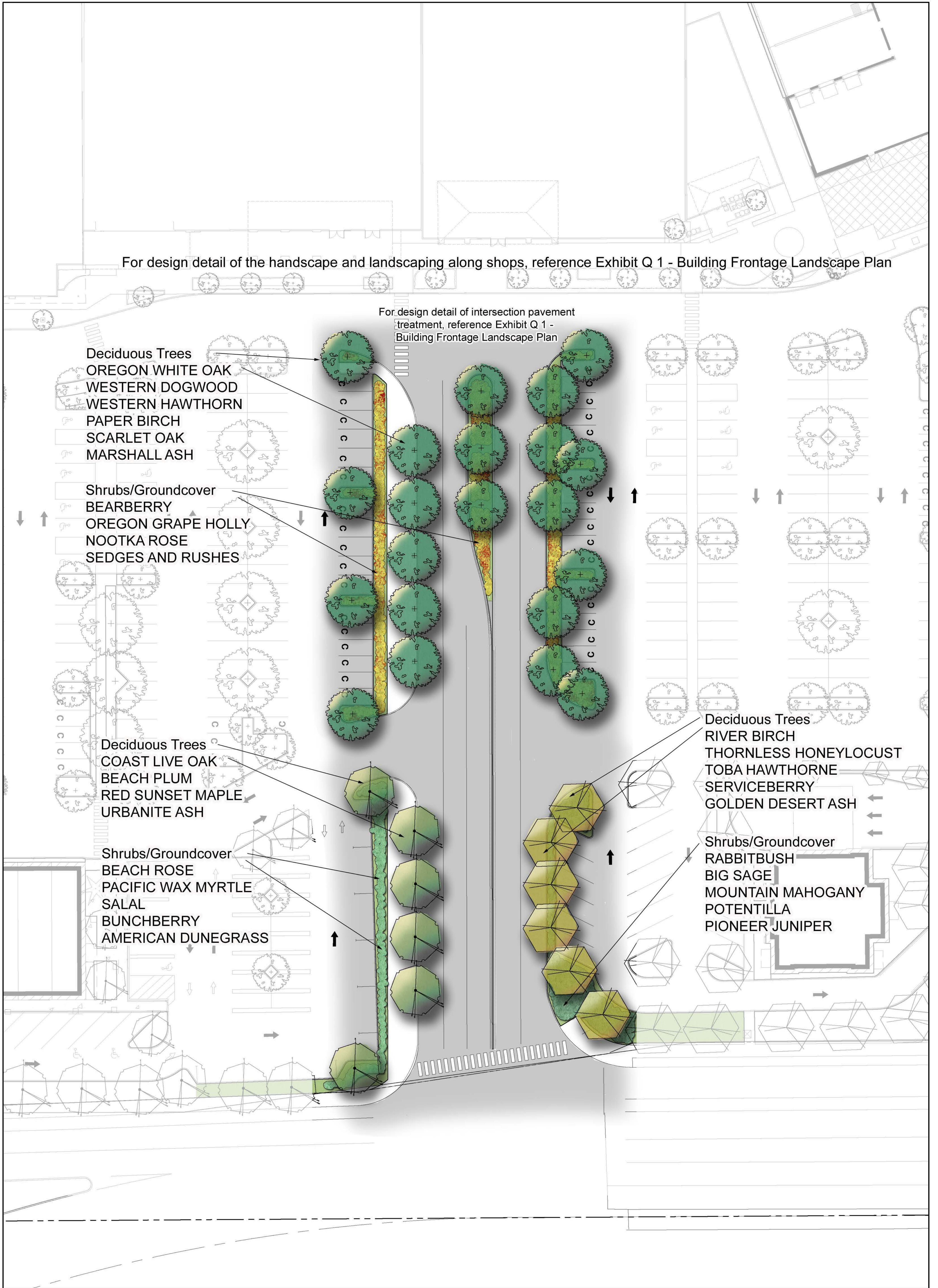
eD - SECONDARY MONUMENT

NYBERG RIVERS - Concept Design Package - May 17, 2013

SIGN FAMILY B



THANK YOU!

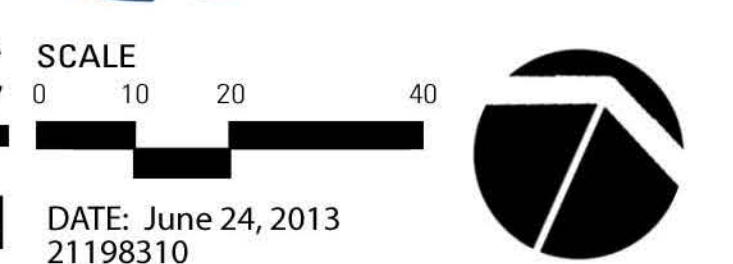


Nyberg Rivers

Entry Landscaping

CENTERCAL PROPERTIES, LLC

TUALATIN, OREGON



GOALS AND OBJECTIVES OF THE URBAN RENEWAL PLAN

THE OVERALL GOAL OF THE PLAN IS:

To strengthen the social and economic development of central Tualatin by stabilizing and improving property values, eliminating existing blight, and preventing future blight; and to encourage and facilitate land uses, private and public, that result in activity during all business hours, evenings, nights, and weekends; and to encourage indoor and outdoor uses.

LAND USE

Objective: Implement the Tualatin Commons Redevelopment Project to provide an appropriate environment which encourages private development within the Project Area and surrounding properties that support the overall goal. A major water feature may be included in the project. The project will be oriented to pedestrians with connections to the Tualatin Community Park and to other public and private developments in the downtown area.

The project will be implemented as a series of public/private partnerships. The role of the Development Commission includes acquiring and packaging development sites; conveying, by sale or lease, portions of the site to private developers; and contributing towards construction of public facilities and improvements. These public facilities may include a water feature, community facilities, pedestrian facilities and parking facilities. Development of all commercial and residential space will be a private sector responsibility.

Goal 1: Commercial Development

To encourage and facilitate commercial development in the Urban Renewal Area with an emphasis on establishing a visible and viable central business district that encourages community and business activity on weekdays, evenings and weekends.

- Objectives:
- a. Implement the "Tualatin Commons Redevelopment Project." The project is envisioned as a public and private mixed-use development that encourages activity during business hours, evenings, nights, and weekends; and indoor and outdoor uses. Commercial uses that are encouraged include restaurants, limited specialty retail, theaters, private athletic facilities, lodging, and offices.
 - b. Encourage the development of existing Central Commercial land before redesignating other land within the Renewal Area as Central Commercial.
 - c. Support Central Commercial development by assisting in the marketing and promotion of central Tualatin as a place to visit, shop, and conduct business.

Goal 2: Housing

To encourage multi-family housing in the Urban Renewal Area as supportive of commercial development.

CURD Goals & Objectives

- Objective:
- a. Review and revise land use requirements and planning district designations where necessary, to focus housing efforts on those areas most suitable.
 - b. Implement the "Tualatin Commons Redevelopment Project." Housing types allowed in the RH planning districts, including common wall single family attached housing, are uses that support commercial and social objectives of increasing the evening, night, and weekend use in the Project Area and increase the value of the land.

Goal 3: Industrial Development

To promote new industrial development in the southwestern portion of the Urban Renewal Area which is compatible with existing development; and to encourage retention and expansion of existing industries in the northern and southwestern portions of the Renewal Area.

- Objective:
- a. Where appropriate, assist in provision of public facilities and services to support development of the southwestern industrial portion of the Urban Renewal Area.

Goal 4: Civic Development

To promote civic facilities, including community gathering spaces and other pedestrian amenities, a community center, and a City Hall in the central portion of the Urban Renewal Area which is supportive of other civic and private uses in the area.

- Objectives:
- a. Implement the "Tualatin Commons Redevelopment Project." Portions of the project will be dedicated to public use. The role of the Development Commission is to assist the City of Tualatin in the planning and design of public uses. Some of these uses may include City Hall, community buildings, pedestrian-oriented facilities, major water facilities, and parking facilities. This list is not all inclusive.
 - b. Work with the City of Tualatin to identify a site and facilitate development of City Hall facilities within the Tualatin Commons Redevelopment Project or other area within the Urban Renewal District which provides central access to the entire City.
 - C . Plan, design and construct a water feature in the Tualatin Commons Redevelopment Project. The water feature is envisioned to serve as a focal point to encourage pedestrian-oriented, activity-oriented businesses and public uses in the Redevelopment Area. It will also add value to the overall development.
 - d. Where appropriate, assist in planning and development of a retail postal facility within the Tualatin Commons Redevelopment Project.

[This section was amended by TDC Res. 317-98, dated Oct. 26, 1998]

CURD Goals & Objectives

IMPROVED TRAFFIC AND TRANSPORTATION

Goal 5: Transportation

To provide transportation access and circulation which is supportive of central area development.

- Objectives:
- a. Assist in and encourage opportunities to share parking between compatible developments. Such opportunities may include providing public parking for shared use for public and private entities in the Project Area.
 - b. Support the implementation of the street improvements described in the Transportation Element of the Tualatin Community Plan.
 - c. Work toward solutions to minimize railroad noise and traffic conflicts along Boones Ferry Road, including assistance in relocating the maintenance building to another location in Tualatin.

Goal 6: Pedestrian and Bikeways

To develop a pedestrian/bicycle system linking the Urban Renewal Area to residential areas, parks, natural areas, and to link the business district on the south side of Boones Ferry Road to the future business district on the north side of Boones Ferry Road.

- Objectives:
- a. Create pedestrian ways and bikeways to link the downtown area to the Community Park and to connect development on the north and south sides of Boones Ferry Road.
 - b. Provide sidewalks and lighting in the Urban Renewal Area where appropriate to encourage and support pedestrian-oriented activities in the downtown area. Provide rain protection where feasible.

Goal 7: Transit

To support the development of the metropolitan transportation system (Tri-Met) in order to provide alternative transportation modes for the residential and employment population of the Urban Renewal Area.

- Objectives:
- a. Assist Tri-Met in locating park-and-ride facilities in outlying areas in the community, and assist in locating other transit-related facilities in the Urban Renewal Area.
 - b. Encourage design of private and public developments which integrate transit provisions.

PUBLIC UTILITIES

Goal 8: Utilities

To assist in providing public utilities in the Urban Renewal Area as needed to facilitate growth and aesthetic quality.

- Objectives:
- a. Assist in improving water, sewer, storm drainage and road systems within the Urban Renewal Area.

CURD Goals & Objectives

- b. Underground overhead electric, cable, and telephone lines in the downtown area and in all new development in the Urban Renewal Area. The Tualatin Commons Project Area is the highest priority for undergrounding of utilities, to enhance the aesthetic value of the site.

RECREATIONAL AND COMMUNITY FACILITIES

Goal 9: Parks

To provide a high-quality park and recreation system to offset the environmental effect of large areas of commercial and industrial development.

- Objectives:
- a. Create green and open spaces centered around the Tualatin River, Nyberg Creek, Hedges Creek, and significant stands of trees.
 - b. Preserve the Sweek marsh (Hedges Creek Wetlands) as designated in the Tualatin Development Code Wetlands Protection District.
 - c. Link the downtown area to the Community Park with a system of pedestrian ways and bikeways.
 - d. Preserve the natural value of the Tualatin River as a scenic, recreational and open space asset. Seek limitation of river use in this area to non-motorized boats.

FLOOD CONTROL AND OTHER PUBLIC IMPROVEMENTS

Goal 10: Flood Protection

To promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions.

- Objectives:
- a. Provide flood protection for the Urban Renewal Area by participating in federal, state, and local flood control projects.
 - b. Provide for the sound use and development of special flood hazard areas by utilizing special construction standards in the floodplain within the Urban Renewal Area. The Tualatin Development Code establishes standards for floodplain construction whereby structures must either be elevated above the floodplain or be made flood-proof.
 - c. Provide for the use of fill within the Tualatin Commons Redevelopment Project to elevate structures above the floodplain.

Goal 11: Design Considerations

To create an atmosphere in the Urban Renewal Area which is aesthetically pleasing in order to promote the desirability of investment and occupancy in properties.

- Objectives:
- a. Utilize appropriate development review procedures to guide development in the Central Design District.
 - b. Provide attractive and functional street and walkway lighting for public safety and convenience in the Urban Renewal Area.

CURD Goals & Objectives

- c. Preserve designated historic structures or sites in the Urban Renewal Area through public purchase or encouragement of compatible reuse. Landmark structures shall be preserved as required in Section 73.430 of Tualatin Development Code.

2. RELATIONSHIP TO LOCAL OBJECTIVES

The Tualatin Central Urban Renewal Plan exists to implement local objectives for central Tualatin, as they are expressed in the Tualatin Community Plan. The Urban Renewal Plan is a part of the Community Plan. The Community Plan and Planning District Standards together comprise the Tualatin Development Code.

The goals and objectives of the Urban Renewal Plan are based upon those in the Community Plan, as they relate to the Urban Renewal Area. The Urban Renewal Plan serves to further define local objectives as follows:

a. Land Use

The Plan calls for the promotion and support of Commercial (Goal 1), Residential (Goal 2), Industrial (Goal 3), and Civic (Goal 4) Development within the Urban Renewal Area. In particular, the Tualatin Commons Redevelopment Project serves to further the local objective of establishing a socially and economically viable center in the community.

b. Improved Traffic and Transportation

Goals 5 (Transportation), 6 (Pedestrian and Bikeways) and 7 (Transit) directly address objectives of the Transportation Element of the Community Plan. In particular, the plan calls for funding and construction of pedestrian and bicycle facilities; for cooperation with Tri-Met in the placement of park-and-ride lots in outlying areas of the community, to encourage other facilities within the Area; and to ensure adequate parking is provided within the redevelopment area.

c. Public Utilities

Goal 8 (Public Utilities) calls for Urban Renewal participation in design and construction of public utilities within the Urban Renewal Area. Such improvements are done in conformance with the Water and Sewer Service elements of the Community Plan and other applicable standards.

d. Recreational and Community Facilities

Goal 4 (Civic Development) includes an objective to participate in developing a community center. Goal 4 also includes an objective to develop a water feature in the Tualatin Commons Redevelopment Project as a way to encourage community-related private and public uses within the area. Goal 9 (Parks) includes objectives regarding linking the central area to the Community Park and preserving the scenic value of the Tualatin River.

CURD Goals & Objectives

e. Flood Control and Other Public Improvements

The Plan has as a major activity implementation of flood control projects (Goal 10). The Plan anticipates Urban Renewal participation in additional projects which will serve to supplement the city's regulatory efforts described in the Flood Protection District Standards.

-END-

Central Urban Renewal Plan- October 2009

F. LAND USE

(Excerpt, pg. 36)

4. REQUIREMENTS FOR MASTER PLANNING

Prior to approval of applications for development projects within Blocks 1, 2, 3, 4, 5, 13, 25, 26, 27, 31, 32, and 33, applicants will be required to submit and gain City approval of a master plan governing development within the Block(s). Such master plan shall contain sufficient information, as determined by the City, to ensure that development meets the objectives of the Plan. Master plans may include, but are not limited to, treatment of such issues as access, transportation, sewer, water storm drainage, internal circulation, building location, building design and materials, parking, landscaping and pedestrian facilities.

Master plans for Blocks 1, 2, 3, 4, 5, 13, 25, 26, 27, 31, 32, 33, as well as subsequent modifications to those plans, must be approved by the City Council at a public hearing. The public hearing shall be called and conducted in the manner provided for in Section 1.031 of the Tualatin Development Code. In approving a master plan, the City Council may attach conditions that it finds necessary to achieve the objectives of the Urban Renewal Plan.

For blocks within which land is under multiple ownerships, and where special conditions exist, the Commission may initiate master plans to govern development. Block 23, because of its unusual platting pattern and the difficulty of providing street access may require such master planning. Plans developed by the Commission for those purposes will be referenced within the Development Code.

[Section F-4 (formerly F-3) amended by TDC Resolution 131-87, adopted April 27, 1987; Ordinance 881-92, passed November 9, 1992; and TDC Resolution 398-02 adopted March 11, 2002]

ATTACHMENT 104

MP-13-01: ANALYSIS AND FINDINGS

The Central Urban Renewal District Plan Central Urban Renewal District requires development or redevelopment within certain Central Urban Renewal District Central Urban Renewal District Blocks to obtain Master Plan approval in a public hearing prior to submitting for Architectural Review. The Nyberg Rivers project is located in Central Urban Renewal District Blocks 1-4 and prior to approval of development on the project site, the applicant is required to obtain approval of a Master Plan governing development on the site.

On April 23, 2013, CenterCal submitted an application for the Nyberg Rivers Master Plan (MP-13-01) as Attachments 102B and 102C. On May 22, the application was deemed complete and staff provided early feedback on the proposal to the applicant. In response to this feedback, the applicant submitted an addendum on June 24, 2013 included as Attachments 102A and 102D. The addendum provided updated plans and a response to issues and questions raised by Staff during the application review process.

The Applicants prepared a narrative that explains the proposed Nyberg Rivers Master Plan and addresses the Central Urban Renewal Plan Goals and Objectives as well as relevant Tualatin Development Code and Tualatin Municipal Code development standards (Attachments 102B, 102C and 102D). Staff has reviewed the Applicants' material and included pertinent excerpts below.

CENTRAL URBAN RENEWAL DISTRICT MASTER PLAN

The Central Urban Renewal Plan states that prior to approval of applications such as Architectural Review for development projects within Central Urban Renewal District Blocks 1, 2, 3, 4, 5, 13, 25, 26, 27, 31, 32, and 33, applicants are required to submit and gain City approval of a master plan governing development within the Blocks. "Such master plan shall contain sufficient information, as determined by the City, to ensure that development meets the objectives of the Plan. Master plans may include, but are not limited to, treatment of such issues as access, transportation, sewer, water, storm drainage, internal circulation, building location, building design and materials, parking, landscaping and pedestrian facilities." (Attachment 103).

Master plans, as well as subsequent modifications to those plans, must be approved by the City Council at a public hearing. In approving a master plan, the City Council may attach conditions that it finds necessary to achieve the objectives of the Urban Renewal Plan.

The criteria for approving the Master Plan are found in the Central Urban Renewal District Plan Goals and Objectives. There are eleven (11) Goals and Objectives to consider, which consist of such items as transportation and pedestrian functions, building and landscape design, and utilities, among other considerations.

Staff reviewed the application with respect to each of the Central Urban Renewal District Plan Goals and Objectives. Where Staff found the Master Plan proposal failed to meet a particular Goal and Objective, a condition or action to meet that Goal is proposed.

Generally, the Nyberg Rivers Master Plan as proposed in Attachments 102A-D meets the goals and objectives of the Central Urban Renewal District Plan if the proposed conditions of approval are applied. The following is a summary of the analysis of the Master Plan as it relates to each Central Urban Renewal District Plan Goal and Objective. Staff's complete analysis and findings, along with the recommended conditions, are contained in Attachment 104 with supporting material in Attachment 105.

SUMMARY OF PROPOSAL

CenterCal, owners of the Bridgeport Village and Nyberg Woods retail centers proposes a commercial center project to redevelop the former Kmart site and adjacent properties. The proposed redevelopment will encompass a net development area of approximately 26 acres on the 32 acre Primary Development Area. The proposal includes demolition of three existing buildings (including the former Kmart building, the Wendy's Restaurant, and the Jiggles Restaurant), construction of seven (7) new buildings (treating attached tenant buildings 1005, 1010 and 1030 as one building), access and public facilities improvements, parking, pedestrian, bicycle, and landscaping improvements. Five existing buildings including the Michael's store building, the US Bank building, Banner Bank building, and the Multi-tenant Buildings A and B will remain.

CenterCal also submitted an application for a proposed Conditional Use Permit (reviewed in a separate hearing as CUP-13-04) to apply to the Nyberg Rivers project to allow retail uses in the Office Commercial (CO) Planning District and allow outside sales in the Central Commercial (CC) Planning District.

The Nyberg Rivers Master Plan application documents provide narrative and graphic information on the proposed concept including concept site plans, public facilities concepts, concept building designs and greenway and natural areas adjacent to the sites frontage on the Tualatin River.

CenterCal has also submitted an application for a Conditional Use Permit (reviewed in a separate hearing as CUP-13-04) for the Nyberg Rivers project to allow retail uses in the Office Commercial (CO) Planning District and allow outside sales in the Central Commercial (CC) Planning District.

SITE DESCRIPTION

The proposed Nyberg Rivers redevelopment project will be located on the existing Mercury Development/ (former) Kmart/Schatz Furniture shopping center (see Attachment 102B, page 153; Attachment 102C, page 5; Attachment 102D, Exhibit A) with a portion of the undeveloped north tax lot 2700, two parcels (2508 & 2502) where

the Jiggles restaurant is located and a segment of Oregon Department of Transportation Interstate I-5 Exit 289/Nyberg Street interchange property.

The properties are in the Central Commercial (CC) Planning District, the Commercial Office (CO) Planning District and a small portion of the High Density Residential (RH) Planning District.

The Nyberg Rivers site encompasses Central Urban Renewal District (Central Urban Renewal District Central Urban Renewal District) Blocks 1, 2, 3 and 4 (segment) where a Master Plan is required with redevelopment. Public street concepts and pedestrian facilities are shown on the City of Tualatin City Hall/Library campus property which is in Central Urban Renewal District Block 5.

The Nyberg Rivers site is at the northwest corner of the I-5 Freeway Exit 289/Nyberg interchange, has extensive frontage adjoining the I-5 Freeway property and includes Tualatin River Greenway frontage where public access and natural area enhancements are identified. It is on the eastern edge of downtown Tualatin. To the west, the City Hall/Library campus directly abuts the site and the Lake of the Commons is nearby. The Fred Meyer Shopping Center and the recently installed Gateway Feature are located south of the site. Nyberg Street and Tualatin-Sherwood Road adjoin the site to the south and will provide the primary access to the development. Martinazzi Avenue is west of the site and SW Boones Ferry Road is at the northwest corner. Both of these streets are intended to provide secondary access to the development.

The following description of the project is excerpted from the Nyberg Rivers Master Plan-Presentation Document (Attachment 102C, pages 8-9).

- “The Nyberg Rivers Master Plan is conceptualized as a multi-tenant shopping center redevelopment project.”
- “The Primary Development Area will be redeveloped to support traditional shopping center related uses. These land uses include, but are not limited to, retail, restaurant, banks, health clubs, and service uses. General Office and Medical Office land uses may also be included within the shopping center. Drive-through service windows will be retained for Buildings A, B, C, and E. Building F-100 is a relation of an existing restaurant with drive-through use. A new drive-through service window will be constructed as part of H-100.”
- “The Primary Development Area will be redeveloped by retaining some existing buildings and constructing other new buildings, parking areas, and site amenities. The Primary Development Area will retain the existing buildings for the western portions of the site. This includes buildings A, B, C, D, and E.”
- “The eastern portions of the project will include new construction of buildings F-100, G-100, H-100, J-100, M-100, N-100, 1005, 1010, 1030, and 1040. F-100 is relocating an existing drive through restaurant use. Building D will include façade improvements to architecturally match and complement the new buildings in the center.”

- “The Master Plan allows up to 307,000 sf of building area within the Primary Development Area (includes 13,328 sq. ft. of “potential building area” - Attachment 102A). The building areas are listed on the Project Summary table of the Development Plan. The Development Plan identifies 9,193 sf of additional potential building area (Attachment 102D, Exhibit A indicates 13,328 sq. ft.) that can be applied as minor additions and/or adjustments to the building footprints at the time of site plan review (Architectural Review).”
- “The Primary Development Area will be redeveloped to retain much of the existing parking in the western portions of the project. Some of the western parking fields will be enhanced to improve site appearance, pedestrian and vehicular circulation, parking capacity, and overall efficiency. The residual areas of the Primary Development Area will be developed with new parking fields. New and enhanced parking areas will be constructed to comply with current code standards in terms of dimensional standards, layout, landscaping, circulation, and pedestrian facilities.”
- “The Primary Development Area will be redeveloped with a combination of existing and new vehicular access points; five primary access points will occur from Nyberg Street, Seneca Street and a new Street “A”. Secondary access points will be retained along Martinazzi Avenue. Overall, the project is designed to be integrated with the surrounding transportation network and abutting uses.”
- “The sidewalks located along the primary storefronts of Buildings D, 1005, 1010, 1030, and 1040 will create a premium pedestrian experience. This pedestrian area is designed as an extension of the downtown core and will function as a primary shopping street completed with wide sidewalks, outdoor seating, landscape planters, and other pedestrian amenities. This area provides the ability to extend the existing Art Walk to the east. Designated pedestrian pathways are designed across the parking fields to provide linkages to the adjoining roadway and all buildings within the development.”

ITEMS REQUESTED FOR MASTER PLAN APPROVAL

The Nyberg Rivers Master Plan Addendum 1 (Attachment 102A, page 5) states:

“CenterCal is seeking master plan and conditional use approval for all uses shown on the updated Site Plan included with this letter.

The following items requested for approval are not within the purview of the Master Plan review process and are not approved with the Master Plan decision:

- Approve and permit retail uses within the Office Commercial (CO) designated portions of the property.
- Approve right-of-way vacation of the Oregon Department of Transportation property along Nyberg Road.
- Approval of any modification of land uses.

- Acceptance by the City of any easements or other land transactions for pedestrian or transportation facilities.
- A decision on whether to adopt a separate review procedure for the Master Plan
- Approve the Nyberg Rivers alternate sign program.

ANALYSIS & FINDINGS-MASTER PLAN

The following analysis addresses the Central Urban Renewal Plan Goals and Objectives (Attachment 103) with respect to the Master Plan Requirements of the Central Urban Renewal District Plan and the development concepts requested in MP-13-01. The Analysis and Findings are based on:

1. The Application materials including the narrative, revised plans, updated traffic information, and other information in Attachments 102A, 102B, 102C and 102D.
2. The application material in Attachment 102B and the Application Presentation Document in Attachment 102C that are not revised by Attachments 102A and 102D.

The overall goal of the plan is: To strengthen the social and economic development of central Tualatin by stabilizing and improving property values, eliminating existing blight, and preventing future blight; and to encourage and facilitate land uses, private and public, that result in activity during all business hours, evenings, nights, and weekends; and to encourage indoor and outdoor uses.

How does the proposal succeed in meeting this goal?

The Nyberg Rivers Master Plan proposes to redevelop an underutilized shopping center with new construction and new tenants in an effort to enhance and reinvigorate this commercial area. The proposal features a strong commercial component including a new mix of upgraded tenants, a large retailer and an assortment of small and medium sized retail and restaurant uses. The now vacant K-Mart and the existing Jiggles restaurant are proposed to be demolished. In addition to the commercial aspect of the project, the applicant is proposing outdoor plaza space and amenities, pedestrian and bicycle paths, and new private roadway connections that resemble public streets with sidewalks or multiuse paths, planters and curbs.

Other proposed concepts help the Master Plan satisfy this goal. The applicant is proposing to construct a new roadway connection to Boones Ferry Road with bike lanes and sidewalks called "Street A". CenterCal is proposing an enhanced site access driveway to Nyberg Road that will feature a 14-foot wide multi-use path on the west side of the drive aisle. This enhanced access will better accommodate vehicular queuing and demand. They are proposing to preserve east-west and north-south travel ways that will provide vehicular and pedestrian access through the site. Additionally they are proposing new bikeway connections along the perimeter of the site.

The site serves as a gateway to the City and eastern extension of downtown. A

redeveloped center will contribute to the social and economic development of central Tualatin by improving property values. The proposed Master Plan includes aspects that will encourage activity during business hours, evenings, nights and weekends. Plaza spaces will encourage outdoor activity.

How can the proposal improve to meet this goal?

While this proposed Master Plan presents a welcomed opportunity to redevelop the eastern extension of downtown and it is a positive step toward meeting this overall goal there are several areas that could be improved. Conditions of approval were identified through the analysis of the proposal and the remaining 11 goals. With the application of the conditions of approval discussed in each section pertaining to a goal, the proposal will meet this overall goal.

GOAL 1: Commercial Development.

To encourage and facilitate commercial development in the Urban Renewal Area with an emphasis on establishing a visible and viable central business district that encourages community and business activity on weekdays, evenings and weekends.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 1?

1.1 Drive-thru Facilities. The Master Plan shows a new building H-100 identified as a drive-through restaurant (Attachment 102A). The Nyberg Rivers center currently has three drive-through banks and one drive-through restaurant (Wendy's). The proposed H-100 building would result in five drive-through uses. Having more drive-thru facilities is inconsistent with the Central Urban Renewal District Plan vision of the west of I-5/KMart/Tualatin Civic Center area that is considered an eastern extension of downtown Tualatin. Drive-thru bank and restaurant uses with auto-queuing lanes and outside order/window services are typical of traditional auto-oriented shopping centers and not the pedestrian oriented downtown envisioned in the Central Urban Renewal District Plan. Drive-thru restaurants are not conducive to pedestrian friendly developments, creating pedestrian crossing conflicts and auto exclusive areas that discourage people from walking between buildings and connecting to public walkways. This is not supportive of Goal 1 and objectives to achieve a visible and viable central business district.

Drive-thru facilities also present an auto-dominated appearance to the public, both on the site and from the public streets. Both the proposed F-100 (relocated Wendy's) and the H-100 Building restaurant drive-thru windows are shown on the Master Plan site plan facing a public street or the I-5 property frontage. The auto-dominated development appearance is especially a concern in the vicinity of the I-5 Nyberg Interchange which serves as a gateway for many residents and visitors to Tualatin. This is not supportive of Goal 1 and objectives to achieve a visible and viable central business district.

In a June 3, 2013 letter, Staff asked the applicant to reconsider the addition of a new drive-through use in the Nyberg Rivers. In reply (Attachment 102D, pages 8 & 19),

the applicant notes that drive-thru uses are not restricted in this area of the Central Urban Renewal District or in the CC Planning District outside of the Central Design District. The applicant states that the proposal for the addition of a drive-thru restaurant will be considered.

Additional drive-thru restaurant uses are not supportive of Goal 1. *Staff recommends the Master Plan approval include a condition limiting the number of drive-thru facilities in the Nyberg Rivers development to no more than four and design any new or re-located drive-thru facilities so the service windows and service aisles are oriented away from public streets.*

How can the proposal improve to meet Goal 1?

Staff recommends that with the above recommended conditions in 1.1 and 1.2, the proposed Nyberg Rivers Master Plan will satisfy Central Urban Renewal District Plan Goal 1.

GOAL 2: Housing

To encourage multi-family housing in the Urban Renewal Area as supportive of commercial development.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 2?

2.1 Impact on Housing. The Central Urban Renewal District Goal 2 calls for residential development supportive of commercial development in the downtown area. Housing itself is supported by an attractive, well connected, and adequately served downtown area. Commercial development that is attractive to neighboring residential properties, that is well connected to public ways and to service and shopping opportunities is important to the viability of downtown residential development. The proposed Master Plan shows the main Nyberg Rivers building has no entrances, no windows on the north elevations facing the neighboring residential development to the north. The north elevation is primarily a loading and service area, facing directly to the Tualatin River and the Heron's Landing Apartments. The relationship of the Nyberg Rivers development site design, building design and pedestrian connectivity to residential uses in the downtown is discussed further with Central Urban Renewal District Goals 4, 5, 6 and 11. *To support Central Urban Renewal District Goal 2- Housing, Staff recommends the Master Plan approval include conditions requiring the Nyberg Rivers site design and building design to provide attractive and pedestrian-oriented features including accessways and pathways that will connect to existing and future residential development in the downtown area and specifically to the adjoining Heron's Landing Apartments property.*

How can the proposal improve to meet Goal 2?

Staff recommends that the proposed Nyberg Rivers Master Plan meets Central Urban Renewal Plan Goal 2 with the recommended condition of approval requiring for attractive and pedestrian-oriented connections to residential development.

GOAL 3: Industrial Development

To promote new industrial development in the southwestern portion of the Urban Renewal Area which is compatible with existing development; and to encourage retention and expansion of existing industries in the northern and southwestern portions of the Renewal Area.

How does the proposed Nyberg Rivers Master Plan succeed in meeting Goal 3?

The Nyberg Rivers development is a commercial development and is not related to industrial land or industrial development in the Central Urban Renewal District Central Urban Renewal District. Central Urban Renewal District Goal 3 does not apply to the proposed Nyberg Rivers Master Plan.

GOAL 4: Civic Development

To promote civic facilities, including community gathering spaces and other pedestrian amenities, a community center, library expansion and a City Hall in the Urban Renewal Area, which is supportive of other civic and private uses in the area.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 4?

4.1 Tualatin River Greenway Trail. The Tualatin River Greenway Trail is shown on the Nyberg Rivers Pedestrian and Bicycle Plan (Attachment 102D, Exhibit L) as the northern Shared Pathway running east and west from the I-5 bridge through the Natural Area, crossing Street "A" and continuing north along the west side of Street "A" until it connects with Boones Ferry Road. The Trail provides a linkage between the east side of Tualatin residential, commercial, institutional and public park areas and the civic and commercial areas in Downtown Tualatin, including the City Hall/Library Campus, the Tualatin Commons and Community Park.

The Greenway Trail is addressed again under Goal 6 Pedestrian and Bikeways in 6.1 and under Goal 9 Park and Recreation System in 9.2. With the improvements recommended under Goal 6 and Goal 9, the Tualatin River Greenway Trail elements of the Master Plan will meet Goal 4.

4.2 Public Spaces. The Nyberg Rivers plans show a plaza (public space) between Building 1030 and the west corner of Building 1040 (Attachment 102D, Exhibit A, Q1). This is the intersection of the north-south bicycle and pedestrian aisle/accessway that passes between the buildings and the east-west walkway that

extends across the south-facing elevations (facing the parking lot/SW Nyberg Street) of the main building storefronts (Attachment 102D, Exhibits A, & Q1). The proposed “Multi-Function Open Plaza” (Exhibit Q1 plan) shows seating, canopies, awnings, landscape planters, water, fireplace and statuary features. The width of the open portions of the plaza ranges from approximately 20 ft. to 30 ft. with 10 ft. to 12 ft. wide aisles within the plaza. The area of the plaza is estimated as 6,400 sq. ft., including the outdoor dining area associated with Building 1030 (food & beverage), raised planters and sculpture/feature pads.

The application also depicts the east-west building front walkway that extends across the building storefronts from Building D1/D2 on the west (Michaels store) to the east corner of Building 1004 as a plaza (Attachment 102D, Exhibit A, Q1 & Q2 plan). The walkway area in front of Buildings 1030, 1010, 1005, D2 and D1 includes raised planters, seating, sculpture features, canopies and outdoor dining/outdoor sales areas associated with the grocer and retailer storefronts. The width of the east west walkway/plaza surface is approximately 12-16 ft. while the passage way for pedestrians ranges from 8 ft. to 16 ft. taking into account raised planters, trees, and space devoted to dining/ retail activities.

A review of the dimensions and features of the plaza and the plans indicates:

- Potential conflicts with bicycles and pedestrians passing through the narrow sections of the proposed plaza and the walkway plaza. Adequately sized passages between objects and structures located in the plaza are necessary to allow circulation of bicycle and pedestrian users that are traveling through the plaza area between the stores or on the bicycle and pedestrian paths that connect to public areas and ways such as the Tualatin River Greenway, Civic Center and south of SW Nyberg Street.
- Conflicts between the features of the plaza and the space available as usable space for the public to enjoy. The ability of the public to pause, move around, and gather in the designated plaza is limited by the constraints of the physical layout and features of the plaza area.
- The proposed Building 1040 “outside sales” area on the south elevation of Building 1040 (Attachment 102D, Exhibit I) (proposed in Nyberg Rivers Conditional Use Permit CUP-13-04) is shown occupying a significant portion of the Multi-Function Open Plaza shown in Attachment 102D Exhibits A, Q1, Q2. The proposed outside sales area also occupies approximately 12 ft. of the 22 ft wide paved walkway surface between the Building 1040 south exterior wall and the abutting drive aisle. This conflict reduces the safety and desirability of a public outdoor space.

The Applicant addresses Goal 4 stating: (Attachment 102D, pages 9-10, 22)
“The applicant has proposed a plaza on site as well as a network of streets and sidewalks that provide community gathering spaces and pedestrian amenities.

These gathering spaces and pedestrian amenities are best displayed within the Nyberg Rivers Master Plan document under the Pedestrian & Bicycle Plan and the Southern Building Elevations (Attachment 102D, Exhibit A, L, P, Q1, Q2). Amenities include cove and bench seating, patios, tree grates, sculptures, water features, a pedestrian promenade, and larger sidewalks to promote pedestrian interaction and safe access through the central shopping corridor, as well as linkage to the north/south pathways into and through the parking areas and remainder of the site. All of these elements combine to create a sense of place to invite users into and through the site during all hours of the day.”

The public outdoor plaza area shown on the Nyberg Rivers Master Plan (Attachment 102D, Exhibit A, Q1, Q2) provides a relatively limited amount of public open space and gathering space within the 26 acre development area of the site, leaving the remainder to buildings, commercial tenant spaces and parking areas. The design and dimensions of the plazas and the arrangement of uses create conflicts with the public functions of the Nyberg Rivers outdoor spaces and linkages for bicycle and pedestrian users. With the recommended design modifications to reduce conflicts and expand the public spaces available, the public gathering places on the proposed Nyberg Rivers Master Plan site and the proposed pedestrian and bicycle connections to the nearby civic facilities will provide a public benefit consistent with Goal 4.

To meet Goal 4, the currently proposed public spaces and plazas should be revised to make the public outdoor spaces larger by 50% or more (of the proposed public portion of the estimated 6,400 sq. ft. shown in Attachment 102A) in order to contribute to community gathering spaces. The proposed “outside sales areas” should be relocated or reconfigured to avoid interference with the public plaza and walkways. Public spaces and ways that are intended for a mix of pedestrian and through bicycle use should be a minimum of 12 ft. in width.

Staff recommends Master Plan conditions of approval requiring:

- 1. Recreational equipment, apparel and sports outfitting sales are prohibited in areas identified as public gathering, multi-function open plaza and plaza seating with fire pit on Attachment 102D page 60 Building Frontage landscape plan.*
- 2. The proposed “outside sales areas” should be configured to provide a minimum of 12 feet in clear, unobstructed width for public gathering spaces, accessways and walkways measured from the edge of an “outside sales area”, and;*
- 3. A minimum of 12 feet of clear, unobstructed width for walkways or accessways through a plaza or along the building frontage between Building D1 on the west and southeast corner of Building 1040 on the east*

4.3 Connections between Private and Civic Facilities.

The Central Urban Renewal District Plan identifies the Nyberg Rivers site as part of the Tualatin Downtown and its adjacency to the Tualatin Library and City Hall campus on the Martinazzi Avenue side. The proposed Master Plan does not clearly

show or explain the project's pedestrian and bicycling improvements and connections to downtown, to the Tualatin Commons area or providing adequate pedestrian and bicycling linkages from the Nyberg Rivers commercial development to the public plaza and Library entrance features of the City Center Campus. Without adequate linkages between private and civic facilities, Goal 4 is not met.

Staff recommends a Master Plan condition of approval requiring pedestrian linkages across the Tualatin Civic campus between the main Nyberg Rivers development and Martinazzi Avenue via the SW Seneca Street or other approaches.

4.4 Loading & Delivery Truck Routes through Civic Facilities.

The proposed Master Plan indicates loading and services facilities on the north side of Buildings D1, D2, 1005, 1010, 1030 and 1040. The proposed loading and service truck route ("Primary Truck Circulation") (Attachment 102D, page 44) shows trucks accessing SW Martinazzi (via existing easement or a SW Seneca extension) and SW Boones Ferry Road (via proposed "Street A") through the Library/City Hall Campus. Trucks using these routes are a significant conflict for the Library and City Hall functions, public plazas and the public that use them. With the conflicts that commercial trucks are for the safety and the pedestrian environment of the civic facilities, Goal 4 is not met.

To meet Goal 4, Staff recommends remove the Truck Route designations from Street "A" and Seneca Street in order to eliminate impacts to the Library/City Hall Plaza, Shared Pathway, and other pedestrian crossings of these roads and drive aisles.

How can the proposal improve to meet Goal 4?

Staff recommends that the proposed Nyberg Rivers Master Plan can meet Central Urban Renewal District Plan Goal 4 with the recommended conditions for improved public spaces, pedestrian connections and civic space connections in 4.1, 4.2 and 4.3 and addressing the truck route conflicts with civic facilities in Section 4.4.

GOAL 5: Transportation

To provide transportation access and circulation which is supportive of central area development.

Objective A- Support the implementation of transportation improvements described in the Transportation Element of the Tualatin Community Plan and Transportation System Plan.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 5?

5.1 Traffic Impact Analysis (TIA) – The TIA was submitted as part of the Master Plan; two additional addendums were also submitted to address staff questions during the

review process. The City of Tualatin contracted with DKS & Associates to conduct supplemental traffic analysis concerning the Nyberg Rivers proposed development. DKS has reviewed the April 2013 Transportation Impact Analysis (TIA) submitted by Kittelson & Associates and prepared comments concerning deficiencies in that analysis (Attachment 105). Staff review and additional DKS & Associates review of the Traffic Impact Analysis determined that the development should be required to show the proposed Seneca Street extension and signal at Martinazzi Avenue are needed to serve the Nyberg Rivers Master Plan area.

- 1) DKS reviewed the Nyberg Rivers Master Plan, and recommend that an alternative trip generation estimate be used for this proposed development. Rather than treating all uses the same, as was done in the April 2013 TIA, they believe that several elements of the proposal are significantly different from a typical shopping center use. When these uses are treated separately, the resulting net increase in traffic generation for the development's new uses is 376 to 438 trips higher than estimates in the applicant's TIA report.
- 2) ODOT reviewed the submitted information for their facilities (I-5 and Nyberg Street). Based on the analysis performed by ODOT, the proposed improvements mitigate the impact of the development on ODOT facilities. Final design may indicate the need for additional right-of-way. (Attachment 106)
- 3) Washington County also reviewed the information and they have provided a list of conditions and measures to mitigate impacts on Nyberg Street and Tualatin-Sherwood Road (please see attached comments from Washington County). Final design may indicate the need for additional right-of-way. (Attachment 106)
- 4) The applicant's traffic consultant does not draw any conclusions on the adequacy of the existing City driveway/easement taking into account the traffic generation from the proposed development, other driveway closures, and queuing issues on Martinazzi Avenue. Therefore, the City requested DKS further analyze the interaction between the operational results of the city access driveway when the Seneca St extension is not built, but the driveway south of City Hall is closed. The City specifically wanted to know whether the use of the volumes presented by the applicant in the April 2013 submittal or the volumes proposed in the DKS recommendation would change the resulting need to build or not build the Seneca extension. In further researching this issue, it is determined that the use of the applicant's April 2013 or DKS' volumes do not create a difference in results.

What does impact the results is the consideration of a two-stage or a one-stage crossing for westbound left turns leaving the site. A one-stage crossing assumes that vehicles making a westbound left turn from the city access would cross both the northbound and southbound lanes of travel in one movement. This would require gaps in both sets of traffic before vehicles can complete their turning

movement and results in larger delay values as vehicles wait for an opening. A two-stage crossing assumes vehicles making the westbound left would first identify a gap in the northbound traffic and cross to the two-way center left turn lane. There they would position themselves and wait for a gap in the southbound traffic before completing their crossing movement.

It is recommended that this location be analyzed as a one-stage crossing, which will not meet applicable mobility standards under the opening year build scenario without the signalized Seneca St. extension. Review of the scenarios defined by the City indicates the best operational environment is achieved with a signalized extension of Seneca Street into the proposed development and closure of the driveways south of City Hall and south of the Council Building. *The Master Plan should be approved with the condition that the proposed Seneca Street extension to the Nyberg Rivers site with a signal at SW Martinazzi Avenue are constructed to the standards of a Minor Collector Street.*

5.2 Transportation Improvements. Based on the proposal submitted June 24, 2013, the plans show an eastern extension of SW Seneca Street and Street "A" south from SW Boones Ferry Road (Attachment 102A, 102D). Both streets would connect to public access that continue from Street "A" south to the east end of SW Seneca Street, east to the main north/south drive aisle, then south to the main site entrance.

The Tualatin Transportation System Plan includes future Minor Collector streets within the project area including a Loop Road: a western extension of SW Seneca Street that would connect to a new street between the main site entrance as well as SW Boones Ferry Road plus SW Nyberg Road from the Kmart/Fred Meyer intersection to SW Martinazzi. SW Boones Ferry Road and SW Nyberg Road from I-5 to the Kmart/Fred Meyer intersection are classified as Major Arterials.

The preferred Minor Collector cross-section includes:

- Two 12-foot travel lanes
- Two 6-foot bike lanes
- Two 8-foot parking strips
- Two 6-foot planter strips with curbs, streetlights, and street trees
- Two 6-foot sidewalks

In certain situations, the cross-section can be reduced to:

- Two 11-foot travel lanes
- Two 5-foot bike lanes
- Two 8-foot parking strips
- Two 6-foot planter strips with curbs, streetlights, and street trees
- Two 5-foot sidewalks
- Instead of including a bike lane an alternate is to have a 12-foot wide sidewalk multi-use path.

Private streets with public access over the locations of the Loop Road instead of public streets are supported by:

- The submitted traffic study shows public access will function adequately.
- The cross-sections for the locations of the public access have “street-like” qualities.
- Future arrangements for maintenance will assure the continued functionality of the public access to public standards.

Allowing public access over the locations of the Loop Road are supported by the submitted Kittelson traffic study that shows public access will function adequately and the proposed cross-sections for the locations of the public access have “street-like” qualities. Public access over the “street-like” cross sections from the south end of Street “A” to the east end of SW Seneca Street to SW Nyberg Road and revised cross sections for private streets as detailed below are necessary to meet Goal 5. To achieve access and circulation supportive of the downtown area, recorded private access from all remaining lots to public right-of-way are necessary.

While none of the proposed onsite public streets and public access easements precisely meet the exact cross-section of a Minor Collector all of them include cross-sections with "street-like" qualities. The proposed differences from preferred and minimum cross-sections are identified below.

Attachment 102D Exhibit B: Cross-Section A-A, Nyberg Main Entry

- The east planter strip varies between 4 to 7 feet and is adjacent to the parking lot.
- There is no bike lane or sidewalk on the east side. As there is no crosswalk across SW Nyberg Road at the main site entrance on the east side, this is appropriate.
- The west side includes a 14-foot multi-use path with 5-foot tree wells adjacent to the travel lanes and a 4-foot planter adjacent to the parking lot. The planter strip includes streetlights. The streetlights should be in line with the tree wells adjacent to the travel lanes.
- The southbound left turn lane widths are shown to be only 11 feet wide. This is a concern since this is the main truck route out of the site. The lane widths should be 12 feet wide in the Public Works Permit submittal.

Attachment 102D Exhibit C: Cross-Section B-B, Michaels Frontage

- The two travel lanes are 13-feet wide for a total of 26 feet. This provides an adequate width for emergency vehicles. 12-feet wide is acceptable to the City.
- The north side includes an 12 foot shared pathway with 5-foot tree

wells. Per previous comments this walkway will need to be at least 12 feet wide in the Public Facilities submittal.

- There are no bike lanes. But with the wider shared pathway the bicycle movements will be accommodated.

Attachment 102D Exhibit D: Cross-Section C-C, Retail Shop Frontage

- The two travel lanes are 14-feet wide for a total of 28 feet. This provides an adequate width for emergency vehicles.
- Both sides include 17.5 feet for angled parking.
- The east side has a 10-foot wide sidewalk with 5-foot tree wells.
- The west side has a 4-foot wide sloped planter without street trees.
- The west side also has a 12-foot wide multi-use path.

Attachment 102D Exhibit E: Cross-Section D-D, Street "A"

- Both planters are a minimum 4-feet wide
- No crosswalk is shown adjacent to SW Boones Ferry Road. Standard street construction requires crosswalks over accesses adjacent to public streets. The applicant will need to locate a crosswalk on Street "A" adjacent to SW Boones Ferry Road as a part of the Public Works Permit submittal.

Attachment 102D Exhibit F: Cross-Section E-E, Boones Ferry Road

- This is shown for future reference to appropriately construct the intersection with Street "A" with the exception of construction of an extended median for westbound traffic for the right-in/right-out Street "A".

Attachment 102D Exhibit G: Cross-Section F-F, Nyberg Road, Entrance to Martinazzi

- The 5 to 6-foot sidewalk is curb tight for the section from the main site entrance to the west access. No planter is proposed, but 4 to 6 feet of landscaping is proposed north of the right-of-way after the sidewalk.
- A 4 to 6-foot planter section with 5 to 6-foot sidewalk exists after the west access to SW Martinazzi.

The preferred Major Arterial cross-section includes:

- Four 12-foot travel lanes
- One 14-foot wide center turn lane or median
- Two 6-foot bike lanes
- Two 6-foot planter strips with curbs, streetlights, and street trees
- Two 6-foot sidewalks

The proposed cross-section of SW Nyberg Road does not precisely meet the exact cross-section of a Major Arterial; the proposed differences from preferred cross-section are identified below.

Attachment 102D Exhibit H: Cross-Section G-G, Nyberg Road from I-5 to Eastern Entrance

- The bike lane is 5-feet wide.
- The westbound right-turn lane is 15 feet wide.
- The planter strip is 4-feet wide.
- There is a two foot landscape strip north of the sidewalk prior to a hand rail on top of a retaining wall, then a water quality pond.

All proposed modified cross-sections are acceptable with the exceptions noted above.

The plans show the extension of SW Seneca Street west of SW Martinazzi. The cross section shown meets the requirements of a Minor Collector street

The Master Plan proposes closure of the McBale Property access to SW Nyberg Street via a private "SW 75th Avenue". The TDC requires each lot to have frontage and some form of access to public right-of-way. If the public access for the properties served by the private SW 75th Avenue is altered, the McBale and ODOT properties will need to obtain a private access easement over the Nyberg property in order to access public right-of-way.

At the intersection of collector or arterial streets, driveways needs to be located a minimum of 150 feet from the intersection. Several accesses are within 150 feet from either SW Boones Ferry Road or SW Nyberg Road, both Major Arterials. Access to the City staff parking lot and the access easement to Heron's Landing Apartments are approximately 140 feet and 110-feet away from SW Boones Ferry Road, respectively. Locating the City staff parking lot access further south would require relocation of the cement block trash enclosure, therefore the location is acceptable. The Heron's Landing Apartments access is too close to SW Boones Ferry Road; therefore, it will need to be located further south to match the location of the City staff access. The applicant will need to locate the Heron's Landing Apartment access opposite the City staff parking lot access. Along the Nyberg Main Entry access to the east and west parking lots are approximately 120 feet from SW Nyberg Road; however left turns are restricted by a median, therefore the location is acceptable.

How can the proposal improve to meet Goal 5?

Without adequate transportation facilities providing connections and improvements consistent with the transportation system, Goal 5 is not met. Staff recommends Master Plan conditions of approval as follows:

1. *The proposed Seneca Street extension to the Nyberg Rivers site with a signal at SW Martinazzi Avenue are constructed to the standards of a Minor Collector Street.*
2. *The following improvements are necessary for this development:*
 - *A westbound right turn lane on SW Nyberg Road.*
 - *Two southbound left turn lanes and a shared through/right turn lane from the site's access onto SW Nyberg Road.*
 - *Two inbound receiving lanes and*
 - *The associated signal improvements at the main entrance.*
3. *For an Architectural Review land use decision, prior to issuance of Public Works, Water Quality, and Building Permits the applicant will need to submit revised plans that include:*

Plans for the cross-sections:

Exhibit B (Attachment 102D): Cross-section A-A:

- *A 4 to 7-foot planter strip on the east side with curb, streetlights, and trees*
- *A 4-foot planter on the west side with curb, streetlights adjacent to the travel lanes, and groundcover and shrubs with a 14-foot shared path with tree wells*
- *Three 12-foot southbound travel lanes*
- *Two northbound 12-foot travel lanes*
- *A center median consisting of an 18-inch concrete median, with striping on both sides for a total of 2.5-feet*

Exhibit C: Cross-section B-B:

- *A 12-foot pedestrian walkway on the north side with tree wells*
- *Two 13-foot travel lanes*
- *A 6-foot planter on the south side*
- *A 5-foot sidewalk on the south side*

Exhibit D: Cross-section C-C:

- *A 10-foot wide pedestrian walkway on the east side with tree wells*
- *17.5-foot angled parking on both sides*
- *Two 14-foot travel lanes*
- *A 4-foot sloped landscape area on the west side*
- *A 12-foot multi-use path on the west side*

Exhibit E: Street "A": Cross section D-D

- *A 12-foot multi-use path on the west side*
- *A 4-foot planter strip with curb, streetlights, and trees*
- *Two 12-foot travel lanes*
- *A 6-foot bike lane on the east side*
- *A 5-foot sidewalk on the east side*
- *The pork chop at the intersection of Boones Ferry Road will be mountable for emergency vehicles*
- *City Parking Lot/Heron's Landing/Access to Street "A" and intersection with the greenway:*

- *The driveway/access shown 40-feet wide*
 - *The multi-use path crossing located south of the accessway. The crossing will include striping and bump-outs*
 - *The Heron's Landing Apartment access opposite the City staff parking lot access.*
 - *A crosswalk on Street "A" adjacent to SW Boones Ferry Road*
- Exhibit G: Nyberg Street between the entrance of the site and Martinazzi Avenue: Cross section F-F*
- *A 4-6-foot planter strip with trees. This planter does not include curbs and streetlights, which are placed on the curb-tight sidewalk.*
 - *A 5-6-foot curb-tight sidewalk on the north side of Nyberg Road*
 - *A 6-foot bike lane*
 - *Two 11-foot westbound travel lanes*
 - *The north-south crosswalk across Nyberg Street will have a dedicated pedestrian/bicyclist-activated sequence*
- Exhibit H: Nyberg Street between the entrance of the site and I-5: Cross section G-G*
- *A 12-foot sidewalk on the north side of Nyberg Road*
 - *A 4-foot planter strip with curb, streetlights, and trees*
 - *A 15-foot westbound right-turn lane*
 - *A 5-foot bike lane*
 - *No proposed changes to the existing west and east-bound turn lanes*
 - *A two foot landscape strip prior to a hand rail on top of a retaining wall, then a water quality pond.*
- Seneca Street and the signal at SW Martinazzi Avenue*
- *Two 12-foot travel lanes*
 - *One 14-foot center turn lane*
 - *Two 6-foot bike lanes*
 - *Two 8-foot parking strips*
 - *Two 6-foot planter strips with curbs, streetlights, and street trees*
 - *Two 6-foot sidewalks*

GOAL 6: Pedestrian and Bikeways

To develop a pedestrian/bicycle system linking the Urban Renewal Area to residential areas, parks, natural areas, and to link the business district on the south side of SW Boones Ferry Road to the future business district on the north side of SW Boones Ferry Road.

How does the Nyberg Rivers Master Plan succeed in meeting Goal 6?

The proposed bicycle and pedestrian facilities serve the purposes called for in the Transportation System Plan. The bicycle and pedestrian facilities would provide on-and-off street connectivity in all directions to residential, commercial, and industrial areas with public parks, the library, and schools, in addition to facilitating on-site

circulation. The system of pedestrian and bicycle facilities would contribute to and promote linkage between the downtown project site and Community Park.

6.1 Tualatin River Greenway Trail

The Tualatin River Greenway Trail is shown on the Pedestrian and Bicycle Plan (Attachment 102D, Exhibit L) as the northern Shared Pathway running east and west through the Natural Area from the northeast corner of the site at the I-5 bridge over the Tualatin River, across the width of the site, moving south of Future Development Area 4, then crossing Street "A" before it continues north along the west side of Street "A" where it connects with Boones Ferry Road at the northwest corner of the project site. It is shown as 12' wide with 2' shoulders for clearance on either side for the entire route.

Provisions are shown for future off-site trail connections-

- (1) to the west along the Tualatin River at Future Development Area 4 (where the Heron's Landing Apartments are located),
- (2) on the west side of I-5 at the Tualatin River for a future trail connection under I-5, and (3) also at on the west side of I-5, for a north/south bikeway connection over the Tualatin River.

The Tualatin River Greenway will provide connectivity and links with residential and commercial areas in east Tualatin when the trail crosses under I-5 and joins the existing segment of the Tualatin River Greenway Trail that runs through Brown's Ferry Park to Tualatin's eastern boundary.

This Shared Pathway is especially important because it will serve as an alternative route that would be safer than using the Nyberg Street bridge over I-5 (at exit 289) where bicyclists and pedestrians are required to cross several freeway on-and-off ramps with high traffic volumes. The Nyberg Street bridge over I-5 (at exit 289) was identified as a high accident location in the recently adopted Transportation System Plan.

6.2 North/South Bikeway

The Transportation System Plan shows a bikeway along the eastern boundary of the project site from the Tualatin River to the Nyberg Street intersection and extending off-site in both north and south directions. The master plan shows this north/south bikeway located through the center of the site, placed between buildings, and continuing south to the Nyberg Street intersection. This routing avoids crossing the main entrance driveway and enables crossing Nyberg Street on the west side of the intersection to reduce conflicts with vehicles traveling westbound wishing to enter the development from Nyberg Street.

6.3 Shared Pathway Connecting Tualatin River Greenway Trail with Library and Seneca Street Extension

The proposed master plan shows a Shared Pathway located east of the library (shown as Future Development Area 5-b) that would facilitate access to the library and its public plaza and, ultimately, Tualatin Commons, via the planned Seneca Street extension or existing driveway until Seneca Street is extended.

6.4 ArtWalk and Ice Age Discovery Trail

Connections are shown and/or described that would bring the ArtWalk - A Self-Guided Tour of Tualatin's Art, Cultural and Natural History, and the Ice Age Discovery Trail into the site. When combined with the proposed Mastodon sculpture, the ArtWalk and Ice Age Discovery Trail would bring a sense of place, local history, and interpretive opportunities to the development.

6.5 Shared Pathway

Public access to the Shared Pathways described in 6.1, 6.2, and 6.3.

6.6 "Best Practices" in Multi-Modal Trail Design for Bicycle and Pedestrian Safety, Bicycle Parking

A review of the proposal indicates the possibility of congestion and conflicts existing between bicyclists and pedestrians where the north/south bikeway (Shared Pathway) is less than an unobstructed 12' wide with 2' shoulders for clearance on both sides. The potential for conflict also occurs at all locations along the proposed Shared Pathways and their related connecting access ways and other sidewalks where bicyclists and pedestrians cross or are adjacent to intersections, drive isles, and driveways, and where outdoor dining or seating will occur in the same space or in close proximity.

6.7 Crosswalk Along Boones Ferry Road at Street "A"

The proposed master plan does not show a cross walk on Boones Ferry Road where it crosses Street "A" and requires pedestrians to go about 400' out of their way to cross Street "A." Pedestrians need a clear, safe, direct, and convenient route when moving east and west on Boones Ferry Road, which is a fairly busy sidewalk that leads to the Library, Tualatin Commons, Tualatin Community Park, and other destinations within the downtown commercial area.

6.8 Bicycle and Pedestrian Connectivity with East Tualatin

The Nyberg Rivers project site currently connects to east Tualatin via the Nyberg Street bridge over I-5 (at exit 289). Crossing the Nyberg Street I-5 bridge is hazardous for pedestrians and bicyclists and the area was identified as a high accident location in the recently adopted Transportation System Plan.

Pedestrians moving in both the east and west bound directions are restricted to the north side of the bridge because there are no pedestrian facilities on the south side of the bridge, and there are no pedestrian facilities on the south side of Nyberg Street leading up to the bridge between the intersection at the Fred Meyer and Nyberg Rivers main entrance.

There are on-street bike lanes in both directions over the Nyberg Street bridge over I-5. However, bicyclists traversing the Nyberg Street bridge over I-5 in east and west directions are required to cross numerous freeway on-and-off ramps with high traffic volumes. Westbound bicyclists cross three freeway on-and-off ramps and eastbound bicyclists cross five freeway on-and-off ramps to get across the bridge to east Tualatin. This is especially daunting for eastbound bicyclists and not a route for children or recreational bicyclists.

The sidewalk on the north side of Nyberg Street carries a mix of pedestrian and bicycle use moving in both directions from the intersection at the Nyberg Rivers main entrance eastbound across the Nyberg Street bridge over I-5 to the sidewalk on the east side of the bridge. This is the only option for pedestrians and many bicyclists choose to use the sidewalk as well given the safety conditions of the eastbound and westbound on-street bike lanes.

Consequently, there are conflicts on the sidewalk between people using various modes of travel.

The Pedestrian and Bicycle Plan and cross section G-G (Nyberg Lane I-5 to Eastern Entrance) of the proposed Nyberg Rivers Master Plan includes a new 5' wide on-street bike lane on the north side of the Nyberg Street between two westbound vehicle travel lanes from the bridge to the Nyberg Rivers primary entrance. This will serve the accomplished, commuter-oriented cyclists.

A 6' sidewalk with 4' curbside landscape planter and a 2' north side landscape planter is proposed on the north side of Nyberg Street adjacent to the development. No improvements are shown on the south side of Nyberg Street for eastbound pedestrians or bicyclists.

How can the proposal improve to meet Goal 6?

6.1 Tualatin River Greenway Trail (Shared Pathway)

A future connection to the west along the Tualatin River that is located within the outer 40' from the top of bank so it will fit within the boundaries as defined for the Tualatin River Greenway.

6.5 Shared Pathway

Shared Pathways shall be open for public access.

6.6 "Best Practices" in Multi-Modal Trail Design for Bicycle and Pedestrian Safety, Bicycle Parking

Design the bicycle and pedestrian facilities consistent with current "Best Practices" for multi-modal facilities in downtown urban areas to build safety, comfort and convenience into the design. These "Best Practices" include factors such as: pathway width, landscaped safety buffers, accommodating use by

people of all abilities, special street crossing treatments at intersections, drive isles, and driveways, dedicated pedestrian time at intersections, benches and shade for comfort, and connectivity with adjoining properties, attractive design and landscaping.

Bicycle parking is not shown and is necessary to meet Goal 6. Provide bicycle parking for the public as well as customers and employees of the Nyberg Rivers shopping center at locations where convenient for the public and for users of the commercial center.

6.7 Crosswalk Along Boones Ferry Road at Street "A"

The proposed master plan does not show a cross walk on Boones Ferry Road where it crosses Street "A" and requires pedestrians to go about 400' out of their way to cross Street "A." Pedestrians need a direct and convenient route when moving east and west on Boones Ferry Road, which is a fairly busy sidewalk that leads to the Library, Tualatin Commons, Tualatin Community Park, and other destinations within the downtown commercial area.

6.8 Bicycle and Pedestrian Connectivity with East Tualatin

A wider sidewalk on the north side of Nyberg Street between the intersection at the Nyberg Rivers main entrance and the Nyberg Street bridge over I-5 would alleviate congestion on the sidewalk that currently exists and will increase with the Nyberg Rivers development.

In the future, once constructed, the Tualatin River Greenway Trail will provide an alternative route that would be safer for bicyclists and pedestrians than using the Nyberg Street bridge over I-5.

Staff recommends that the proposed Nyberg Rivers Master Plan can meet the Central Urban Renewal Plan Goal 6 with the following conditions of approval

- 1. All shared pathways shall be open to the public.*
- 2. The Master Plan shall provide a 12' sidewalk with a curbside planter on the north side of Nyberg Street between the Nyberg Rivers access and the Nyberg Street overpass at I-5.*
- 3. New or relocated buildings on the Nyberg Rivers site shall have bicycle parking facilities.*

GOAL 7: Transit

To support the development of the metropolitan transportation system (Tri-Met) in order to provide alternative transportation modes for the residential and employment population of the Urban Renewal Area.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 7?

The former KMart site and proposed Nyberg Rivers Master Plan site are not adjacent to

existing or proposed transit facilities or services. TriMet service is located nearby on SW Martinazzi (a stop at the City Library) and on SW Boones Ferry Road extending from the WES Commuter Rail station further west to the Tualatin Park & Ride located at I-5 Exit 290 to the north. The proposed "Street A" extension from the Nyberg Rivers site to SW Boones Ferry Road will be near an existing TriMet bus stop on SW Boones Ferry Road near the Tualatin River Bridge. TriMet will have an opportunity to evaluate the impact of the Nyberg Rivers development on the transit system at the Architectural Review step of the redevelopment project. Goal 7 is not applicable to the Master Plan step of the Nyberg Rivers development.

How can the proposal improve to meet Goal 7?

Goal 7 Transit is not applicable. No improvements recommended.

GOAL 8: Utilities

To assist in providing public utilities in the Urban Renewal Area as needed to facilitate growth and aesthetic quality.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 8?

Based on the Nyberg Rivers Master Plan proposal submitted June 24, 2013, the proposal acceptably provides direct access to public utility services after consolidation of lots and relocation of public lines. All public and private stormwater is acceptably proposed to be treated by mechanical filters. Goal 8 is met.

GOAL 9: Parks

To provide a high-quality park and recreation system to offset the environmental effect of large areas of commercial and industrial development.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 9?

9.1 Preserving the Natural Value of the Tualatin River

The proposed master plan preserves the natural value of the Tualatin River as a scenic, recreational, and open space asset to a greater extent than required for the Tualatin River Greenway as described in the Tualatin Development Code, Chapter 72 Natural Resource Protection Overlay District.

The Tualatin River Greenway is included within the Natural Area noted on the Nyberg Rivers Master Plan. The Tualatin River Greenway boundaries per the Tualatin Development Code is measured 40' inland from the top of bank extending to the middle of the river and, for the area 300' east and west of the I-5 right-of-way, measured from a line 75' inland from the top of the bank extending to the middle of the river.

The Natural Area as shown on the proposed Nyberg Rivers Master Plan is about three times as wide as is described in the Tualatin Development Code. The designated Natural Area is protected by an easement with Clean Water Services that ensures the preservation and conservation goals of the Tualatin River Greenway.

In Attachment 102B, it is stated that “The natural area tract will be granted in fee simple to the City of Tualatin or Clean Water Services to ensure compliance with the Greenway resource protection requirements.”

9.2 Tualatin River Greenway Trail, North/South Bikeway Trail, Other Pedestrian and Bikeway Facilities, Connectivity and Linkages

These have been covered in Goal 6 Pedestrian and Bikeways, and are not repeated here for brevity.

9.3 Creating Substantial Public Gathering Spaces and Shared Parking

These have been covered under Goal 4 Civic Development, and are not repeated here for brevity.

How can the proposal improve to meet Goal 9?

9.1 Preserving the Natural Value of the Tualatin River

Tualatin River Greenway is measured 40’ inland from the top of bank extending to the middle of the river and, for the area 300’ east and west of the I-5 right-of-way, measured from a line 75’ inland from the top of the bank extending to the middle of the river.

9.2 Tualatin River Greenway Trail, North/South Bikeway Trail, Other Pedestrian and Bikeway Facilities, Connectivity and Linkages

These have been covered in Goal 6 Pedestrian and Bikeways, and are not repeated here for brevity. Approval of the conditions of Goal 6 also meets the related provisions in Goal 9.

9.3 Creating Substantial Public Gathering Spaces and Shared Parking

These have been covered under Goal 4 Civic Development, and are not repeated here for brevity. Approval of the conditions of Goal 4 also meets the related provisions in Goal 9.

Staff recommends that the proposed Nyberg Rivers Master Plan can meet the Central Urban Renewal Plan Goal 9 with the conditions of approval listed in Goal 6.

GOAL 10: Flood Protection To promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions.

How does the vision statement relate to Goal 10?

While this goal may not be directly applicable to the Council vision it is still important to review and ensure that public and private loss is minimized.

Portions of the Nyberg Rivers and City properties that are proposed to have changes include the 100-year floodplain.

How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 10?

Based on the proposal submitted June 24, 2013, no proposed private structures or redeveloped structures are within areas of the 100-year floodplain or floodway. Damage due to the 100-year flood should not occur to proposed structures. Goal 10 is met for the proposed buildings.

Public streets should be at least 1-foot above the 100-year floodplain. Nyberg Rivers Master Plan proposed street "A" and most of the existing Seneca Street are within the floodplain. New street "A" and any modification to Seneca Street should be elevated at least 1-foot above the 100-year floodplain. Cut of grade equivalent to any fill to elevate any public street should be performed nearby in order to not increase the 100-year floodplain.

How can the proposal improve to meet Goal 10?

To ensure that the Nyberg Rivers project street improvements are in compliance with Goal 10, staff recommends a Master Plan condition of approval requiring:

- a. *No increase in the 100-Year Floodplain associated with improvements to public "Street A" and SW Seneca Street.*

GOAL 11: Design Considerations

To create an atmosphere in the Urban Renewal Area which is aesthetically pleasing in order to promote the desirability of investment and occupancy in properties.

**How does the Nyberg Rivers Master Plan proposal succeed in meeting Goal 11?
How can the proposal improve to meet Goal 11?**

In 2012 when discussions on the Nyberg Rivers project began and on through the review of the proposed Nyberg Rivers Master Plan, Staff have emphasized to the applicant the importance of the relationship of the development to the Tualatin River that adjoins the site on the north, its location in the Central Urban Renewal District and central downtown area of Tualatin and its presence in a primary gateway to the City of Tualatin from the Nyberg Street interchange on Interstate I-5. Also, providing attractive site and building design on the north elevations of the main Nyberg Rivers buildings in respect to the adjoining residential development is important. These points were reiterated in a letter to the applicants dated June 3, 2013.

The Architectural Review Board met at the request of the applicant on June 19, 2013 (Attachment 107) for an advisory review of the Master Plan and expressed the

importance of the site design, building design, river, downtown community relationships for the redevelopment. As expressed by ARB, the architecture should be unique to Tualatin and reflect the City's image and culture.

These factors are important objectives for consideration of redevelopment of the KMart/Mercury Development site in relation to Goal 11 as well as other Central Urban Renewal District Plan Goals addressed above. In respect of these important factors, the Nyberg Rivers project should provide river orientations for buildings and tenants, provide four-sided architecture on all of the new buildings in the center and provide a design relationship to the Tualatin downtown.

11.1 Building Design. As proposed in Attachment 102B pages 144-152; 102C, pages 24-30; and Attachment 102D Exhibits A, P:

- The main Nyberg Rivers buildings (Buildings 1005, 1010, 1030 and the anchor tenant Building 1040) have no windows, entrances or activity areas on the Tualatin River elevations. The north elevations are primarily loading and service facilities for the building tenants. The Shopping Center elevations and sporting goods store elevations (Building 1040) on the far east side of the shopping center give the appearance of "turning their back to the river."
- In the first submittal (Attachment 102B, pages 144-152), Building N-100 was the only proposed building with windows facing the river and entrances that connect with the natural areas. In Addendum 1 (Attachment 102D, Exhibit A) the footprint and design of Building N-100 were revised, but elevation plans were not provided and the river orientation features of the building cannot be determined.
- As shown on the concept elevations (Attachment 102C, pp.26-27) Pad Building F-100 (Wendy's) has windows and feature on each of the four elevations, including the drive-thru. The proposed drive-thru service faces south to the nearby SW Nyberg Street frontage and I-5 interchange.
- The concept elevations for Buildings, G-100 (restaurant) and J-100 (restaurant) are not clearly shown at this time and staff is unable to determine the building orientations and design features.
- Building H-100 (restaurant and drive-thru) (Attachment 102B, page 152) appears to have the east and north elevations devoted to drive thru and service facility with limited windows and architectural feature. The east elevation faces the Interstate I-5 frontage and the north elevation faces the parking area between the building and Building J-100.
- The south elevation of Building 1040 faces the parking area, the main entry access from SW Nyberg and the I-5 Interchange. The east elevation, 240 feet in length, has no windows or entrances facing the center's eastern parking areas other buildings and the I-5 freeway frontage. The 480 foot north elevation is a loading and service area with no public entrances or windows and faces the Tualatin River greenway natural area.
- Little to no visual connection between the Building 1040 interior and the exterior including walkways and parking areas is available as proposed. No visual connection between the Building and the Tualatin River and Greenway area is

provided. The Central Urban Renewal District Plan calls for attractive buildings in the downtown, a strong pedestrian environment and orientations to the river.

Staff asked the applicant to respond to these issues in the Master Plan and revise the building elevations to address the river orientation and four sided building architecture issues and concerns. In reply, the Addendum 1 (Attachment 102D, Exhibit P) provided a revised Building 1040 south elevation that added architectural features, but the applicant stated (Attachment 102D, page 18) that no design changes to the Building 1040 east and north elevations are proposed.

To be consistent with Goal 11, the Nyberg Rivers Master Plan must have a site and building design that will provide Building 1040 and Building N-100 with orientations to the Tualatin River and River Greenway area with design features including windows, entrances and activity areas oriented to the River. The buildings on the Nyberg Rivers site will be viewable from all sides including the Tualatin River Greenway, residential development, the I-5 Freeway and Interchange, SW Nyberg Street and to other buildings and parking areas within the center.

Staff recommends Master Plan conditions of approval requiring:

- 1. Building 1040 shall have a public entrance and windows on the north sides or northeast corner of the building.*
- 2. There shall be additional windows and architectural features on each of the four sides of Buildings 1040, G-100, H-100, J-100 and N-100.*

11.2 Building Design-Architecture As proposed in Attachment 102B pages 144-152; 102C, pages 24-30; and Attachment 102D Exhibits A, P:

- All the proposed Nyberg Rivers buildings are one-story. The Central Urban Renewal District Plan calls for more intensive downtown development that can be achieved with multi-story buildings, variation in building height, roof and wall architecture. Building 1040 has large gabled roof at mid-building with relatively little vertical relief at parapet.
- Buildings 1040, F-100 thru J-100 have a limited range of distinguishing design feature and material. Corporate “branded” designs dominate. This takes away from the Central Urban Renewal District objectives for development consistent with Tualatin’s downtown and the Tualatin Commons.

The Addendum 1 submittal (Attachment 102D, Exhibit P) provided a revised Building 1040 south elevation that added architectural features, but the applicant stated (Attachment 102D, pg. 18) that no design changes to the Building 1040 east and north elevations are proposed and no design changes to other buildings were proposed.

In Review of the Master Plan application, Staff notes:

- As shown in the first submittal (Attachment 102B, Exhibit C, Retail Concept Sheet) and the revision shown in Addendum 1 (Attachment 102D, Exhibit P), the

south and east elevations of the 110,000 sq. ft. Building 1040 have limited architectural feature compared to the proposed design concepts for Buildings 1005, 1010 and 1030. On the 460 foot south elevation, the revised plan shows a canopy on both sides of the entry portico that extends west toward the proposed outdoor plaza area. Windows are shown on the gabled entry façade and in a panel west of the entry. The approximately 100 foot eastern portion of the south elevation has no windows, no roof or canopy feature and minimal architectural feature.

- The Nyberg Rivers buildings do not appear to incorporate design features and materials that are common to the design of buildings in the Tualatin Commons and downtown such as multi-story buildings, orientation to the street or public spaces, the use of brick masonry, and more architectural feature.

In its Advisory Meeting on June 19, 2010 (Attachment 107), the Architectural Review Board challenged the Nyberg Rivers design building concepts, expressing that the building architecture should be interesting and unique to Tualatin, relate to the outdoors, and incorporate some of the Northwest architectural style of design and materials. The ARB noted that the Building 1040 has a design similar to other large retail stores.

To be consistent with Goal 11, the Nyberg Rivers Master Plan must have design concepts include additional building levels and variation in height, incorporate more windows on Building 1040 and other Buildings to provide a visual connection between the store interior and the exterior including walkways and parking areas, and to add distinguishing building design features and materials to achieve a stronger design relationship to Tualatin's downtown architectural style.

To meet Goal 11, Staff recommends Master Plan conditions of approval requiring:

- 3. Building 1040 shall have variations in building height, additional gabled roof feature, canopy feature, entry feature, dimensional wall feature such as columns or pilaster and projected entries, show larger window and entry areas and show a diversity in exterior wall material on all four sides of the building.*

11.3 Loading and Service Areas. As proposed in Attachment 102C, pages 25-30 and Attachment 102D Exhibits A, P:

- The proposed Nyberg Rivers loading/service area (North sides of Buildings D1, D2, 1005, 1010, 1030 and 1040) is adjacent to residential development and will be adjacent to future greenway and the multi-use paths that will be used by the general public. The appearance of a loading area, conflicts between public and loading activities, potential for noise disturbances associated with loading and truck activities create issues for consideration in the Master Plan.

The applicant states: (Attachment 102D, pp. 27-28, Exhibit M)

“The Loading and Service Areas were also addressed above under the truck circulation discussion. To reiterate, the revised plans show primary truck access using the Nyberg Road entrance into the site, circling the shopping center in a counterclockwise loop to the loading and service areas, before returning on the west side to the southbound Nyberg Road exit. These truck access areas all feature 26-foot drive aisles to meet the minimum requirement.”

Site design and building design concepts for loading and service areas that create conflicts with public access, greenways, and nearby residential areas do not meet Goal 11. The Nyberg Rivers Master Plan and the Addendum 1 Site Plan (Attachments 102A - 102D) and building elevations are unclear and inconsistent about the layout and design of the Buildings D2, 1005, 1010 and 1040 loading and service facilities. For these facilities to be consistent with Goal 11, the Nyberg Rivers Master Plan must show that the layout, operation, screening and buffering of the loading and service facilities will be safe for the public who are using the pedestrian and bicycle facilities planned for the area, and will be adequately buffered or screened visually and for noise from truck and loading activities for the public and the nearby residential area.

To meet Goal 11, Staff recommends a Master Plan condition of approval requiring:

4. *The loading and service facilities for the existing Michaels (Building D2) and new Buildings 1005, 1010 and 1040 shall provide adequate visual and noise buffering for the benefit of nearby public areas and residential areas.*

11.4 Parking and Parking Lot Landscaping As proposed in Attachment 102D, Exhibits A, J, K and S:

- The Nyberg Rivers Master Plan proposes 6 ft. x 6 ft. (measured to outside of curb) “Parking Diamonds” as a form of required parking area interior landscaping as an alternative to planters that extend between rows of parking and separate groups of parking stalls (Attachment 102D, Exhibits A, J, K). The Community Design Standards of the Tualatin Development Code (TDC 73.310, 73.320, 73.360) requires parking lot landscaping to provide shade within the parking lot for users and with required trees and other planted vegetation in parking lot planters to both physically and visually break up the extensive paved surfaces and the parked vehicles in the parking area. Community Design standards require 25 sq. ft. of parking area landscaping (both interior and perimeter to the parking area), a minimum of 1 deciduous shade tree per 4 parking stalls within a 5 foot wide (inside of curb) planter island. The proposed “diamonds” have limited surface area as a planter within a paved parking area. With limited planter area in the diamonds, there is more paved surface area in a parking lot and less landscaping to break up the scale of the pavement and the parked vehicles. This has an impact for people who using the parking lot and visually for the public from adjacent streets and public ways. Staff was concerned that the proposed

“diamonds” do not serve the purposes of landscaped islands and do not provide adequate soil volume for the long term growth of the required shade trees.

The Applicant’s Addendum 1 narrative states: (Attachment 102D, pages 18-19, Exhibit K)

“As shown on the updated Site Plan and in the “Enlargement C” graphic provided under the Landscape Theming Plan portion of the Master Plan document, parking lot landscape diamonds are designed to provide adequate space and soil volume for the long-term longevity of the required trees. These landscape diamonds are provided for every 8 consecutive stalls. The landscape diamonds are dimensioned 6-feet by 6-feet, with an interior plant and soil area of 5-feet by 5-feet. As shown in the typical diamond cross-section under “Enlargement C”, the mature rootball of a tree can fit within the 6 x 6-foot area. The typical diamond will provide enough soil to plant a canopy tree, but may not be sufficient to provide the adequate drainage for tree roots. If trees are placed in these diamonds, the likelihood is high that water from irrigation or seasonal rain will pool at the bottom and create a ‘bath tub.’ This additional moisture will slowly cause trees to decline and eventually die. Adding a layer of drain rock will create a water storage layer in the bottom of the planter below the elevation of tree roots. The added perforated pipe network will provide a necessary outlet for the excess water. The trees will now drain properly under summer irrigation and winter rain, reducing the potential for mortality. A specific summary of parking lot trees will be addressed pending finalized updates to the Site Plan (i.e. once CenterCal signs off on a final site plan).”

In reply to the request for information about the project’s off-street parking needs and compliance with standards, the applicant provides a parking analysis for the various proposed uses and concludes parking requirements are met and parking for the center will be adequate (Attachment 102D, pages 28-30)

- The Master Plan does not indicate where and if oversized vehicle parking stalls will be provided. Staff has noted that overnight parking is not permitted in the City.

The applicant states: (Attachment 102D, page 30)

“No overnight parking is proposed on the site. The over-sized RV stalls will serve users who visit the site in RVs. Such users are not permitted to overnight in the parking stalls and no accommodations for that kind of use are proposed in this application.”

Goal 11 is concerned about development that contributes to the aesthetics of the Central Urban Renewal District. The Community Design Standards of the Tualatin Development Code include standards for site design and landscaping that are intended to improve the attractiveness of off-street

parking for commercial development while mitigating the unwanted effects that bare and unbroken parking lot pavement can have on property values and the aesthetics of downtown areas. The use of 6 ft. x 6 ft. "diamond" planters in off-street parking areas reduces the amount of landscaped area within a parking lot and reduces the opportunity to balance the pavement and the cars with attractive trees, shrubs and groundcover for the benefit of users and the public.

It is not apparent how reducing landscaping in parking lots would meet Goal 11. Staff is seeking Council feedback concerning the proposed use of parking area landscape "diamonds", the 6 ft. by 6ft. diamond-shaped planters shown in the Master Plan as an alternative to the 5 ft. by 18-20 ft. or larger landscape islands commonly found as row-separating and end-of-row planters in the interior of commercial parking lots. Staff recommends the following:

- a. If the Council determines that "diamond" style planters in the parking areas are not acceptable, - then interior parking lot landscape islands that separate groups of parking stalls shall extend for the length of parking stalls separated by the required planters.
- b. If the Council determines the "diamond" style planters in the parking areas are acceptable, the applicant may utilize the planters to meet the parking lot landscaping island standards of TDC Chapter 73.360.

To meet Goal 11, Staff recommends Master Plan conditions of approval:

5. *When oversized vehicle parking stalls occupy or replace standard parking stalls proposed in the Master Plan, the total number of parking stalls and the dimensions shall be adjusted accordingly to reflect the revision.*
6. *If the Council determines that "diamond" style planters in the parking areas are not acceptable, - then interior parking lot landscape islands that separate groups of parking stalls shall extend for the length of parking stalls (18.5 ft. for standards stalls/13.5 ft. for subcompact stalls) separated by the required planters to meet minimum dimensions listed in TDC Chapter 73.360, or.*
7. *If the Council determines the "diamond" style planters in the parking areas are acceptable, - the applicant may utilize the planters to meet the parking lot landscaping island standards of TDC Chapter 73.360.*

11.5 Urban Forestry.

- The plans do not clearly show the street tree species proposed for project. Street trees are required to be chosen from the approved Street Tree Figure 74-1 in the Tualatin Development Code.
- Staff is concerned about a practice of tree "topping" on the KMart/Mercury Development center and the continuation of the practice on the Nyberg Rivers site. (Unaccepted as proper pruning by arborists and urban forestry, tree topping is cutting a tree's upper branches intending to limit the tree's canopy height. This practice typically results in the "lollipop" appearance of trees).

- The plans do not show protection of the grove of deciduous trees on the former historic Nyberg House site on Tax Lot 2S124A 2502 (site of proposed Building G-100) is considered. No tree protection of trees at the northern portion of the Master Plan development area on Tax Lot 2700 (parking area for Building N-100) is shown.
- Staff requested clarification of plans for planting of conifer or evergreen trees on the east boundary of the Nyberg Rivers site, adjacent to the approximately 1,200 feet of Interstate I-5 property frontage. Conifer or evergreen trees would provide additional interest and buffering for the development to the freeway and a mix of trees types consistent with the characteristic tall conifers in the central part of Tualatin and along the river.

The applicant includes a Landscape Plan (Attachment 102D Exhibit J) that shows street trees. The applicant states:

“The selected trees for the interior and exterior roadway frontages are shown on Exhibit J, the Landscape Plant Material Schedule included with this letter. Each of these trees serves the purpose of the Street Tree Program and will fit in the locations proposed.” (Attachment 102D, pages 26-27, Exhibit J).

Street trees and permitted tree species are subject to the requirements of the Tualatin Development Code Chapter 74 and subject to Architectural Review.

In regard to conifer plantings on the east frontage of the Nyberg Rivers development, the applicant states:

“As shown on the Landscape Theming Plan provided in the Nyberg Rivers Master Plan, the site is divided into 3 distinct ecosystems. The frontage along I-5 includes both the Central Oregon and Tualatin River ecosystem. Under the legend displaying proposed plantings for each ecosystem, specified trees include Doug Firs, Bristlecone Pines, Alpine Firs, and Western Red Cedars. These trees are all classified as coniferous trees.” (Attachment 102D, pages 26-27, Exhibit J).

Staff notes the plans show one (1) Douglas Fir or Western Red Cedar tree on this frontage. Both the Douglas Fir and Cedar trees are fast growing to reach a substantial height and crown size at maturity. The plans show a total of 17 Bristlecone Pine or Alpine Firs trees for planting on this 1,200 ft. (825 ft. developed) frontage. The Bristlecone Pine and Alpine Fir are characteristically slow-growing and smaller in height and crown in comparison to the Douglas Fir and Cedar Trees found today in the Tualatin Area. Having a suitable mix of full size trees on the Interstate I-5 frontage of this site will meet Goal 11.

In regard to trees proposed for protection in the development process, the applicant states:

“The applicant is not proposing to remove any protected trees from the site. Prior to commencing site planning activities on the site the applicant met with the City planning department to identify any protected resources on the site. The

applicant's site plan avoids any protected resource consistent with the City's acknowledged comprehensive plan. The trees proposed for removal on Tax Lot 2502 and 2700 are not protected resources. Those trees to be preserved or left untouched are noted on the Tree Removal Plan included with this response letter. Those trees located within tax lot 2502 are all proposed to be removed, while those trees outside the conservation area within tax lot 2700 are proposed to be removed. (Attachment 102D, page 27, Exhibit N).

Staff notes the plans show the removal of all of the trees on the former Nyberg House site (Tax Lot 2502). The trees are not part of the Heritage Tree Program nor protected in an Open Space Natural Area. As a grove of mature Oak, Maple, True Fir, and Deodar Cedar, the trees are visible and prominent from the I-5 Southbound off ramp and Nyberg Street overpass. Protection of the trees in the development process would allow the trees to continue to provide a substantial and attractive corner to the Exit 289/Nyberg gateway to Tualatin and would contribute to meeting Goal 11.

To meet Goal 11, Staff recommends Master Plan conditions of approval requiring:

- 8. Provide an additional 15 Douglas Fir, Western Red Cedar, or other tall-maturing conifer tree plantings in the landscape plan for location in the site's eastern frontage along I-5.*
- 9. A tree maintenance plan for the Nyberg Rivers site and a tree preservation plan that establishes protection of trees on the former Nyberg House site (tax lot 2502). Where tree preservation is not possible, provide 3" caliper or 10-12 foot replacement tree plantings of a similar character in the vicinity of where trees were removed on Tax Lot 2502.*

11.6 Proposed Signage.

The applicant provides a "Conceptual Design Package" (Attachment 102D, pages 62-77, Exhibit R). The site plan appears to indicate:

- Two (2) replacement non-conforming free-standing pole/pylon signs (Primary Entry Site Identity Pylon, Freeway Tenant Pylon)(replacing current KMart/Michaels, former Paul Schatz Furniture pole signs).
- Two (2) new "Primary Monument/Entry Site Identity Monument" freestanding signs.

The Tualatin Development Code Sign Regulations for the Central Commercial (CC) Planning District portions of Nyberg Rivers site are listed in TDC 38.220. The Nyberg Rivers site currently possesses:

- Three (3) non-conforming free-standing pole signs (KMart/Michaels, Jiggles, former Paul Schatz Furniture).
- Three (3) conforming monument style signs associated with Buildings A, B, and E100.

Non-conforming freestanding signs can be structurally altered and retain the non-conforming status when the alterations meet the requirements of TDC 35.200.

It is unclear from the application materials if the proposed Nyberg Rivers sign concepts will meet the Sign Regulations and Non-conforming Sign requirements. If the Nyberg Rivers project seeks signage that is not allowed under the Sign Regulations in TDC Chapter 38, the applicant would need to obtain a sign variance or an amendment to the Tualatin Development Code changing the sign standards under separate process.

While a variance or amendment to the sign regulations cannot be granted in the Central Urban Renewal District Plan Master Plan process, the applicant's intentions for signage on the project can be discussed for the benefit of the development as the project goes forward and for an evaluation of a proposed sign program's compliance with Goal 11.

To Meet Goal 11, Staff recommends:

10. *The applicant's proposed Nyberg Rivers Sign Program is not in the purview of the Master Plan and is not approved.*

12 How can the proposal improve to meet Goal 11?

Staff recommends that the proposed Nyberg Rivers Master Plan can meet CURPlan Goal 11 with the recommended conditions 1-10 for Building Design, Architecture, Loading and Service Areas, Parking and Parking Lot Landscaping, Urban Forestry in 11.1 through 11.5. and Signage in 11.6.

RECOMMENDED CONDITIONS MP-13-01

The proposed Nyberg Rivers Master Plan MP-13-01 will satisfy the Central Urban Renewal Plan Objectives 1-11 with the following recommended conditions:

1. Master Plan approval include a condition limiting the number of drive-thru facilities in the Nyberg Rivers development to no more than four and design any new or re-located drive-thru facilities so the service windows and service aisles are oriented away from public streets. (Goal 1)
2. Master Plan approval include conditions requiring the Nyberg Rivers site design and building design to provide attractive and pedestrian-oriented features including accessways and pathways that will connect to existing and future residential development in the downtown area and specifically to the adjoining Heron's Landing Apartments property (Goal 2)
3. Master Plan conditions of approval requiring (Goal 4):
 - a. Recreational equipment, apparel and sports outfitting sales are prohibited in areas identified as public gathering, multi-function open plaza and plaza

- seating with fire pit on Attachment 102D page 60 Building Frontage landscape plan.
- b. The proposed "outside sales areas" should be configured to provide a minimum of 12 feet in clear, unobstructed width for public gathering spaces, accessways and walkways measured from the edge of an "outside sales area", and;
 - c. A minimum of 12 feet of clear, unobstructed width for walkways or accessways through a plaza or along the building frontage between Building D1 on the west and southeast corner of Building 1040 on the east
4. Master Plan condition of approval requiring pedestrian linkages across the Tualatin Civic campus between the main Nyberg Rivers development and Martinazzi Avenue via the SW Seneca Street or other approaches. (Goal 4)
 5. Remove the Truck Route designations from Street "A" and Seneca Street in order to eliminate impacts to the Library/City Hall Plaza, Shared Pathway, and other pedestrian crossings of these roads and drive aisles. (Goal 4)
 6. Master Plan Conditions of approval requiring: (Goal 5)
 - a. The proposed Seneca Street extension to the Nyberg Rivers site with a signal at SW Martinazzi Avenue are constructed to the standards of a Minor Collector Street.
 - b. The following improvements are necessary for this development:
 - A westbound right turn lane on SW Nyberg Road.
 - Two southbound left turn lanes and a shared through/right turn lane from the site's access onto SW Nyberg Road.
 - Two inbound receiving lanes and
 - The associated signal improvements at the main entrance.
 - c. Plans to public standards for the cross-sections:
 - Attachment 102D -Exhibit B: Cross-section A-A:
 - A 4 to 7-foot planter strip on the east side with curb, streetlights, and trees
 - A 4-foot planter on the west side with curb, streetlights adjacent to the travel lanes, and groundcover and shrubs with a 14-foot shared path with tree wells
 - Three 12-foot southbound travel lane
 - Two northbound 12-foot travel lanes
 - A center median consisting of an 18-inch concrete median, with striping on both sides for a total of 2.5-feet
 - Attachment 102D - Exhibit C: Cross-section B-B:
 - A 12-foot pedestrian walkway on the north side with tree wells
 - Two 13-foot travel lanes. 12 foot travel lanes are acceptable.
 - A 6-foot planter on the south side
 - A 5-foot sidewalk on the south side
 - Attachment 102D - Exhibit D: Cross-section C-C:
 - A 10-foot wide pedestrian walkway on the east side with tree wells
 - 17.5-foot angled parking on both sides
 - Two 14-foot travel lanes

- A 4-foot sloped landscape area on the west side
- A 12-foot multi-use path on the west side

Attachment 102D - Exhibit E: Street "A": Cross section D-D

- A 12-foot multi-use path on the west side
- A 4-foot planter strip with curb, streetlights, and trees
- Two 12-foot travel lanes
- A 6-foot bike lane on the east side
- A 5-foot sidewalk on the east side
- The pork chop at the intersection of Boones Ferry Road will be mountable for emergency vehicles

City Parking Lot/Heron's Landing/Access to Street "A" and intersection with the greenway:

- The accessway shown is 40-feet wide
- The multiuse path crossing is located south of the accessway
- The crossing will include striping and bump-outs
- The Heron's Landing Apartment access easement opposite the City staff parking lot access.
- A crosswalk on Street "A" adjacent to SW Boones Ferry Road

Attachment 102D -Exhibit G: Nyberg Street between the entrance of the site and Martinazzi Avenue: Cross section F-F

- A 4-6 foot planter strip with trees. This planter does not include curbs and streetlights, which are placed on the curb-tight sidewalk.
- A 5-6-foot curb-tight sidewalk on the north side of Nyberg Road
- A 6-foot bike lane
- Two 11-foot westbound travel lanes
- The north-south crosswalk across Nyberg Street will have a dedicated pedestrian/bicyclist-activated sequence

Attachment 102D - Exhibit H: Nyberg Street between the entrance of the site and I-5: Cross section G-G

- A 12-foot sidewalk on the north side of Nyberg Road
- A 4-foot planter strip with curb, streetlights, and trees
- A 15-foot westbound right-turn lane
- A 5-foot bike lane
- No proposed changes to the existing west and east-bound turn lanes
- A two foot landscape strip prior to a hand rail on top of a retaining wall, then a water quality pond

Seneca Street and the signal at SW Martinazzi Avenue

- Two 12-foot travel lanes
- One 14-foot center turn lane
- Two 6-foot bike lanes
- Two 8-foot parking strips
- Two 6-foot planter strips with curbs, streetlights, and street trees
- Two 6-foot sidewalks

7. All shared pathways shall be open to the public. (Goal 6)

8. The Master Plan shall provide a 12' sidewalk with a curbside planter on the north side of Nyberg Street between the Nyberg Rivers access and the SW Nyberg Street overpass at I-5. (Goal 6)
9. New or relocated buildings on the Nyberg Rivers site shall have bicycle parking facilities.(Goal 6)
- 10.No increase in the 100-Year Floodplain associated with improvements to public "Street A" and SW Seneca Street.(Goal 10)
- 11.Master Plan conditions of approval requiring an Architectural Review submittal to show:
 - a. Building 1040 shall have public entrance and windows on the north sides or at the northeast corner of the building.
 - b. There shall be additional window and architectural features that break up the building mass and add architectural interest on each of the four sides of Buildings 1040, G-100, H-100, J-100 and N-100.
 - c. Building 1040 shall have variations in building height, additional gabled roof feature, canopy feature, entry feature, dimensional wall feature such as columns or pilaster and projected entries, show larger window and entry areas and show diversity in the exterior wall design and material on all four sides of the building.
- 12.The loading and service facilities for the existing Michaels (Building D2) and new Buildings 1005, 1010 and 1040 shall provide adequate visual and noise buffering for the benefit of nearby public areas and residential areas. (Goal 11)
- 13.If the Council determines that "diamond" style planters in the parking areas are not acceptable:
 - then interior parking lot landscape islands that separate groups of parking stalls shall extend for the length of parking stalls (18.5 ft. for standards stalls/13.5 ft. for subcompact stalls) separated by the required planters.Or, if the Council determines the "diamond" style planters in the parking areas are acceptable:
 - the applicant may utilize the planters as proposed in as proposed in Attachment 102A and 102D to meet the parking lot landscaping island standards of TDC Chapter 73.360. (Goal 11)
- 14.When oversized vehicle parking stalls occupy or replace standard parking stalls proposed in the Master Plan, the total number of parking stalls and the dimensions shall be adjusted accordingly to reflect the revision.(Goal 11)
- 15.Master Plan conditions of approval requiring the Nyberg Rivers Landscape Plans to be considered in Architectural Review to:
 - a. The Nyberg Rivers Landscape Plans shall provide an additional 15 Douglas Fir, Western Red Cedar, or other tall-maturing conifer tree plantings in the landscape plan for location on the site's eastern frontage along I-5. (Goal 11)
 - b. The applicant shall provide a tree maintenance plan for the Nyberg Rivers site and a tree preservation plan that establishes protection of trees on the former Nyberg House site (tax lot 2502). Where tree preservation is not

possible, provide 3" caliper or 10-12 foot replacement tree plantings of a similar character in the vicinity of where trees were removed on Tax Lot 2502. (Goal 11)

16. The applicant's proposed Nyberg Rivers Sign Program is not in the purview of the Master Plan and is not approved.



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MEMORANDUM

DATE: July 11, 2013
TO: Kaaren Hofmann, City of Tualatin
FROM: Carl Springer, PE and Tegan Enloe, PE
SUBJECT: Nyberg Rivers Supplemental Traffic Analysis

P#12163-000

Introduction

The City of Tualatin contracted with DKS Associates to conduct a supplemental traffic analysis for the Nyberg Rivers proposed development. DKS has reviewed and provided comments on the April 2013 Transportation Impact Analysis (TIA) submitted by Kittelson & Associates for CenterCal Properties. Our comments on the deficiencies in the analysis are dated May 9, 2013 and are included in Attachment A.

This supplemental analysis addresses specific questions from City staff members on the following issues:

- Do the trip generation assumptions used in the applicant's TIA reasonably represent the latest development proposal?
- How important are the access points onto SW Martinazzi Avenue to the successful operation of this proposal?

Refined Trip Generation

Based on our review of the Nyberg Rivers Master Plan, we recommend an alternative trip generation estimate be used for the proposed development. Rather than treating all uses the same (i.e., part of a single "shopping center" land use category), as was done in the April 2013 TIA, we recommend treating several uses separately since they are significantly different from typical shopping center use. When these uses are treated separately, the resulting net increase in peak hour traffic generation is 405 to 435 trips higher than the estimates in the applicant's TIA report.

Table 1 provides a summary of the trip generation analysis compared to the analysis provided in the April 2013 TIA submittal. Full trip generation details are provided in Attachment B.



Table 1: Trip Generation Summary for New Uses within Nyberg Rivers

	Weekday PM			Saturday Mid-Day		
	Total	In	Out	Total	In	Out
Total Trips Generated	1,555	772	783	2,077	1074	1003
<i>(Pass-by Trips)</i>	<i>(559)</i>	<i>(278)</i>	<i>(281)</i>	<i>(757)</i>	<i>(391)</i>	<i>(366)</i>
<i>(Internal Trips)</i>	<i>(156)</i>	<i>(77)</i>	<i>(78)</i>	<i>(208)</i>	<i>(107)</i>	<i>(100)</i>
New Trips	841	417	424	1,112	576	537
Difference from April 2013 submittal estimate	+435	+212	+223	+405	+196	+209

Notes: Values provided assume the proposed fitness center as a part of the ITE Code 820 (Shopping Center). Values used in the operational analysis reported in this memorandum assumed the fitness center as ITE Code 492 (Fitness Center). The difference between these two trip generation results is considered negligible. The adjustment in trip generation methodology (from Code 492 to 820) yielded a decrease of 3 total trips during the weekday PM peak hour and an increase of 38 total trips during the Saturday mid-day peak hour.

Operational Results

The operational impact of the higher site trip generation was tested. Three alternative access scenarios were reviewed for site traffic along SW Martinazzi Avenue (see Figure 1 below).

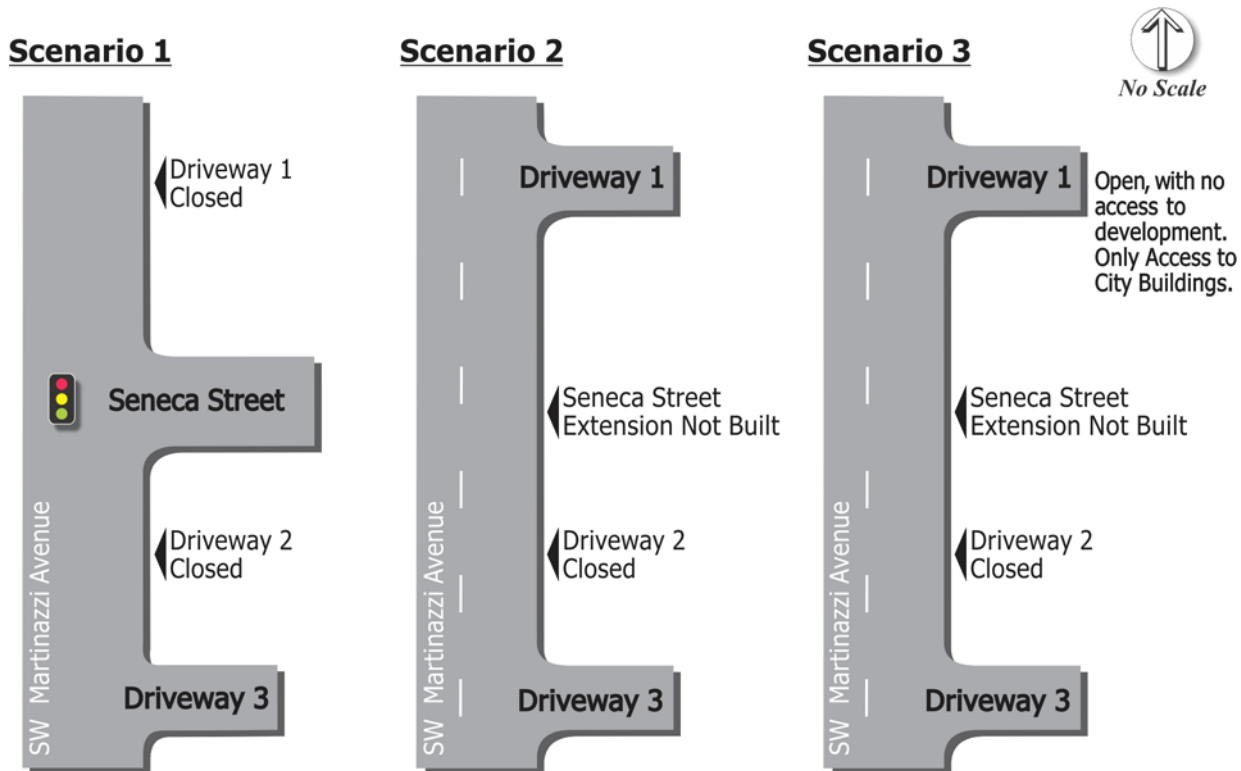


Figure 1: Martinazzi Access by Scenario

Under all three scenarios, it is assumed that the following additional site access points are provided:



- Right-in, right-out driveway from SW Boones Ferry Road
- Two-way stop controlled access at SW Nyberg Street/Site Access
- Full signalized access at SW Nyberg Road/Fred Meyer Driveway

The operational analysis shows that Scenario 1 meets the City and County's operational standards of volume-to-capacity ratios and level-of-service measurements, while Scenario 2 and Scenario 3 fail at one or more access locations along SW Martinazzi Avenue. Therefore, we recommend completing a signalized extension of SW Seneca Street to accommodate additional site traffic resulting from the proposed build out if the development is approved. A summary of key operational findings for Scenarios 1, 2, and 3 are provided in Table 2.

All three scenarios indicate queuing issues where vehicles would back-up significantly past queue storage lengths, especially for movements carrying site traffic from the development to the roadway network. This shows that regardless of the scenario selected, the development will have large impacts to the surrounding roadway network at accesses to the site during peak hour conditions.

A detailed discussion of the operational results is provided in Attachment C. Full detailed reports from Synchro are provided in Attachment D.



Table 2: Summary of Scenario Operational Results (Weekday PM Peak Hour and Saturday Mid-Day Peak Hour)

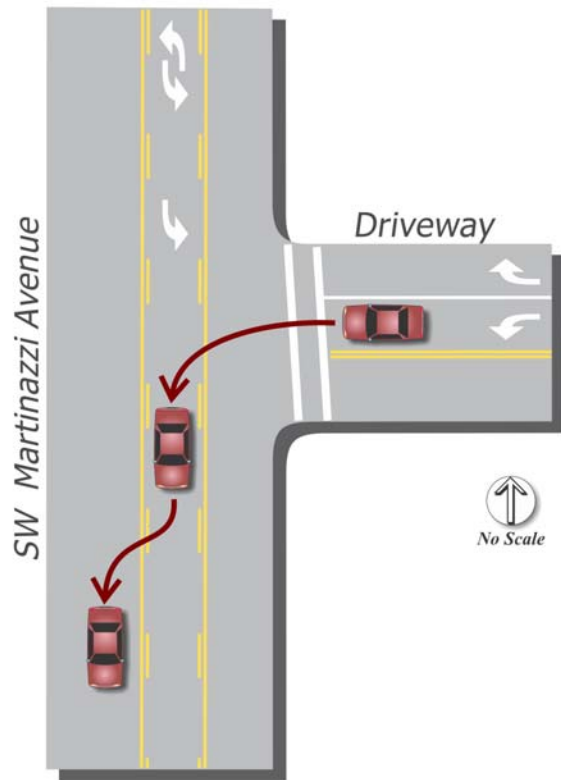
Scenario 1	Scenario 2	Scenario 3
<ul style="list-style-type: none"> • All study intersections meet operational standards. • The intersections of SW Boones Ferry Rd/SW Martinazzi Ave, SW Nyberg Rd/SW Martinazzi Ave, SW Nyberg Rd/Site Driveway, and SW Nyberg Rd/Fred Meyer all have movements that exceed their available storage. 	<ul style="list-style-type: none"> • All study intersections, with the exception of the City Access Driveway on SW Martinazzi Ave, meet operational standards. • When analyzed as a one-stage crossing, the City Access Driveway fails to meet mobility standards. Excessive delay is experienced for the westbound movement. Drivers would likely reroute to the right-out on SW Nyberg Rd to lessen their delay. This would reduce the impact at the City Access Driveway, although it may not be enough to bring it within the standard. More discussion is provided in the <i>City Access Driveway</i> section of this memorandum (page 5). • Excessive queues for movements exiting the proposed development occur at the City Access Driveway and the signal at Fred Meyer (over 1000 feet). • The intersections of SW Boones Ferry Rd/SW Martinazzi Ave, SW Martinazzi Ave/City Access Driveway, SW Martinazzi Ave/SW Seneca St, SW Nyberg Rd/SW Martinazzi Ave, SW Nyberg Rd/Site Driveway, and SW Nyberg Rd/Fred Meyer all have movements that exceed their available storage. 	<ul style="list-style-type: none"> • All study intersections operate within their standards during the Saturday mid-day peak hour. • The study intersections of SW Boones Ferry Rd/SW Martinazzi Ave, SW Martinazzi Ave/ City Access Driveway, and SW Martinazzi Ave/SW Seneca St fail to meet operational standards for the weekday PM peak hour. • The SW Boones Ferry Rd/SW Martinazzi Ave intersection operates over capacity with large eastbound delay for the weekday PM peak hour. The eastbound movement carries additional driveway traffic to the right-in, right-out driveway on SW Boones Ferry Rd. • Both SW Martinazzi Ave at the City Access Driveway and SW Seneca St exceed delay thresholds in the weekday PM peak hour for vehicles exiting the side streets. This scenario reviews the City Access Driveway as a one-stage crossing. More discussion is provided in the <i>City Access Driveway</i> section of this memorandum (page 5). • This scenario experiences excessive queues for movements exiting the proposed development at the City Access Driveway, the stop controlled driveway on SW Nyberg Rd, and the signal at Fred Meyer (over 1000 feet). • The intersections of SW Boones Ferry Rd/SW Martinazzi Ave, SW Martinazzi Ave/City Access Driveway, SW Martinazzi Ave/SW Seneca St, SW Nyberg Rd/SW Martinazzi Ave, SW Nyberg Rd/Site Driveway, and SW Nyberg Rd/Fred Meyer all have movements that exceed their available storage.



City Access Driveway

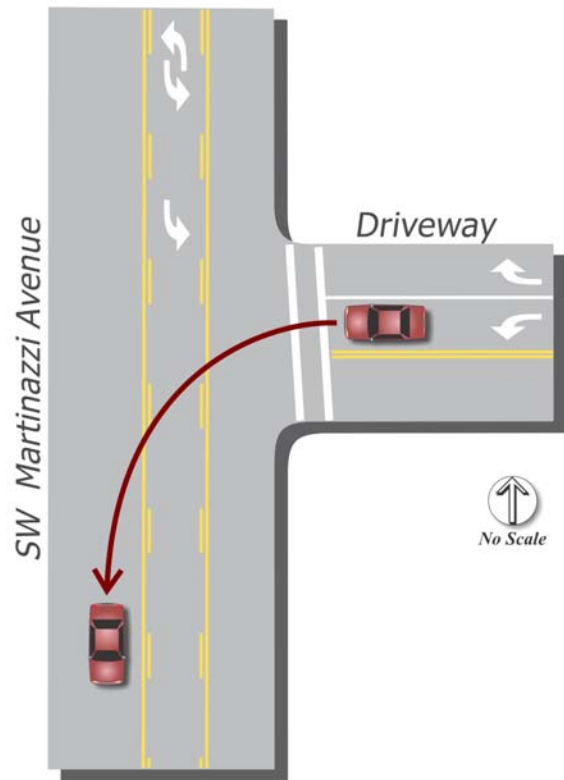
The City Access Driveway (shown as Driveway 1 in Figure 1) was further analyzed in relation to the need to build a signalized SW Seneca Street extension to serve the proposed development. In particular, the City requested a deeper understanding of Scenario 2 regarding the interaction between the operational results of the City Access Driveway when the Seneca Street extension is not built, but Driveway 2 remains closed. The City specifically wanted to know whether the use of the volumes presented by the applicant in the April 2013 TIA or the volumes proposed in Attachment B of this memorandum would change the resulting need to build or not build the Seneca extension. In further researching this issue, it was determined that the use of the April 2013 TIA or Attachment B volumes do not create a difference in results. What does impact the results is the consideration of a two-stage or a one-stage crossing for westbound left turns leaving the site.

A one-stage crossing assumes that vehicles making a westbound left turn from the city access would cross both the northbound lane and the two-way center left turn lane and merge into the southbound lane in one movement. This would require gaps in both northbound and southbound traffic before vehicles can complete their turning movement and results in larger delay values as vehicles wait for an opening. A two-stage crossing assumes vehicles making the westbound left would first identify a gap in the northbound traffic and cross to the two-way center left turn lane. There they would position themselves and wait for a gap in the southbound traffic before completing their turning movement. Figure 2 illustrates the difference in maneuvers.



Two-Stage Crossing

April 2013
Applicant Submittal



One-Stage Crossing

June 2013
DKS Analysis

Figure 2: City Access Crossing Diagram

In the April 2013 TIA provided by the applicant, the applicant coded the Synchro analysis models to allow for a two-stage crossing for westbound left turns. In the analysis provided by DKS in Attachment C, a one-stage crossing was assumed. This resulted in the reported difference of whether the city access driveway can function within applicable standards with build out of the proposed site. The access point fails using both the April 2013 TIA and Attachment B volumes when analyzed as a one-stage crossing and meets mobility standards when using both sets of volumes and analyzed as a two-stage crossing.

After conversations with the City, review of the applicant’s submittals, and additional analysis, DKS supports use of analysis that assumes a one-stage crossing for the following reasons:

- In the June 21st, 2013 memorandum provided by the applicant, the northbound left-turn 95th percentile queue at the intersection of SW Martinazzi Avenue/SW Boones Ferry Road is reported as 325 feet. Based on measurements from Google Earth, this intersection is 285 feet north of the City Access Driveway. This illustrates that queues from the northern intersection using the two-way left-turn lane extend past the City Access Driveway, effectively blocking its ability to be used to perform a two-stage



crossing. This scenario was confirmed by the City of Tualatin in conversations regarding observed traffic behavior adjacent to their office building. In addition, the queue from the SW Martinazzi Avenue/SW Boones Ferry Road intersection would add additional delay to a two-stage crossing, which the operational analysis software is unable to evaluate.

- The striping for the two-stage crossing provides approximately 70 feet of storage space between the existing City Access Driveway and SW Seneca Street intersections. While this is legally marked for use as a two-way left-turn lane, we are not confident that drivers exiting the City Access Driveway would interpret it as such. If a driver chooses to wait for a gap large enough to perform a one-stage crossing, this driver would experience a much larger delay than the two-stage crossing analysis reports and the intersection may no longer meet applicable mobility standards.

As a result, it is recommended that this location be analyzed as a one-stage crossing, which as shown in Attachment F, will not meet applicable mobility standards under the opening year build scenario without the signalized SW Seneca Street extension.

Response to Applicant's June 21st Memorandum

On June 21, 2013, the applicant provided clarification on several comments presented by the City. In response to these clarifications, we have provided feedback based on comment number.

TIA Comments # 1 and 2:

These comments pertain to ODOT and County facilities. No additional feedback is provided regarding City of Tualatin concerns.

TIA Comment # 3a:

The methods provided by the applicant for estimating vehicle queuing do not appear to account for queuing interactions with neighboring intersections. By analyzing each intersection as a separate and free entity, the applicant reports queues based on an environment where vehicles receiving a green light would have unlimited receiving space once through the signal. However, in reality, it is common for an intersection to be blocked by the queue of a neighboring location and for green time to go unused by vehicles with nowhere to turn. Therefore, the queue estimates provided by the applicant may underestimate impacts of the proposed development.

The DKS method evaluates the impacts of queues from neighboring intersections that block the ability of the adjacent intersection from serving vehicles during corresponding green times. This interaction is modeled based on the volume demand of each intersection and its corresponding operations to determine how much of an impact this will have on neighboring queues. This represents a more realistic approach for representing field conditions

TIA Comments # 3b and 3c:

No additional feedback is necessary.



TIA Comment # 3d:

The analysis contained in this memorandum and attachments is based on the April 2013 TIA background traffic volumes provided by the applicant. Per the clarifications, these volumes are based on existing counts that included turning movement volumes for the existing site uses, including K-Mart. In the analysis provided in Attachments B and C, trip generation values were calculated and distributed for the additional proposed square footage only, assuming the existing uses that remain were already accounted for in the background volumes. Based on this information, the existing counts also include site traffic associated with the previous K-Mart use that will be replaced by the proposed uses.

Toward the end of its operation, K-Mart was considered to be extremely underutilized. As such, the volumes contained in the existing counts related to K-Mart are considered negligible and likely to add a very small amount of traffic to the background system.

TIA Comment # 3e:

This is answered in the *City Access Driveway* section on page 4 of this memorandum.

TIA Comment #3f:

The additional trip generation provided in the clarification looks at evaluating each use by a separate ITE Trip Generation Manual code. The trip generation provided in Attachment B uses Shopping Center Code 820 for the majority of the development, but provides separate estimates for the grocery store and restaurant with a drive-thru. It is recommended that this methodology be followed for the following reasons:

- The trip generation provided in the clarification assumes an internal rate deduction of 20%. Per the ITE Trip Generation Manual, this is only appropriate for multi-use developments that contain a mixture of retail, office, and residential. This development does not fall under these characteristics since it does not include office or residential. Because of this, a more conservative internal rate deduction of 10% is considered reasonable.
- The ITE Codes for the Sporting Goods Store (Code 861) and Specialty Retail (Code 826) have very few data points available within the ITE Trip Generation Manual to support their use in forecasting comparable site traffic. In comparison, 426 studies were used to develop the Shopping Center (Code 820), which offers more reliable forecasts. It is recommended that Code 820 be used for the remaining uses, excluding the grocery store and restaurant with a drive-thru, to produce trip generation estimates for the proposed development.

Conclusions

Review of the three analysis scenarios defined by the City indicates that Scenario 1, which involves a signalized extension of SW Seneca Street into the proposed development and closure of driveways 1 and 2, best meets operational requirements. Therefore, it is recommended that the signalized extension of SW Seneca Street be constructed to accommodate development-related traffic should the proposed development be approved.



The analysis of the SW Seneca Street extension is based on assuming a one-stage crossing. The applicant has proposed analysis of this movement as a two-stage crossing, which when used does meet applicable mobility standards. Although striping is present on SW Martinazzi Avenue that would legally accommodate a two-stage crossing, queuing from the northern study intersection, as presented by both the applicant and cited in conversations with City staff, blocks use of this area for vehicles. This prevents the ability of completing a two-stage crossing during critical peak conditions. The ability to successfully and safely execute a two-stage crossing is the tipping point between this access meeting or not meeting mobility standards for the City. Because this assumption is so critical to the results and because not all drivers may feel comfortable executing the two-stage crossing, it is recommended that this location be analyzed with the more conservative approach of a one-stage crossing. Under this assumption, the City Access Driveway would not meet mobility standards if kept open without the signalized SW Seneca Street extension.

Additional consideration has also been provided regarding the trip generation analysis. The applicant has proposed two methodologies for consideration. The first, as outlined in the April 2013 submittal used Shopping Code 820 for the proposed development in its entirety. The second option, as outlined in the June 2013 memorandum, uses specific codes for each use in the development. After further review it is recommended that the applicant provide a hybrid of these approaches, which uses Shopping Code 820 for the majority of the proposed development, but separates out the grocery and restaurant with drive-thru uses as these experience a very different vehicle usage pattern than Code 820 represents. Grouping the entire development under Code 820 underestimates the impact of the grocery store and drive-thru; however, breaking apart each use as proposed in the June 2013 memorandum uses codes provided in the ITE Trip Generation Manual with little data to support their forecasting. However, regardless of the trip generation methodology used, the City Access Driveway fails to meet mobility standards without the signalized extension of SW Seneca Street.



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**ATTACHMENT A:
APRIL 2013 SUBMITTAL REVIEW COMMENTS**



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MEMORANDUM

DATE: May 9, 2013
TO: Tony Doran/City of Tualatin, Kaaren Hofmann/City of Tualatin
FROM: Carl Springer, PE
SUBJECT: Nyberg River TIA Review Comments (April 2013 Submittal)

P#12163-000

The City of Tualatin has contracted with DKS Associates to review the traffic analysis files and report documentation prepared for the Nyberg Rivers Traffic Impact Analysis (TIA), dated April 2013. The TIA report as well as supporting Synchro/SimTraffic files have been reviewed for consistency with engineering practice and applicable agency guidelines. Based on this review, *the TIA is not recommended for approval.*

Table 1 provides a summary of the analysis assumptions provided in the applicant's files that currently do not conform with accepted standards of practice and/or assumptions provided by the Oregon Department of Transportation (ODOT) Analysis and Procedures Manual (APM). These issues need to be addressed by the applicant so that the impact of the proposed development as it relates to vehicle queuing can be more accurately understood.

Table 1: Simulation Review Comments

No.	Topic	Comment
1	Queuing Results	Table 11 in the TIA report provides queuing results for some, but not all movements at the signalized intersections. Results should be updated to include all movements to better demonstrate the impact the development has on the study intersections.
2	Link Lengths	The link lengths currently provided in the analysis files (EX, PM, SAT for both Build and No Build) are insufficient in length at the I-5 ramps and site access point. The shorter lengths prevent the simulation from experiencing the full demand of queue lengths and as such are causing the model to underreport queuing results. When the links are extended further back queuing results double those currently reported at the I-5 ramps and site access. The applicant should update the link lengths to handle the maximum demand so the queuing results can be accurately measured.
3	Green React Times	Green react times provided in the SimTraffic files do not match the values provided for use in the ODOT APM. The applicant should update their files to be consistent with ODOT.



No.	Topic	Comment
4	Seeding Period	In the simulation 'interval' settings in SimTraffic, the PHF adjustment is not turned on for the seeding period as instructed by the ODOT APM. The interval settings should be adjusted to match those in the ODOT APM so the PHF adjustments are used to correctly adjust the volumes in the simulation. Failure to use the PHF adjustment in the seeding period results in a simulation run with lower congestion.
5	Random Seed	Seeding values in the analysis files are currently set to "1", which causes the simulation to use the same analysis runs each time. The ODOT APM outlines the use of a random seed (set to "0") so the analysis runs will vary each time. This is done to promote statistical reliability in the analysis results. The applicant should update their files.
6	Synchro Simulation Settings	The applicant has left some of the simulation settings in the Synchro files at defaults that are not appropriate for the analysis. In specific, the intersection node representing the eastbound diverge at Tualatin-Sherwood Road and Nyberg Road is operating under the assumption that the vehicles are making turns onto each roadway at 15 mph, rather than having them travel at roadway posted speeds. This causes the simulation to assume vehicles are moving much slower through this area than is realistic. The applicant should update this location and verify that others within the models are set to appropriate values given the geometry and characterizations of the study area.
7	Calibration	Under the section of the report that discusses field observations, please discuss observed queuing trends and whether they are accurately replicated in the simulation models used for analysis.

In addition to the findings provided in Table 1, it is also noted that the safety analysis does not reference the severity of crashes recorded in the study area. Crash severity is one the most crucial descriptive characteristics of a crash data set, and should be included in the report when referencing whether safety will be impacted by the proposed development.



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ATTACHMENT B:
SUPPLEMENTAL TRIP GENERATION ANALYSIS



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ATTACHMENT B

DATE: June 11, 2013
TO: Kaaren Hofmann, City of Tualatin
FROM: Carl Springer, PE and Tegan Enloe, PE
SUBJECT: Nyberg Rivers: Supplemental Trip Generation Analysis

P#12163-000

The Nyberg Rivers Transportation Impact Analysis (April 2013) evaluated the proposed development using the ITE Trip Generation Manual Code 820 for shopping centers.

We reviewed the specific parcel uses outlined in the April 8, 2013 Nyberg Rivers Master Plan, and identified several elements of the shopping center that could have significantly higher traffic activity than a typical shopping center use. Most notably, these uses include the grocery store and drive thru restaurant. By separating these two uses out from the rest of the shopping center and applying appropriate trip rates from surveys taken at other similar operations, we determined that the trip generation would be over 800 during weekday peak hours, and over 1,000 during Saturday peak hours. This level of trip activity is in addition to the existing uses that will remain in operation, either in existing buildings, or relocated to new buildings. Table 1 below shows the trips generated for the proposed addition of 266,722 square feet of new land uses.



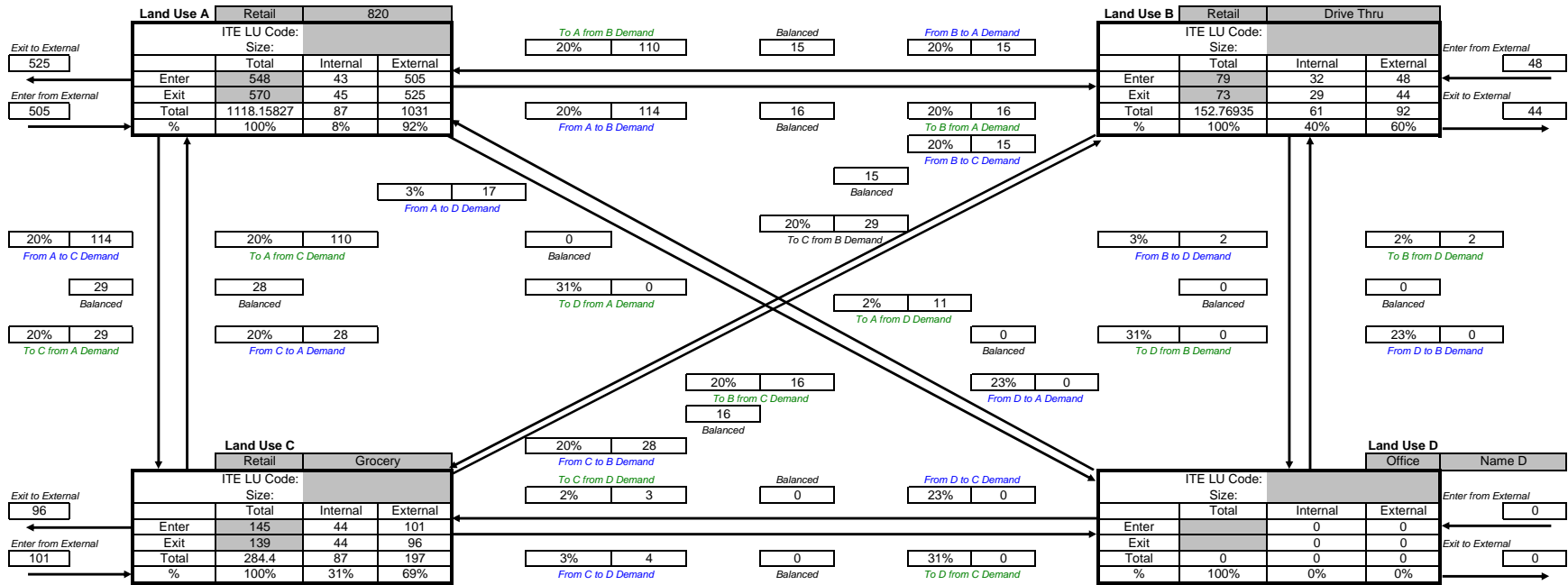
Table 1: Trip Generation Estimate for New Land Uses within Nyberg Rivers Development

Building Per Master Plan	Type	ITE Code	Size (SF)	Weekday PM			Saturday Mid-Day		
				Total	In	Out	Total	In	Out
D.1, D.2 1010, 1040, M-100, J-100, G-100, 1030, N-100	Shopping Center	820	232,043	1,118	548	570	1,481	770	711
1005	Grocery	850	30,000	284	145	139	320	163	157
H-100	Restaurant with Drive Thru	934	4,679	153	79	73	276	141	135
Total Trips Generated				1,555	772	783	2,077	1,074	1003
(Pass-by Trips)				(559)	(278)	(281)	(757)	(391)	(366)
(Internal Trips)				(156)	(77)	(78)	(208)	(107)	(100)
New Trips				841	417	424	1,112	576	537
Difference from April 2013 submittal estimate				+435	+212	+223	+405	+196	+209
<p>Notes: Values provided assume the proposed Fitness Center as part of the ITE Code 820 (Shopping Center). Values used in the operational analysis reported in this memorandum assumed the Fitness Center as ITE Code 492 (Fitness Center). The difference between these two trip generation results is considered negligible. The adjustment in trip generation methodology (from Code 492 to 820) yielded a decrease of 3 total trips during the Weekday PM Peak Hour and an increase of 38 total trips during the Saturday Mid-Day Peak Hour.</p>									

The trip generation estimates were reduced by 10% to account for multi-purpose trips on site (internal trips), and 36% for grocery pass-by trips, and 50% for restaurant with drive-thru.

We find that the trip generation for this proposed development could be significantly higher than represented in the April 2013 TIA. The approach described above results in a net increase of about 400 peak hour trips compared to that study.

Street PM Peak Internal Capture Rate Worksheet





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ATTACHMENT C:
SUPPLEMENTAL DRIVEWAY ACCESS SCENARIOS ANALYSIS



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ATTACHMENT C

DATE: June 3, 2013

TO: Kaaren Hofmann, City of Tualatin

FROM: Carl Springer, PE and Tegan Enloe, PE

SUBJECT: Nyberg Rivers: Supplemental Driveway Access Scenarios Analysis

P#12163-000

The April 2013 draft of the Nyberg Rivers TIA evaluated the proposed development providing seven driveway access points to the site. One driveway is located on SW Boones Ferry Road, four on SW Martinazzi Avenue, and two on SW Nyberg Road. The City has requested that additional analysis be completed evaluating different access scenarios for the driveways located on SW Martinazzi Avenue. The additional scenario analysis also takes into account the increased trip generation values provided in Attachment A based on changes to the assumed uses in the Trip Generation analysis. Figure 1 describes the different access options by each scenario analyzed.

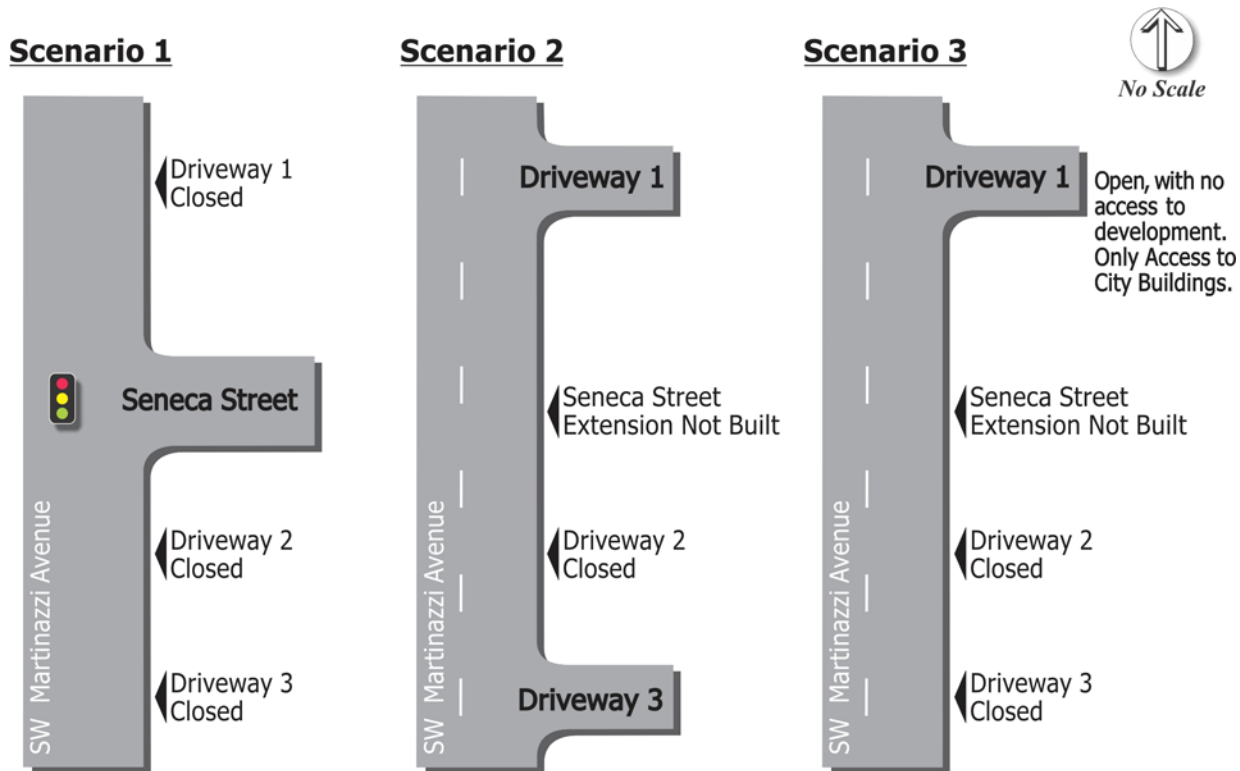


Figure 1: SW Martinazzi Avenue Driveway Access Scenarios

After analysis was completed, the City requested information regarding the impact to Scenario 2 should Driveway 3 be closed. The total traffic using this driveway, taking into account background traffic at the site, amounts to 20 trips out and 5 trips in for this scenario. Closure of this driveway is estimated to have very minor, if any, impact to the surrounding driveways. As such, it is assumed the operational analysis presented for Scenario 2 will remain the same should Driveway 3 be closed.



Each of the three scenarios was evaluated using the latest version of the Trafficware software, Synchro 8. Operational analysis by scenario are summarized in Table 1. Detailed scenario results are provided in Attachment D.

Table 1: 2014 Total Traffic Operational Results by Scenario

#	Intx	Std.	Scenario 1				Scenario 2				Scenario 3			
			Wk Day		Saturday		Wk Day		Saturday		Wk Day		Saturday	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
3	SW Boones Ferry Rd/ SW Martinazzi Ave	0.99	F	0.98	B	0.71	D	0.98	B	0.71	E	1.06	C	0.76
4	SW Martinazzi Ave/ City Access	E	-	-	-	-	F (WB)	1.03	F (WB)	0.70	E (WB)	0.24	C	0.12
5	SW Martinazzi Ave/ SW Seneca St	E	B	0.67	A	0.45	D	0.53	C	0.25	E (EB)	0.58	C	0.27
6	SW Martinazzi Ave/ South Driveway 1	E	-	-	-	-	-	-	-	-	-	-	-	-
7	SW Martinazzi Ave/ South Driveway 2	E	-	-	-	-	B	0.06	B	0.04	-	-	-	-
8	SW Nyberg Rd/ SW Martinazzi Ave	0.99	B	0.54	B	0.50	B	0.54	B	0.50	B	0.51	B	0.46
9	SW Nyberg Rd/ Site Driveway	E	B	0.24	B	0.17	B	0.23	B	0.17	C	0.18	B	0.25
10	SW Nyberg/Site Driveway/ Fred Meyer	0.99	D	0.91	D	0.79	D	0.91	D	0.79	D	0.91	D	0.82
22	SW Boones Ferry/ Site Driveway	0.99	C	0.19	C	0.15	C	0.19	C	0.15	D	0.22	C	0.26

Table 1 shows that Scenario 1 provides the best operational results based on level of service (LOS) and volume-to-capacity ratio (V/C) with all intersections meeting their applicable standards.



Scenario 2 performs below Scenario 1 with large delay and capacity constraints experienced at the driveway access located near the City of Tualatin Library and Public Works building for Weekday PM and Saturday Mid-Day analysis periods, respectively. Based on the operational results, it could be expected that vehicles that would typically use the City Access Driveway would reroute to another access point to avoid the long delays. Under this scenario the likely choice would be the access right-out access on SW Nyberg (intersection 9).

Scenario 3 meets the operational standards for all locations during the Saturday Mid-Day analysis period, but fails to meet standards at SW Martinazzi Ave/SW Boones Ferry Road, SW Martinazzi Ave/City Access Driveway, and SW Martinazzi Ave/SW Seneca St. Scenario 1 is recommended based on this analysis.

Queuing analysis results are summarized in Table 2, with detailed reports in Attachment E.

Table 2: 95th Percentile Queues

#	Intx	Available Storage	Scenario 1		Scenario 2		Scenario 3	
			Wk Day	Saturday	Wk Day	Saturday	Wk Day	Saturday
3	SW Boones Ferry Rd/ SW Martinazzi Ave	EBT/L 1250'	1560'	450'	1510'	1354'	1460'	1460'
		EBR 220'	270'	210'	270'	280'	210'	320'
		NBT/R 280'	480'	150'	300'	60'	330'	160'
		NBL 280'	400'	210'	240'	90'	270'	190'
		WBL 330'	310'	270'	320'	250'	320'	310'
		WBT 1700'	370'	170'	360'	40'	370'	240'
4	SW Martinazzi Ave/ City Access	WBL 300'	-	-	180'	120'	150'	150'
		WBR 300'	-	-	>2000'	>2000'	1040'	1070'
5	SW Martinazzi Ave/ SW Seneca St	WBL 300'	150'	130'	-	-	-	-
		WBT/R 300'	160'	100'	-	-	-	-
		EBL 440'	70'	50'	-	-	-	-
		EBT/R 440'	90'	90'	-	-	-	-
		EBL/R 440'	-	-	680'	800'	970'	790'
6	SW Martinazzi Ave/ South Driveway 1	WBR 300'	-	-	-	-	-	-
7	SW Martinazzi Ave/ South Driveway 2	WBR 300'	-	-	50'	100'	-	-
8	SW Nyberg Rd/ SW Martinazzi Ave	WBL 580'	330'	230'	270'	120'	350'	290'
		WBT/L 580'	330'	240'	280'	150'	340'	250'
		WBR 160'	320'	170'	300'	200'	380'	190'
		EBL 260'	60'	30'	50'	30'	60'	460'
		EBT/R 260'	330'	210'	270'	70'	230'	720'



	NBL	300'	40'	40'	30'	20'	40'	60'
	NBT/R	300'	350'	310'	330'	290'	350'	340'
	SBT	220'	310'	270'	110'	80'	320'	280'
	SBT/R	220'	310'	270'	110'	80'	320'	270'

#	Intx	Available Storage	Scenario 1		Scenario 2		Scenario 3	
			Wk Day	Saturday	Wk Day	Saturday	Wk Day	Saturday
9	SW Nyberg Rd/ Site Driveway	EBL 270'	90'	60'	100'	70'	240'	230'
		SBR 300'	470'	140'	320'	400'	1540'	1580'
10	SW Nyberg/Site Driveway/ Fred Meyer	WBL 225'	370'	350'	340'	370'	350'	430'
		WBT 520'	570'	510'	510'	550'	560'	640'
		WBR 400'	370'	330'	320'	350'	430'	530'
		EBL 220'	150'	260'	110'	250'	310'	360'
		EBT 780'	360'	360'	350'	360'	340'	350'
		EBT/R 320'	330'	370'	330'	360'	330'	380'
		NBT/L 200'	200'	220'	220'	350'	240'	370'
		NBR 200'	410'	380'	400'	290'	530'	380'
		SBL 250'	1000'	510'	1100'	1190'	1010'	1260'
SBT/R 250'	600'	300'	680'	850'	730'	1230'		
22	SW Boones Ferry/ Site Driveway	NBR 300'	70'	70'	70'	60'	60'	80'

Notes:

Queues based on an average of a minimum of five runs in SimTraffic (Synchro 8)

Queues rounded up to the nearest 10' increment

Queue lengths exceeding provided storage are shaded in gray.

Queue lengths exceeding 1000' of storage are shaded in black.

Driveway movements out of the proposed site are shown in bold text.

>2000' – Queues measured in simulation exceed 2000'.

All three scenarios indicate extreme queuing impacts to the network, particularly for exiting movements from the proposed development. The majority of driveway exiting movements are measuring over 1,000 feet of queuing. While these queues exist in the model, in reality these values would likely be enough to impact development draw from shoppers. With less demand being realized from extreme queuing, the realized queues experienced may in fact be less at the development. The model is showing particularly long queues at the City Access in Scenario 2. Drivers would likely shift between driveways based on real-time delays and balance out the queue lengths for each driveway. This would cause the excess queue shown at the City Access to transfer to the other available driveway access points.

In comparison to the other scenarios, Scenario1 shows the lower amount of queuing impact to the network. However, none of these options appear to be particularly viable. Scenario 1, although the better of the options, still shows excessive queuing at the signal at Fred Meyer for southbound left turns out of the proposed development. It is recommended that the applicant provide more detailed analysis on possible site access points



along the other property edges and recommend more robust mitigations to counterbalance the queuing impacts.



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**ATTACHMENT D:
SYNCHRO REPORTS**

Scenario 1
Weekday PM

3: SW Martinazzi Ave & SW Boones Fe
2014 Total Traffic



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	674	188	480	930	346	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1599	1787	1845	1770	1571
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1599	1787	1845	1770	1571
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	709	198	505	979	364	427
RTOR Reduction (vph)	0	67	0	0	0	34
Lane Group Flow (vph)	709	131	505	979	364	393
Confl. Peds. (#/hr)		7	7		7	8
Heavy Vehicles (%)	2%	1%	1%	3%	2%	1%
Turn Type	NA	Prot	Prot	NA	NA	pm+ov
Protected Phases	2	2	1	6	8	1
Permitted Phases					8	8
Actuated Green, G (s)	42.1	42.1	35.1	82.2	24.9	60.0
Effective Green, g (s)	42.6	42.6	35.6	82.7	25.4	61.0
Actuated g/C Ratio	0.36	0.36	0.30	0.71	0.22	0.52
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	677	581	543	1303	383	878
v/s Ratio Prot	c0.38	0.08	c0.28	0.53	c0.21	0.14
v/s Ratio Perm						0.11
v/c Ratio	1.05	0.23	0.93	0.75	0.95	0.45
Uniform Delay, d1	37.2	25.8	39.5	10.8	45.2	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	47.6	0.2	22.7	2.5	33.3	0.4
Delay (s)	84.8	26.0	62.3	13.3	78.5	17.9
Level of Service	F	C	E	B	E	B
Approach Delay (s)	72.0			29.9	45.8	
Approach LOS	E			C	D	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	117.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Scenario 1
Weekday PM

5: Martinazzi Ave & Seneca St
2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	0	80	70	0	192	85	520	129	228	390	50
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5			3.5	3.5	3.5	3.5		3.5	3.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.97			1.00	0.97	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.96	1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.85			1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1735	1571			1745	1539	1802	1812		1770	1829	
Flt Permitted	0.71	1.00			0.70	1.00	0.48	1.00		0.17	1.00	
Satd. Flow (perm)	1293	1571			1286	1539	908	1812		322	1829	
Peak-hour factor, PHF	0.91	0.92	0.91	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91
Adj. Flow (vph)	44	0	88	76	0	209	93	571	140	248	429	55
RTOR Reduction (vph)	0	76	0	0	0	148	0	10	0	0	5	0
Lane Group Flow (vph)	44	12	0	0	76	61	93	701	0	248	479	0
Confl. Peds. (#/hr)	26		16	16		26	5		5	5		5
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	1%	2%	2%	2%	0%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	6.5	6.5			6.5	14.5	30.1	26.2		38.2	30.3	
Effective Green, g (s)	7.0	7.0			7.0	15.5	31.1	26.7		38.7	30.8	
Actuated g/C Ratio	0.13	0.13			0.13	0.29	0.59	0.51		0.73	0.58	
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	171	208			170	554	610	918		470	1068	
v/s Ratio Prot		0.01				0.02	0.01	c0.39		c0.09	0.26	
v/s Ratio Perm	0.03				c0.06	0.02	0.08			0.30		
v/c Ratio	0.26	0.06			0.45	0.11	0.15	0.76		0.53	0.45	
Uniform Delay, d1	20.5	20.0			21.1	13.6	4.7	10.5		6.3	6.2	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.1			1.9	0.1	0.1	3.8		1.1	0.3	
Delay (s)	21.3	20.1			22.9	13.7	4.8	14.3		7.4	6.5	
Level of Service	C	C			C	B	A	B		A	A	
Approach Delay (s)		20.5			16.1			13.2			6.8	
Approach LOS		C			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.7								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			52.7							10.5		
Intersection Capacity Utilization			70.1%								ICU Level of Service	C
Analysis Period (min)			15									
c	Critical Lane Group											

Scenario 1
Weekday PM

8: Martinazzi Ave & Nyberg St
2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	30	10	100	437	55	335	25	364	20	0	525	10	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0		
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	1.00			0.95		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00			1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00		
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.99			1.00		
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00			1.00		
Satd. Flow (prot)	1805	1626		1698	1724	1532	1682	1863			3563		
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.37	1.00			1.00		
Satd. Flow (perm)	1805	1626		1698	1724	1532	658	1863			3563		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	33	11	110	480	60	368	27	400	22	0	577	11	
RTOR Reduction (vph)	0	97	0	0	0	268	0	3	0	0	2	0	
Lane Group Flow (vph)	33	24	0	269	271	100	27	419	0	0	586	0	
Confl. Peds. (#/hr)	10					10	6		19	19		6	
Heavy Vehicles (%)	0%	0%	1%	1%	0%	2%	7%	1%	0%	0%	1%	0%	
Turn Type	Split	NA		Split	NA	Perm	Perm	NA			NA		
Protected Phases	8	8		4	4			6			2		
Permitted Phases						4	6						
Actuated Green, G (s)	4.8	4.8		12.0	12.0	12.0	15.6	15.6			15.6		
Effective Green, g (s)	5.3	5.3		12.5	12.5	12.5	16.1	16.1			16.1		
Actuated g/C Ratio	0.12	0.12		0.27	0.27	0.27	0.35	0.35			0.35		
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5			4.5		
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	5.0	5.0			5.0		
Lane Grp Cap (vph)	208	187		462	469	417	230	653			1249		
v/s Ratio Prot	c0.02	0.01		c0.16	0.16			c0.23			0.16		
v/s Ratio Perm						0.07	0.04						
v/c Ratio	0.16	0.13		0.58	0.58	0.24	0.12	0.64			0.47		
Uniform Delay, d1	18.3	18.2		14.4	14.4	13.0	10.1	12.5			11.6		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00		
Incremental Delay, d2	0.3	0.2		1.6	1.4	0.2	0.5	3.0			0.6		
Delay (s)	18.6	18.4		16.0	15.8	13.2	10.6	15.4			12.2		
Level of Service	B	B		B	B	B	B	B			B		
Approach Delay (s)		18.5			14.8			15.1			12.2		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			14.4		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.54										
Actuated Cycle Length (s)			45.9		Sum of lost time (s)					12.0			
Intersection Capacity Utilization			58.9%		ICU Level of Service					B			
Analysis Period (min)			15										
c Critical Lane Group													

Intersection

Intersection Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	30	0	712	83	0	115
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	34	0	809	94	0	131

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	903	0	856
Stage 1	-	-	856
Stage 2	-	-	0
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	761	-	301
Stage 1	-	-	382
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	758	-	287
Mov Capacity-2 Maneuver	-	-	287
Stage 1	-	-	382
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	10	0	14

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	758	-	-	-	554
HCM Lane V/C Ratio	0.045	-	-	-	0.236
HCM Control Delay (s)	9.973	-	-	-	13.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.141	-	-	-	0.91

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 1
Weekday PM













10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	83	1930	40	230	1763	298	35	10	235	410	25	85	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0	4.5	5.0	5.0		
Lane Util. Factor	1.00	*0.75		0.97	0.91	1.00		1.00	1.00	0.97	1.00		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.96		1.00	1.00	1.00	0.98		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00		
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.88		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00		
Satd. Flow (prot)	1805	4100		3502	4988	1545		1787	1599	3502	1640		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00		
Satd. Flow (perm)	1805	4100		3502	4988	1545		1787	1599	3502	1640		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	85	1969	41	235	1799	304	36	10	240	418	26	87	
RTOR Reduction (vph)	0	1	0	0	0	155	0	0	0	0	73	0	
Lane Group Flow (vph)	85	2009	0	235	1799	149	0	46	240	418	40	0	
Confl. Peds. (#/hr)			2			8						15	
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	3%	0%	1%	0%	0%	0%	
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pt+ov	Split	NA		
Protected Phases	5	2		1	6		8	8	18	4	4		
Permitted Phases						6							
Actuated Green, G (s)	13.8	58.7		15.8	60.7	60.7		8.9	24.7	19.1	19.1		
Effective Green, g (s)	14.3	59.2		16.3	61.2	61.2		9.4	25.7	19.6	19.6		
Actuated g/C Ratio	0.11	0.47		0.13	0.49	0.49		0.08	0.21	0.16	0.16		
Clearance Time (s)	5.0	6.5		5.0	6.5	6.5		5.5		5.5	5.5		
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0		2.5		2.5	2.5		
Lane Grp Cap (vph)	206	1941		456	2442	756		134	328	549	257		
v/s Ratio Prot	0.05	c0.49		0.07	0.36			0.03	c0.15	c0.12	0.02		
v/s Ratio Perm						0.10							
v/c Ratio	0.41	1.04		0.52	0.74	0.20		0.34	0.73	0.76	0.15		
Uniform Delay, d1	51.4	32.9		50.7	25.5	18.0		54.9	46.4	50.5	45.5		
Progression Factor	0.89	0.56		1.03	0.84	0.95		1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.5	24.5		0.4	1.2	0.3		1.1	7.7	5.9	0.2		
Delay (s)	46.1	43.0		52.4	22.7	17.5		56.0	54.1	56.4	45.7		
Level of Service	D	D		D	C	B		E	D	E	D		
Approach Delay (s)		43.1			25.0			54.4			54.1		
Approach LOS		D			C			D			D		
Intersection Summary													
HCM 2000 Control Delay			36.8									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.91										
Actuated Cycle Length (s)			125.0									Sum of lost time (s)	20.5
Intersection Capacity Utilization			82.3%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

Scenario 1
Weekday PM

12: I-5 SB Ramps & Tualatin Sherwood Rd
2014 Total Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↖	↑↑					↖	↗	↗↗
Volume (vph)	0	1658	922	125	1128	0	0	0	0	660	5	1168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5					5.5	5.5	5.5
Lane Util. Factor		*0.75	1.00	1.00	0.95					0.95	0.95	0.88
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4150	1568	1787	3471					1681	1682	2760
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4150	1568	1787	3471					1681	1682	2760
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	1675	931	126	1139	0	0	0	0	667	5	1180
RTOR Reduction (vph)	0	0	481	0	0	0	0	0	0	0	0	39
Lane Group Flow (vph)	0	1675	450	126	1139	0	0	0	0	333	339	1141
Heavy Vehicles (%)	0%	3%	3%	1%	4%	0%	0%	0%	0%	2%	20%	3%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4 5
Permitted Phases			2									
Actuated Green, G (s)		55.7	55.7	11.2	50.9					40.1	40.1	62.1
Effective Green, g (s)		56.2	56.2	11.7	51.4					40.6	40.6	62.6
Actuated g/C Ratio		0.45	0.45	0.09	0.41					0.32	0.32	0.50
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		6.1	6.1	2.3	6.1					2.3	2.3	
Lane Grp Cap (vph)		1865	704	167	1427					545	546	1382
v/s Ratio Prot		c0.40		0.07	c0.33					0.20	0.20	c0.41
v/s Ratio Perm			0.29									
v/c Ratio		0.90	0.64	0.75	0.80					0.61	0.62	0.83
Uniform Delay, d1		31.8	26.6	55.2	32.3					35.5	35.7	26.5
Progression Factor		0.51	1.86	0.80	0.66					1.00	1.00	1.00
Incremental Delay, d2		3.2	1.8	15.2	4.4					1.6	1.8	4.0
Delay (s)		19.4	51.2	59.5	25.6					37.2	37.5	30.6
Level of Service		B	D	E	C					D	D	C
Approach Delay (s)		30.8			29.0			0.0			33.0	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			31.1		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			125.0		Sum of lost time (s)					16.5		
Intersection Capacity Utilization			96.2%		ICU Level of Service					F		
Analysis Period (min)			15									

c Critical Lane Group

Scenario 1
Weekday PM

13: I-5 NB Ramps & Tualatin Sherwood Rd

2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑				
Volume (vph)	0	1237	1081	0	525	680	728	5	175	0	0	0	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.5	5.5		6.0	6.0	5.5	5.5	5.5				
Lane Util. Factor		0.95	0.88		0.95	1.00	0.95	0.95	1.00				
Frbp, ped/bikes		1.00	1.00		1.00	0.95	1.00	1.00	0.96				
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85				
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00				
Satd. Flow (prot)		3574	2760		3574	1502	1618	1620	1512				
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00				
Satd. Flow (perm)		3574	2760		3574	1502	1618	1620	1512				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	1302	1138	0	553	716	766	5	184	0	0	0	
RTOR Reduction (vph)	0	0	382	0	0	275	0	0	22	0	0	0	
Lane Group Flow (vph)	0	1302	756	0	553	441	383	388	162	0	0	0	
Confl. Peds. (#/hr)						16			17				
Heavy Vehicles (%)	0%	1%	3%	0%	1%	2%	6%	20%	2%	0%	0%	0%	
Turn Type		NA	Perm		NA	Perm	Split	NA	Perm				
Protected Phases		2			6		8	8					
Permitted Phases			2			6			8				
Actuated Green, G (s)		77.0	77.0		76.5	76.5	36.0	36.0	36.0				
Effective Green, g (s)		77.5	77.5		77.0	77.0	36.5	36.5	36.5				
Actuated g/C Ratio		0.62	0.62		0.62	0.62	0.29	0.29	0.29				
Clearance Time (s)		6.0	6.0		6.5	6.5	6.0	6.0	6.0				
Vehicle Extension (s)		6.1	6.1		4.2	4.2	2.3	2.3	2.3				
Lane Grp Cap (vph)		2215	1711		2201	925	472	473	441				
v/s Ratio Prot		c0.36			0.15		0.24	c0.24					
v/s Ratio Perm			0.27			0.29			0.11				
v/c Ratio		0.59	0.44		0.25	0.48	0.81	0.82	0.37				
Uniform Delay, d1		14.2	12.4		10.9	13.0	41.1	41.2	35.1				
Progression Factor		0.68	0.94		1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2		0.7	0.5		0.3	1.8	9.9	10.6	0.3				
Delay (s)		10.4	12.2		11.2	14.8	50.9	51.8	35.4				
Level of Service		B	B		B	B	D	D	D				
Approach Delay (s)		11.3			13.2			48.3			0.0		
Approach LOS		B			B			D			A		
Intersection Summary													
HCM 2000 Control Delay			19.4		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.66										
Actuated Cycle Length (s)			125.0		Sum of lost time (s)					11.5			
Intersection Capacity Utilization			73.6%		ICU Level of Service					D			
Analysis Period (min)			15										
c Critical Lane Group													

Intersection

Intersection Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Vol, veh/h	1076	9	0	1415	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1170	10	0	1538	0	45

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1179
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	592
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	592
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	24

Minor Lane / Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	233	-	-	592	-
HCM Lane V/C Ratio	0.191	-	-	-	-
HCM Control Delay (s)	24.1	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.689	-	-	0	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 1
Saturday Mid-Day

3: SW Martinazzi Ave & SW Boones Ferry Rd
2014 Total Traffic



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Volume (vph)	426	142	342	430	211	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	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	1.00	1.00	1.00	1.00	0.99
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	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1599	1787	1845	1770	1582
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1599	1787	1845	1770	1582
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	448	149	360	453	222	348
RTOR Reduction (vph)	0	103	0	0	0	87
Lane Group Flow (vph)	448	46	360	453	222	261
Confl. Peds. (#/hr)		11	11		1	3
Confl. Bikes (#/hr)	4		2	10	1	
Heavy Vehicles (%)	2%	1%	1%	3%	2%	1%
Turn Type	NA	Prot	Prot	NA	NA	pm+ov
Protected Phases	2	2	1	6	8	1
Permitted Phases					8	8
Actuated Green, G (s)	20.0	20.0	17.8	42.8	13.1	30.9
Effective Green, g (s)	20.5	20.5	18.3	43.3	13.6	31.9
Actuated g/C Ratio	0.31	0.31	0.28	0.66	0.21	0.48
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	579	497	496	1212	365	873
v/s Ratio Prot	c0.24	0.03	c0.20	0.25	c0.13	0.08
v/s Ratio Perm						0.08
v/c Ratio	0.77	0.09	0.73	0.37	0.61	0.30
Uniform Delay, d1	20.6	16.1	21.5	5.1	23.7	10.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	0.1	5.2	0.2	2.9	0.2
Delay (s)	27.0	16.2	26.8	5.3	26.6	10.4
Level of Service	C	B	C	A	C	B
Approach Delay (s)	24.3			14.8	16.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Scenario 1
Saturday Mid-Day

5: Martinazzi Ave & Seneca St
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	0	45	94	0	167	80	335	139	214	220	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.5	1.5			1.5	1.5	1.5	1.5		1.5	1.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.85			1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1592			1770	1583	1804	1794		1770	1815	
Flt Permitted	0.68	1.00			0.73	1.00	0.58	1.00		0.27	1.00	
Satd. Flow (perm)	1281	1592			1351	1583	1105	1794		508	1815	
Peak-hour factor, PHF	0.91	0.92	0.91	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91
Adj. Flow (vph)	38	0	49	102	0	182	88	368	151	233	242	49
RTOR Reduction (vph)	0	40	0	0	0	148	0	20	0	0	9	0
Lane Group Flow (vph)	38	9	0	0	102	34	88	499	0	233	282	0
Confl. Peds. (#/hr)	10		4				1					1
Confl. Bikes (#/hr)								2			3	
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	1%	2%	2%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	5.7	5.7			5.7	5.7	17.6	14.8		23.1	18.3	
Effective Green, g (s)	6.2	6.2			6.2	6.2	18.6	15.3		23.6	18.8	
Actuated g/C Ratio	0.19	0.19			0.19	0.19	0.57	0.47		0.72	0.57	
Clearance Time (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0	2.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	242	300			255	299	696	836		627	1040	
v/s Ratio Prot		0.01					0.01	c0.28		c0.08	0.16	
v/s Ratio Perm	0.03				c0.08	0.02	0.06			0.19		
v/c Ratio	0.16	0.03			0.40	0.12	0.13	0.60		0.37	0.27	
Uniform Delay, d1	11.1	10.8			11.7	11.0	3.2	6.5		2.5	3.5	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.0			1.0	0.2	0.1	1.2		0.4	0.1	
Delay (s)	11.4	10.9			12.7	11.2	3.3	7.6		2.9	3.7	
Level of Service	B	B			B	B	A	A		A	A	
Approach Delay (s)		11.1			11.7			7.0			3.3	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	32.8	Sum of lost time (s)	4.5
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Scenario 1
Saturday Mid-Day

8: Martinazzi Ave & Nyberg St
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	5	65	313	35	235	25	304	30	0	354	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	1.00			0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.99			1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1805	1619		1698	1721	1543	1683	1851			3558	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.52	1.00			1.00	
Satd. Flow (perm)	1805	1619		1698	1721	1543	915	1851			3558	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	5	71	344	38	258	27	334	33	0	389	11
RTOR Reduction (vph)	0	65	0	0	0	198	0	5	0	0	3	0
Lane Group Flow (vph)	16	11	0	189	193	60	27	362	0	0	397	0
Confl. Peds. (#/hr)	2					2	3		16	16		3
Confl. Bikes (#/hr)						2						3
Heavy Vehicles (%)	0%	0%	1%	1%	0%	2%	7%	1%	0%	0%	1%	0%
Turn Type	Split	NA		Split	NA	Perm	Perm	NA			NA	
Protected Phases	8	8		4	4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)	3.1	3.1		9.9	9.9	9.9	13.8	13.8			13.8	
Effective Green, g (s)	3.6	3.6		10.4	10.4	10.4	14.3	14.3			14.3	
Actuated g/C Ratio	0.08	0.08		0.23	0.23	0.23	0.32	0.32			0.32	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	5.0	5.0			5.0	
Lane Grp Cap (vph)	145	130		394	399	358	292	590			1135	
v/s Ratio Prot	c0.01	0.01		0.11	c0.11			c0.20			0.11	
v/s Ratio Perm						0.04	0.03					
v/c Ratio	0.11	0.08		0.48	0.48	0.17	0.09	0.61			0.35	
Uniform Delay, d1	19.1	19.1		14.9	14.9	13.7	10.7	12.9			11.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.2		0.7	0.7	0.2	0.3	2.7			0.4	
Delay (s)	19.4	19.3		15.5	15.6	13.9	11.0	15.6			12.1	
Level of Service	B	B		B	B	B	B	B			B	
Approach Delay (s)		19.3			14.9			15.3			12.1	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.50	B
Actuated Cycle Length (s)	44.8	Sum of lost time (s)
Intersection Capacity Utilization	51.5%	16.5
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Intersection

Intersection Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	30	0	489	105	0	99
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	34	0	556	119	0	112

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	675	0	342
Stage 1	-	-	615
Stage 2	-	-	0
Follow-up Headway	2.2	-	3.3
Pot Capacity-1 Maneuver	926	-	660
Stage 1	-	-	507
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	923	-	658
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	507
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	9	0	12

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	923	-	-	-	658
HCM Lane V/C Ratio	0.037	-	-	-	0.171
HCM Control Delay (s)	9.05	-	-	-	11.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.115	-	-	-	0.613

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 1
Saturday Mid-Day

10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘↘	↑↑↑	↗		↗	↗	↘↘	↗	
Volume (vph)	119	1375	60	255	1540	398	55	25	250	443	40	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0	4.5	5.0	5.0	
Lane Util. Factor	1.00	*0.75		0.97	0.91	1.00		1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	4091		3502	4988	1565		1800	1599	3467	1659	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	4091		3502	4988	1565		1800	1599	3467	1659	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	121	1403	61	260	1571	406	56	26	255	452	41	121
RTOR Reduction (vph)	0	3	0	0	0	215	0	0	0	0	100	0
Lane Group Flow (vph)	121	1461	0	260	1571	191	0	82	255	452	62	0
Confl. Peds. (#/hr)							4					9
Confl. Bikes (#/hr)					1			1		1		
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	3%	0%	1%	1%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	18	4	4	
Permitted Phases						6						
Actuated Green, G (s)	11.0	47.7		17.0	53.7	53.7		8.6	25.6	19.2	19.2	
Effective Green, g (s)	11.5	48.2		17.5	54.2	54.2		9.1	26.6	19.7	19.7	
Actuated g/C Ratio	0.10	0.42		0.15	0.47	0.47		0.08	0.23	0.17	0.17	
Clearance Time (s)	5.0	6.5		5.0	6.5	6.5		5.5		5.5	5.5	
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	180	1714		532	2350	737		142	369	593	284	
v/s Ratio Prot	0.07	c0.36		0.07	c0.31			0.05	c0.16	c0.13	0.04	
v/s Ratio Perm						0.12						
v/c Ratio	0.67	0.85		0.49	0.67	0.26		0.58	0.69	0.76	0.22	
Uniform Delay, d1	49.9	30.2		44.7	23.5	18.3		51.1	40.4	45.4	41.0	
Progression Factor	0.88	1.37		0.95	0.88	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.9	4.5		0.3	1.0	0.5		4.6	5.1	5.5	0.3	
Delay (s)	50.8	45.7		42.7	21.7	18.9		55.7	45.5	50.9	41.3	
Level of Service	D	D		D	C	B		E	D	D	D	
Approach Delay (s)		46.1			23.6			48.0			48.4	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Scenario 1
Saturday Mid-Day

12: I-5 SB Ramps & Tualatin Sherwood Rd
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘	↑↑					↘	↗	↗↗
Volume (vph)	0	1553	520	195	1195	0	0	0	0	620	3	1003
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5					5.5	5.5	5.5
Lane Util. Factor		*0.75	1.00	1.00	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4150	1568	1787	3471					1681	1683	2760
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4150	1568	1787	3471					1681	1683	2760
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	1569	525	197	1207	0	0	0	0	626	3	1013
RTOR Reduction (vph)	0	0	253	0	0	0	0	0	0	0	0	35
Lane Group Flow (vph)	0	1569	272	197	1207	0	0	0	0	313	316	978
Confl. Bikes (#/hr)		1			2							
Heavy Vehicles (%)	0%	3%	3%	1%	4%	0%	0%	0%	0%	2%	20%	3%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4.5
Permitted Phases			2									
Actuated Green, G (s)		48.7	48.7	17.0	54.7					31.3	31.3	48.3
Effective Green, g (s)		49.2	49.2	17.5	55.2					31.8	31.8	45.3
Actuated g/C Ratio		0.43	0.43	0.15	0.48					0.28	0.28	0.39
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		6.1	6.1	2.3	6.1					2.3	2.3	
Lane Grp Cap (vph)		1775	670	271	1666					464	465	1087
v/s Ratio Prot		c0.38		c0.11	0.35					0.19	0.19	c0.35
v/s Ratio Perm			0.17									
v/c Ratio		0.88	0.41	0.73	0.72					0.67	0.68	0.90
Uniform Delay, d1		30.3	22.8	46.5	23.8					37.0	37.1	32.7
Progression Factor		0.62	0.43	0.87	0.68					1.00	1.00	1.00
Incremental Delay, d2		4.5	1.2	7.8	2.6					3.3	3.4	9.9
Delay (s)		23.3	10.9	48.1	18.7					40.3	40.4	42.6
Level of Service		C	B	D	B					D	D	D
Approach Delay (s)		20.2			22.8			0.0			41.8	
Approach LOS		C			C			A			D	

Intersection Summary		
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.88	
Actuated Cycle Length (s)	115.0	Sum of lost time (s) 16.5
Intersection Capacity Utilization	77.3%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

Scenario 1
Saturday Mid-Day

13: I-5 NB Ramps & Tualatin Sherwood Rd

2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑				
Volume (vph)	0	1205	968	0	685	685	700	5	220	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.5	5.5		6.0	6.0	5.5	5.5	5.5				
Lane Util. Factor		0.95	0.88		0.95	1.00	0.95	0.95	1.00				
Frbp, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00	0.98				
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85				
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00				
Satd. Flow (prot)		3574	2694		3574	1583	1618	1620	1559				
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00				
Satd. Flow (perm)		3574	2694		3574	1583	1618	1620	1559				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	1268	1019	0	721	721	737	5	232	0	0	0	
RTOR Reduction (vph)	0	0	383	0	0	279	0	0	24	0	0	0	
Lane Group Flow (vph)	0	1268	636	0	721	442	368	374	208	0	0	0	
Confl. Peds. (#/hr)			1	1			1		2	2		1	
Confl. Bikes (#/hr)		1			5					1			
Heavy Vehicles (%)	0%	1%	3%	0%	1%	2%	6%	20%	2%	0%	0%	0%	
Turn Type		NA	Perm		NA	Perm	Split	NA	Perm				
Protected Phases		2			6		8	8					
Permitted Phases			2			6			8				
Actuated Green, G (s)		70.5	70.5		70.0	70.0	32.5	32.5	32.5				
Effective Green, g (s)		71.0	71.0		70.5	70.5	33.0	33.0	33.0				
Actuated g/C Ratio		0.62	0.62		0.61	0.61	0.29	0.29	0.29				
Clearance Time (s)		6.0	6.0		6.5	6.5	6.0	6.0	6.0				
Vehicle Extension (s)		6.1	6.1		4.2	4.2	2.3	2.3	2.3				
Lane Grp Cap (vph)		2206	1663		2191	970	464	464	447				
v/s Ratio Prot		c0.35			0.20		0.23	c0.23					
v/s Ratio Perm			0.24			0.28			0.13				
v/c Ratio		0.57	0.38		0.33	0.46	0.79	0.81	0.47				
Uniform Delay, d1		13.0	11.0		10.8	11.9	37.8	38.0	33.8				
Progression Factor		1.36	2.54		1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2		0.7	0.4		0.4	1.5	8.6	9.5	0.4				
Delay (s)		18.4	28.4		11.2	13.5	46.5	47.5	34.2				
Level of Service		B	C		B	B	D	D	C				
Approach Delay (s)		22.8			12.3			44.0			0.0		
Approach LOS		C			B			D			A		
Intersection Summary													
HCM 2000 Control Delay			24.0		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.65										
Actuated Cycle Length (s)			115.0		Sum of lost time (s)				11.5				
Intersection Capacity Utilization			71.5%		ICU Level of Service				C				
Analysis Period (min)			15										
c Critical Lane Group													

Intersection

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	746	11	0	772	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	811	12	0	839	0	55

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	823
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	807
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	807
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	376	-	-	807	-
HCM Lane V/C Ratio	0.147	-	-	-	-
HCM Control Delay (s)	16.2	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.512	-	-	0	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 2
Weekday PM

3: SW Martinazzi Ave & SW Boones Fe
2014 Total Traffic



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	674	188	480	930	346	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1599	1787	1845	1770	1571
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1599	1787	1845	1770	1571
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	709	198	505	979	364	427
RTOR Reduction (vph)	0	67	0	0	0	34
Lane Group Flow (vph)	709	131	505	979	364	393
Confl. Peds. (#/hr)		7	7		7	8
Heavy Vehicles (%)	2%	1%	1%	3%	2%	1%
Turn Type	NA	Prot	Prot	NA	NA	pm+ov
Protected Phases	2	2	1	6	8	1
Permitted Phases					8	8
Actuated Green, G (s)	42.1	42.1	35.1	82.2	24.9	60.0
Effective Green, g (s)	42.6	42.6	35.6	82.7	25.4	61.0
Actuated g/C Ratio	0.36	0.36	0.30	0.71	0.22	0.52
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	677	581	543	1303	383	878
v/s Ratio Prot	c0.38	0.08	c0.28	0.53	c0.21	0.14
v/s Ratio Perm						0.11
v/c Ratio	1.05	0.23	0.93	0.75	0.95	0.45
Uniform Delay, d1	37.2	25.8	39.5	10.8	45.2	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	47.6	0.2	22.7	2.5	33.3	0.4
Delay (s)	84.8	26.0	62.3	13.3	78.5	17.9
Level of Service	F	C	E	B	E	B
Approach Delay (s)	72.0			29.9	45.8	
Approach LOS	E			C	D	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	117.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Scenario 2
Weekday PM

4: SW Martinazzi Ave/Martinazzi Ave
2014 Total Traffic

Intersection

Intersection Delay, s/veh 12.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	70	172	580	124	228	440
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	187	630	135	248	478

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1672	698	0
Stage 1	698	-	-
Stage 2	974	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	105	440	-
Stage 1	494	-	-
Stage 2	366	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	# 74	440	-
Mov Capacity-2 Maneuver	# 74	-	-
Stage 1	494	-	-
Stage 2	259	-	-

Approach	WB	NB	SB
HCM Control Delay, s	74	0	4

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	74	440	848	-
HCM Lane V/C Ratio	-	-	1.028	0.425	0.292	-
HCM Control Delay (s)	-	-	210.2	19.1	10.989	-
HCM Lane LOS			F	C	B	
HCM 95th %tile Q(veh)	-	-	5.474	2.08	1.219	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	40	80	85	664	460	50
Conflicting Peds, #/hr	26	16	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	44	88	93	730	505	55

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1475	564	586	0	-	0
Stage 1	559	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Follow-up Headway	3.5	3.3	2.2	-	-	-
Pot Capacity-1 Maneuver	141	529	999	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	122	515	995	-	-	-
Mov Capacity-2 Maneuver	122	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	349	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	35	1	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	995	-	248	-	-
HCM Lane V/C Ratio	0.094	-	0.532	-	-
HCM Control Delay (s)	8.993	-	34.9	-	-
HCM Lane LOS	A		D		
HCM 95th %tile Q(veh)	0.31	-	2.848	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	20	724	5	0	535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	787	5	0	582

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1081	790	0
Stage 1	790	-	-
Stage 2	291	-	-
Follow-up Headway	3.519	3.319	-
Pot Capacity-1 Maneuver	226	389	-
Stage 1	446	-	-
Stage 2	734	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	226	389	-
Mov Capacity-2 Maneuver	226	-	-
Stage 1	446	-	-
Stage 2	734	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	389	829	-
HCM Lane V/C Ratio	-	-	0.056	-	-
HCM Control Delay (s)	-	-	14.8	0	-
HCM Lane LOS			B	A	
HCM 95th %tile Q(veh)	-	-	0.177	0	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 2
Weekday PM

8: Martinazzi Ave & Nyberg St
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	10	100	420	55	335	25	364	20	0	525	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	1.00			0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.99			1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1805	1626		1698	1725	1532	1682	1863			3563	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.37	1.00			1.00	
Satd. Flow (perm)	1805	1626		1698	1725	1532	660	1863			3563	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	33	11	110	462	60	368	27	400	22	0	577	11
RTOR Reduction (vph)	0	97	0	0	0	269	0	3	0	0	2	0
Lane Group Flow (vph)	33	24	0	259	263	99	27	419	0	0	586	0
Confl. Peds. (#/hr)	10					10	6		19	19		6
Heavy Vehicles (%)	0%	0%	1%	1%	0%	2%	7%	1%	0%	0%	1%	0%
Turn Type	Split	NA		Split	NA	Perm	Perm	NA			NA	
Protected Phases	8	8		4	4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)	4.8	4.8		11.7	11.7	11.7	15.5	15.5			15.5	
Effective Green, g (s)	5.3	5.3		12.2	12.2	12.2	16.0	16.0			16.0	
Actuated g/C Ratio	0.12	0.12		0.27	0.27	0.27	0.35	0.35			0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5			4.5	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	5.0	5.0			5.0	
Lane Grp Cap (vph)	210	189		455	462	410	232	655			1252	
v/s Ratio Prot	c0.02	0.01		c0.15	0.15			c0.23			0.16	
v/s Ratio Perm						0.06	0.04					
v/c Ratio	0.16	0.13		0.57	0.57	0.24	0.12	0.64			0.47	
Uniform Delay, d1	18.1	18.0		14.4	14.4	13.0	10.0	12.3			11.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.2		1.3	1.3	0.2	0.5	2.9			0.6	
Delay (s)	18.3	18.2		15.7	15.7	13.2	10.4	15.3			12.0	
Level of Service	B	B		B	B	B	B	B			B	
Approach Delay (s)		18.3			14.7			15.0			12.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Intersection Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	30	0	695	83	0	115
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	34	0	790	94	0	131

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	884	0	447
Stage 1	-	-	837
Stage 2	-	-	0
Follow-up Headway	2.2	-	3.3
Pot Capacity-1 Maneuver	774	-	564
Stage 1	-	-	390
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	771	-	562
Mov Capacity-2 Maneuver	-	-	295
Stage 1	-	-	390
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	10	0	13

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	771	-	-	-	562
HCM Lane V/C Ratio	0.044	-	-	-	0.233
HCM Control Delay (s)	9.885	-	-	-	13.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.139	-	-	-	0.894

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 2
Weekday PM













10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	83	1930	40	230	1763	298	35	10	235	410	25	85	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0	4.5	5.0	5.0		
Lane Util. Factor	1.00	*0.75		0.97	0.91	1.00		1.00	1.00	0.97	1.00		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.96		1.00	1.00	1.00	0.98		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00		
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.88		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00		
Satd. Flow (prot)	1805	4100		3502	4988	1545		1787	1599	3502	1640		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00		
Satd. Flow (perm)	1805	4100		3502	4988	1545		1787	1599	3502	1640		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	85	1969	41	235	1799	304	36	10	240	418	26	87	
RTOR Reduction (vph)	0	1	0	0	0	155	0	0	0	0	73	0	
Lane Group Flow (vph)	85	2009	0	235	1799	149	0	46	240	418	40	0	
Confl. Peds. (#/hr)			2			8						15	
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	3%	0%	1%	0%	0%	0%	
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pt+ov	Split	NA		
Protected Phases	5	2		1	6		8	8	18	4	4		
Permitted Phases						6							
Actuated Green, G (s)	13.8	58.7		15.8	60.7	60.7		8.9	24.7	19.1	19.1		
Effective Green, g (s)	14.3	59.2		16.3	61.2	61.2		9.4	25.7	19.6	19.6		
Actuated g/C Ratio	0.11	0.47		0.13	0.49	0.49		0.08	0.21	0.16	0.16		
Clearance Time (s)	5.0	6.5		5.0	6.5	6.5		5.5		5.5	5.5		
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0		2.5		2.5	2.5		
Lane Grp Cap (vph)	206	1941		456	2442	756		134	328	549	257		
v/s Ratio Prot	0.05	c0.49		0.07	0.36			0.03	c0.15	c0.12	0.02		
v/s Ratio Perm						0.10							
v/c Ratio	0.41	1.04		0.52	0.74	0.20		0.34	0.73	0.76	0.15		
Uniform Delay, d1	51.4	32.9		50.7	25.5	18.0		54.9	46.4	50.5	45.5		
Progression Factor	0.89	0.56		1.03	0.84	0.95		1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.5	24.5		0.4	1.2	0.3		1.1	7.7	5.9	0.2		
Delay (s)	46.1	43.0		52.4	22.7	17.5		56.0	54.1	56.4	45.7		
Level of Service	D	D		D	C	B		E	D	E	D		
Approach Delay (s)		43.1			25.0			54.4			54.1		
Approach LOS		D			C			D			D		
Intersection Summary													
HCM 2000 Control Delay			36.8									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.91										
Actuated Cycle Length (s)			125.0									Sum of lost time (s)	20.5
Intersection Capacity Utilization			82.3%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

Scenario 2
Weekday PM













12: I-5 SB Ramps & Tualatin Sherwood Rd
2014 Total Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↖	↑↑					↖	↗	↗↗
Volume (vph)	0	1658	922	125	1128	0	0	0	0	660	5	1168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5					5.5	5.5	5.5
Lane Util. Factor		*0.75	1.00	1.00	0.95					0.95	0.95	0.88
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4150	1568	1787	3471					1681	1682	2760
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4150	1568	1787	3471					1681	1682	2760
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	1675	931	126	1139	0	0	0	0	667	5	1180
RTOR Reduction (vph)	0	0	481	0	0	0	0	0	0	0	0	39
Lane Group Flow (vph)	0	1675	450	126	1139	0	0	0	0	333	339	1141
Heavy Vehicles (%)	0%	3%	3%	1%	4%	0%	0%	0%	0%	2%	20%	3%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4 5
Permitted Phases			2									
Actuated Green, G (s)		55.7	55.7	11.2	50.9					40.1	40.1	62.1
Effective Green, g (s)		56.2	56.2	11.7	51.4					40.6	40.6	62.6
Actuated g/C Ratio		0.45	0.45	0.09	0.41					0.32	0.32	0.50
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		6.1	6.1	2.3	6.1					2.3	2.3	
Lane Grp Cap (vph)		1865	704	167	1427					545	546	1382
v/s Ratio Prot		c0.40		0.07	c0.33					0.20	0.20	c0.41
v/s Ratio Perm			0.29									
v/c Ratio		0.90	0.64	0.75	0.80					0.61	0.62	0.83
Uniform Delay, d1		31.8	26.6	55.2	32.3					35.5	35.7	26.5
Progression Factor		0.51	1.86	0.80	0.66					1.00	1.00	1.00
Incremental Delay, d2		3.2	1.8	15.2	4.4					1.6	1.8	4.0
Delay (s)		19.4	51.2	59.5	25.6					37.2	37.5	30.6
Level of Service		B	D	E	C					D	D	C
Approach Delay (s)		30.8			29.0			0.0			33.0	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			31.1		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			125.0		Sum of lost time (s)					16.5		
Intersection Capacity Utilization			96.2%		ICU Level of Service					F		
Analysis Period (min)			15									

c Critical Lane Group

Scenario 2
Weekday PM

13: I-5 NB Ramps & Tualatin Sherwood Rd
2014 Total Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑			
Volume (vph)	0	1233	1085	0	525	680	728	5	175	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		6.0	6.0	5.5	5.5	5.5			
Lane Util. Factor		0.95	0.88		0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes		1.00	1.00		1.00	0.95	1.00	1.00	0.96			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3574	2760		3574	1502	1618	1620	1512			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3574	2760		3574	1502	1618	1620	1512			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1298	1142	0	553	716	766	5	184	0	0	0
RTOR Reduction (vph)	0	0	384	0	0	275	0	0	22	0	0	0
Lane Group Flow (vph)	0	1298	758	0	553	441	383	388	162	0	0	0
Confl. Peds. (#/hr)						16			17			
Heavy Vehicles (%)	0%	1%	3%	0%	1%	2%	6%	20%	2%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			2			6			8			
Actuated Green, G (s)		77.0	77.0		76.5	76.5	36.0	36.0	36.0			
Effective Green, g (s)		77.5	77.5		77.0	77.0	36.5	36.5	36.5			
Actuated g/C Ratio		0.62	0.62		0.62	0.62	0.29	0.29	0.29			
Clearance Time (s)		6.0	6.0		6.5	6.5	6.0	6.0	6.0			
Vehicle Extension (s)		6.1	6.1		4.2	4.2	2.3	2.3	2.3			
Lane Grp Cap (vph)		2215	1711		2201	925	472	473	441			
v/s Ratio Prot		c0.36			0.15		0.24	c0.24				
v/s Ratio Perm			0.27			0.29			0.11			
v/c Ratio		0.59	0.44		0.25	0.48	0.81	0.82	0.37			
Uniform Delay, d1		14.2	12.4		10.9	13.0	41.1	41.2	35.1			
Progression Factor		0.68	0.95		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.7	0.5		0.3	1.8	9.9	10.6	0.3			
Delay (s)		10.4	12.3		11.2	14.8	50.9	51.8	35.4			
Level of Service		B	B		B	B	D	D	D			
Approach Delay (s)		11.3			13.2			48.3			0.0	
Approach LOS		B			B			D			A	
Intersection Summary												
HCM 2000 Control Delay			19.4				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			125.0				Sum of lost time (s)		11.5			
Intersection Capacity Utilization			73.6%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Intersection Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Vol, veh/h	1076	9	0	1415	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1170	10	0	1538	0	45

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1179
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	592
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	592
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	24

Minor Lane / Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	233	-	-	592	-
HCM Lane V/C Ratio	0.191	-	-	-	-
HCM Control Delay (s)	24.1	-	-	0	-
HCM Lane LOS	C			A	
HCM 95th %tile Q(veh)	0.689	-	-	0	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 2
Saturday Mid-Day

3: SW Martinazzi Ave & SW Boones Ferry Rd
2014 Total Traffic



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Volume (vph)	426	142	342	430	211	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
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	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1599	1787	1845	1770	1582
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1599	1787	1845	1770	1582
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	448	149	360	453	222	348
RTOR Reduction (vph)	0	103	0	0	0	87
Lane Group Flow (vph)	448	46	360	453	222	261
Confl. Peds. (#/hr)		11	11		1	3
Confl. Bikes (#/hr)	4		2	10	1	
Heavy Vehicles (%)	2%	1%	1%	3%	2%	1%
Turn Type	NA	Prot	Prot	NA	NA	pm+ov
Protected Phases	2	2	1	6	8	1
Permitted Phases					8	8
Actuated Green, G (s)	20.0	20.0	17.8	42.8	13.1	30.9
Effective Green, g (s)	20.5	20.5	18.3	43.3	13.6	31.9
Actuated g/C Ratio	0.31	0.31	0.28	0.66	0.21	0.48
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	579	497	496	1212	365	873
v/s Ratio Prot	c0.24	0.03	c0.20	0.25	c0.13	0.08
v/s Ratio Perm						0.08
v/c Ratio	0.77	0.09	0.73	0.37	0.61	0.30
Uniform Delay, d1	20.6	16.1	21.5	5.1	23.7	10.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	0.1	5.2	0.2	2.9	0.2
Delay (s)	27.0	16.2	26.8	5.3	26.6	10.4
Level of Service	C	B	C	A	C	B
Approach Delay (s)	24.3			14.8	16.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Intersection Delay, s/veh 8.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	94	147	395	129	214	265
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	160	429	140	233	288

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1252	499	0
Stage 1	499	-	-
Stage 2	753	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	190	572	-
Stage 1	610	-	-
Stage 2	465	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	146	572	-
Mov Capacity-2 Maneuver	146	-	-
Stage 1	610	-	-
Stage 2	357	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37	0	4

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	146	572	1002	-
HCM Lane V/C Ratio	-	-	0.7	0.279	0.232	-
HCM Control Delay (s)	-	-	73.1	13.7	9.676	-
HCM Lane LOS			F	B	A	
HCM 95th %tile Q(veh)	-	-	4.03	1.138	0.899	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	35	45	80	484	314	45
Conflicting Peds, #/hr	10	4	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	38	49	88	532	345	49

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1088	381	405	0	-	0
Stage 1	380	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Follow-up Headway	3.5	3.3	2.2	-	-	-
Pot Capacity-1 Maneuver	241	671	1165	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	219	665	1164	-	-	-
Mov Capacity-2 Maneuver	219	-	-	-	-	-
Stage 1	690	-	-	-	-	-
Stage 2	451	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	1	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1164	-	352	-	-
HCM Lane V/C Ratio	0.076	-	0.25	-	-
HCM Control Delay (s)	8.345	-	18.6	-	-
HCM Lane LOS	A		C		
HCM 95th %tile Q(veh)	0.245	-	0.97	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	20	549	0	0	364
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	597	0	0	396

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	795	597	0
Stage 1	597	-	-
Stage 2	198	-	-
Follow-up Headway	3.519	3.319	-
Pot Capacity-1 Maneuver	340	502	-
Stage 1	549	-	-
Stage 2	817	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	340	502	-
Mov Capacity-2 Maneuver	340	-	-
Stage 1	549	-	-
Stage 2	817	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	502	980	-
HCM Lane V/C Ratio	-	-	0.043	-	-
HCM Control Delay (s)	-	-	12.5	0	-
HCM Lane LOS			B	A	
HCM 95th %tile Q(veh)	-	-	0.135	0	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 2
Saturday Mid-Day

8: Martinazzi Ave & Nyberg St
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	5	65	313	35	235	25	304	30	0	354	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	1.00			0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.99			1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1805	1619		1698	1721	1543	1683	1851			3558	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.52	1.00			1.00	
Satd. Flow (perm)	1805	1619		1698	1721	1543	915	1851			3558	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	5	71	344	38	258	27	334	33	0	389	11
RTOR Reduction (vph)	0	65	0	0	0	198	0	5	0	0	3	0
Lane Group Flow (vph)	16	11	0	189	193	60	27	362	0	0	397	0
Confl. Peds. (#/hr)	2					2	3		16	16		3
Confl. Bikes (#/hr)						2						3
Heavy Vehicles (%)	0%	0%	1%	1%	0%	2%	7%	1%	0%	0%	1%	0%
Turn Type	Split	NA		Split	NA	Perm	Perm	NA			NA	
Protected Phases	8	8		4	4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)	3.1	3.1		9.9	9.9	9.9	13.8	13.8			13.8	
Effective Green, g (s)	3.6	3.6		10.4	10.4	10.4	14.3	14.3			14.3	
Actuated g/C Ratio	0.08	0.08		0.23	0.23	0.23	0.32	0.32			0.32	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	5.0	5.0			5.0	
Lane Grp Cap (vph)	145	130		394	399	358	292	590			1135	
v/s Ratio Prot	c0.01	0.01		0.11	c0.11			c0.20			0.11	
v/s Ratio Perm						0.04	0.03					
v/c Ratio	0.11	0.08		0.48	0.48	0.17	0.09	0.61			0.35	
Uniform Delay, d1	19.1	19.1		14.9	14.9	13.7	10.7	12.9			11.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.2		0.7	0.7	0.2	0.3	2.7			0.4	
Delay (s)	19.4	19.3		15.5	15.6	13.9	11.0	15.6			12.1	
Level of Service	B	B		B	B	B	B	B			B	
Approach Delay (s)		19.3			14.9			15.3			12.1	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.50	B
Actuated Cycle Length (s)	44.8	Sum of lost time (s)
Intersection Capacity Utilization	51.5%	16.5
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Intersection

Intersection Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Vol, veh/h	30	0	489	105	0	99
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	34	0	556	119	0	112

Major/Minor

	Major1	Major2	Minor2
Conflicting Flow All	675	0	342
Stage 1	-	-	615
Stage 2	-	-	0
Follow-up Headway	2.2	-	3.3
Pot Capacity-1 Maneuver	926	-	660
Stage 1	-	-	507
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	923	-	658
Mov Capacity-2 Maneuver	-	-	412
Stage 1	-	-	507
Stage 2	-	-	-

Approach

HCM Control Delay, s EB WB SW
9 0 12

Minor Lane / Major Mvmt

	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	923	-	-	-	658
HCM Lane V/C Ratio	0.037	-	-	-	0.171
HCM Control Delay (s)	9.05	-	-	-	11.6
HCM Lane LOS	A				B
HCM 95th %tile Q(veh)	0.115	-	-	-	0.613

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 2
Saturday Mid-Day

10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙↙	↑↑↑	↗		↑	↗	↙↙	↗	
Volume (vph)	119	1375	60	255	1540	398	55	25	250	443	40	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0	4.5	5.0	5.0	
Lane Util. Factor	1.00	*0.75		0.97	0.91	1.00		1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	4091		3502	4988	1565		1800	1599	3467	1659	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	4091		3502	4988	1565		1800	1599	3467	1659	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	121	1403	61	260	1571	406	56	26	255	452	41	121
RTOR Reduction (vph)	0	3	0	0	0	215	0	0	0	0	100	0
Lane Group Flow (vph)	121	1461	0	260	1571	191	0	82	255	452	62	0
Confl. Peds. (#/hr)							4					9
Confl. Bikes (#/hr)					1			1		1		
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	3%	0%	1%	1%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	18	4	4	
Permitted Phases						6						
Actuated Green, G (s)	11.0	47.7		17.0	53.7	53.7		8.6	25.6	19.2	19.2	
Effective Green, g (s)	11.5	48.2		17.5	54.2	54.2		9.1	26.6	19.7	19.7	
Actuated g/C Ratio	0.10	0.42		0.15	0.47	0.47		0.08	0.23	0.17	0.17	
Clearance Time (s)	5.0	6.5		5.0	6.5	6.5		5.5		5.5	5.5	
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	180	1714		532	2350	737		142	369	593	284	
v/s Ratio Prot	0.07	c0.36		0.07	c0.31			0.05	c0.16	c0.13	0.04	
v/s Ratio Perm						0.12						
v/c Ratio	0.67	0.85		0.49	0.67	0.26		0.58	0.69	0.76	0.22	
Uniform Delay, d1	49.9	30.2		44.7	23.5	18.3		51.1	40.4	45.4	41.0	
Progression Factor	0.88	1.37		0.95	0.88	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.9	4.5		0.3	1.0	0.5		4.6	5.1	5.5	0.3	
Delay (s)	50.8	45.7		42.7	21.7	18.9		55.7	45.5	50.9	41.3	
Level of Service	D	D		D	C	B		E	D	D	D	
Approach Delay (s)		46.1			23.6			48.0			48.4	
Approach LOS		D			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.79	D
Actuated Cycle Length (s)	115.0	Sum of lost time (s)
Intersection Capacity Utilization	74.1%	20.5
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Scenario 2
Saturday Mid-Day

12: I-5 SB Ramps & Tualatin Sherwood Rd
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘	↑↑					↘	↗	↗↗
Volume (vph)	0	1553	520	195	1195	0	0	0	0	620	5	1003
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5					5.5	5.5	5.5
Lane Util. Factor		*0.75	1.00	1.00	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4150	1568	1787	3471					1681	1682	2760
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4150	1568	1787	3471					1681	1682	2760
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	1569	525	197	1207	0	0	0	0	626	5	1013
RTOR Reduction (vph)	0	0	253	0	0	0	0	0	0	0	0	35
Lane Group Flow (vph)	0	1569	272	197	1207	0	0	0	0	313	318	978
Confl. Bikes (#/hr)		1			2							
Heavy Vehicles (%)	0%	3%	3%	1%	4%	0%	0%	0%	0%	2%	20%	3%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4.5
Permitted Phases			2									
Actuated Green, G (s)		48.7	48.7	17.0	54.7					31.3	31.3	48.3
Effective Green, g (s)		49.2	49.2	17.5	55.2					31.8	31.8	45.3
Actuated g/C Ratio		0.43	0.43	0.15	0.48					0.28	0.28	0.39
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		6.1	6.1	2.3	6.1					2.3	2.3	
Lane Grp Cap (vph)		1775	670	271	1666					464	465	1087
v/s Ratio Prot		c0.38		c0.11	0.35					0.19	0.19	c0.35
v/s Ratio Perm			0.17									
v/c Ratio		0.88	0.41	0.73	0.72					0.67	0.68	0.90
Uniform Delay, d1		30.3	22.8	46.5	23.8					37.0	37.1	32.7
Progression Factor		0.62	0.43	0.87	0.68					1.00	1.00	1.00
Incremental Delay, d2		4.5	1.2	7.8	2.6					3.3	3.6	9.9
Delay (s)		23.3	10.9	48.1	18.7					40.3	40.7	42.6
Level of Service		C	B	D	B					D	D	D
Approach Delay (s)		20.2			22.8			0.0			41.8	
Approach LOS		C			C			A			D	

Intersection Summary		
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.88	
Actuated Cycle Length (s)	115.0	Sum of lost time (s) 16.5
Intersection Capacity Utilization	77.3%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

Scenario 2
Saturday Mid-Day

13: I-5 NB Ramps & Tualatin Sherwood Rd

2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑			
Volume (vph)	0	1205	968	0	685	665	700	5	220	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		6.0	6.0	5.5	5.5	5.5			
Lane Util. Factor		0.95	0.88		0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00	0.98			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3574	2694		3574	1583	1618	1620	1559			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3574	2694		3574	1583	1618	1620	1559			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1268	1019	0	721	700	737	5	232	0	0	0
RTOR Reduction (vph)	0	0	383	0	0	271	0	0	24	0	0	0
Lane Group Flow (vph)	0	1268	636	0	721	429	368	374	208	0	0	0
Confl. Peds. (#/hr)			1	1			1		2	2		1
Confl. Bikes (#/hr)		1			5					1		
Heavy Vehicles (%)	0%	1%	3%	0%	1%	2%	6%	20%	2%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			2			6			8			
Actuated Green, G (s)		70.5	70.5		70.0	70.0	32.5	32.5	32.5			
Effective Green, g (s)		71.0	71.0		70.5	70.5	33.0	33.0	33.0			
Actuated g/C Ratio		0.62	0.62		0.61	0.61	0.29	0.29	0.29			
Clearance Time (s)		6.0	6.0		6.5	6.5	6.0	6.0	6.0			
Vehicle Extension (s)		6.1	6.1		4.2	4.2	2.3	2.3	2.3			
Lane Grp Cap (vph)		2206	1663		2191	970	464	464	447			
v/s Ratio Prot		c0.35			0.20		0.23	c0.23				
v/s Ratio Perm			0.24			0.27			0.13			
v/c Ratio		0.57	0.38		0.33	0.44	0.79	0.81	0.47			
Uniform Delay, d1		13.0	11.0		10.8	11.8	37.8	38.0	33.8			
Progression Factor		1.36	2.54		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.7	0.4		0.4	1.5	8.6	9.5	0.4			
Delay (s)		18.4	28.4		11.2	13.3	46.5	47.5	34.2			
Level of Service		B	C		B	B	D	D	C			
Approach Delay (s)		22.8			12.2			44.0			0.0	
Approach LOS		C			B			D			A	
Intersection Summary												
HCM 2000 Control Delay			24.0				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			115.0			Sum of lost time (s)		11.5				
Intersection Capacity Utilization			70.3%			ICU Level of Service		C				
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	746	11	0	772	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	811	12	0	839	0	55

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	823
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	807
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	807
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16

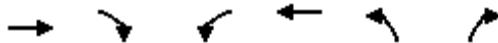
Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	376	-	-	807	-
HCM Lane V/C Ratio	0.147	-	-	-	-
HCM Control Delay (s)	16.2	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.512	-	-	0	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 3
Weekday PM

3: SW Martinazzi Ave & SW Boones Fe
2014 Total Traffic



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	774	88	480	930	370	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1599	1787	1845	1770	1571
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1599	1787	1845	1770	1571
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	815	93	505	979	389	434
RTOR Reduction (vph)	0	27	0	0	0	22
Lane Group Flow (vph)	815	66	505	979	389	412
Confl. Peds. (#/hr)		7	7		7	8
Heavy Vehicles (%)	2%	1%	1%	3%	2%	1%
Turn Type	NA	Prot	Prot	NA	NA	pm+ov
Protected Phases	2	2	1	6	8	1
Permitted Phases					8	8
Actuated Green, G (s)	42.1	42.1	35.1	82.2	25.0	60.1
Effective Green, g (s)	42.6	42.6	35.6	82.7	25.5	61.1
Actuated g/C Ratio	0.36	0.36	0.30	0.71	0.22	0.52
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	677	581	542	1301	385	879
v/s Ratio Prot	c0.44	0.04	c0.28	0.53	c0.22	0.14
v/s Ratio Perm						0.12
v/c Ratio	1.20	0.11	0.93	0.75	1.01	0.47
Uniform Delay, d1	37.3	24.8	39.6	10.8	45.9	17.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	105.4	0.1	23.0	2.5	48.5	0.4
Delay (s)	142.7	24.8	62.6	13.3	94.4	18.2
Level of Service	F	C	E	B	F	B
Approach Delay (s)	130.6			30.1	54.2	
Approach LOS	F			C	D	

Intersection Summary

HCM 2000 Control Delay	64.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	117.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Scenario 3
Weekday PM

4: SW Martinazzi Ave/Martinazzi Ave
2014 Total Traffic

Intersection

Intersection Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	95	687	40	45	523
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	103	747	43	49	568

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1434	768	0
Stage 1	768	-	-
Stage 2	666	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	147	402	-
Stage 1	458	-	-
Stage 2	511	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	138	402	-
Mov Capacity-2 Maneuver	138	-	-
Stage 1	458	-	-
Stage 2	481	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22	0	1

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	138	402	830	-
HCM Lane V/C Ratio	-	-	0.236	0.257	0.059	-
HCM Control Delay (s)	-	-	39	17	9.609	-
HCM Lane LOS			E	C	A	
HCM 95th %tile Q(veh)	-	-	0.871	1.01	0.188	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 3
Weekday PM

5: Martinazzi Ave & Seneca St
2014 Total Traffic

Intersection

Intersection Delay, s/veh 3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	40	80	85	687	503	50
Conflicting Peds, #/hr	26	16	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	44	88	93	755	553	55

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1548	611	634	0	-	0
Stage 1	606	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Follow-up Headway	3.5	3.3	2.2	-	-	-
Pot Capacity-1 Maneuver	127	497	959	-	-	-
Stage 1	548	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	110	484	955	-	-	-
Mov Capacity-2 Maneuver	110	-	-	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	337	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41	1	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	955	-	227	-	-
HCM Lane V/C Ratio	0.098	-	0.581	-	-
HCM Control Delay (s)	9.178	-	40.7	-	-
HCM Lane LOS	A		E		
HCM 95th %tile Q(veh)	0.324	-	3.263	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 3
Weekday PM

8: Martinazzi Ave & Nyberg St
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	10	100	443	55	462	25	275	55	0	568	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	1.00			0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.98			1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1805	1626		1698	1724	1533	1682	1824			3564	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.33	1.00			1.00	
Satd. Flow (perm)	1805	1626		1698	1724	1533	588	1824			3564	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	33	11	110	487	60	508	27	302	60	0	624	11
RTOR Reduction (vph)	0	97	0	0	0	345	0	9	0	0	1	0
Lane Group Flow (vph)	33	24	0	273	274	163	27	353	0	0	634	0
Confl. Peds. (#/hr)	10					10	6		19	19		6
Heavy Vehicles (%)	0%	0%	1%	1%	0%	2%	7%	1%	0%	0%	1%	0%
Turn Type	Split	NA		Split	NA	Perm	Perm	NA			NA	
Protected Phases	8	8		4	4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)	4.8	4.8		11.9	11.9	11.9	14.0	14.0			14.0	
Effective Green, g (s)	5.3	5.3		12.4	12.4	12.4	14.5	14.5			14.5	
Actuated g/C Ratio	0.12	0.12		0.28	0.28	0.28	0.33	0.33			0.33	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5			4.5	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	5.0	5.0			5.0	
Lane Grp Cap (vph)	216	194		476	483	430	192	598			1169	
v/s Ratio Prot	c0.02	0.01		c0.16	0.16			c0.19			0.18	
v/s Ratio Perm						0.11	0.05					
v/c Ratio	0.15	0.12		0.57	0.57	0.38	0.14	0.59			0.54	
Uniform Delay, d1	17.4	17.4		13.6	13.6	12.8	10.5	12.4			12.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.2		1.4	1.2	0.4	0.7	2.4			0.9	
Delay (s)	17.7	17.6		15.0	14.8	13.2	11.2	14.7			13.0	
Level of Service	B	B		B	B	B	B	B			B	
Approach Delay (s)		17.6			14.1			14.5			13.0	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	B
Actuated Cycle Length (s)	44.2	Sum of lost time (s)
Intersection Capacity Utilization	64.5%	12.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Intersection

Intersection Delay, s/veh 3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	110	0	810	83	0	150
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	125	0	920	94	0	170

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1015	0	968
Stage 1	-	-	968
Stage 2	-	-	0
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	691	-	255
Stage 1	-	-	334
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	688	-	209
Mov Capacity-2 Maneuver	-	-	209
Stage 1	-	-	334
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	11	0	16

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	688	-	-	-	510
HCM Lane V/C Ratio	0.182	-	-	-	0.334
HCM Control Delay (s)	11.391	-	-	-	15.6
HCM Lane LOS	B				C
HCM 95th %tile Q(veh)	0.66	-	-	-	1.456





























Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 3
Weekday PM













10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

2014 Total Traffic

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  		 	  					 			
Volume (vph)	175	1930	40	230	1763	330	35	10	235	395	25	200	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0	4.5	5.0	5.0		
Lane Util. Factor	1.00	*0.75		0.97	0.91	1.00		1.00	1.00	0.97	1.00		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.96		1.00	1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00		
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.87		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00		
Satd. Flow (prot)	1805	4100		3502	4988	1545		1787	1599	3502	1602		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00		
Satd. Flow (perm)	1805	4100		3502	4988	1545		1787	1599	3502	1602		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	179	1969	41	235	1799	337	36	10	240	403	26	204	
RTOR Reduction (vph)	0	1	0	0	0	172	0	0	0	0	173	0	
Lane Group Flow (vph)	179	2009	0	235	1799	165	0	46	240	403	57	0	
Confl. Peds. (#/hr)			2			8						15	
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	3%	0%	1%	0%	0%	0%	
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pt+ov	Split	NA		
Protected Phases	5	2		1	6		8	8	18	4	4		
Permitted Phases						6							
Actuated Green, G (s)	14.3	58.7		16.3	60.7	60.7		8.8	25.1	18.7	18.7		
Effective Green, g (s)	14.8	59.2		16.8	61.2	61.2		9.3	26.1	19.2	19.2		
Actuated g/C Ratio	0.12	0.47		0.13	0.49	0.49		0.07	0.21	0.15	0.15		
Clearance Time (s)	5.0	6.5		5.0	6.5	6.5		5.5		5.5	5.5		
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0		2.5		2.5	2.5		
Lane Grp Cap (vph)	213	1941		470	2442	756		132	333	537	246		
v/s Ratio Prot	c0.10	c0.49		0.07	0.36			0.03	c0.15	c0.12	0.04		
v/s Ratio Perm						0.11							
v/c Ratio	0.84	1.04		0.50	0.74	0.22		0.35	0.72	0.75	0.23		
Uniform Delay, d1	53.9	32.9		50.2	25.5	18.2		55.0	46.1	50.6	46.4		
Progression Factor	0.91	0.57		1.03	0.84	0.95		1.00	1.00	1.00	1.00		
Incremental Delay, d2	14.3	24.9		0.3	1.2	0.4		1.2	7.0	5.6	0.4		
Delay (s)	63.3	43.8		51.9	22.6	17.6		56.1	53.1	56.2	46.8		
Level of Service	E	D		D	C	B		E	D	E	D		
Approach Delay (s)		45.4			24.8			53.6			52.8		
Approach LOS		D			C			D			D		
Intersection Summary													
HCM 2000 Control Delay			37.8									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.91										
Actuated Cycle Length (s)			125.0									Sum of lost time (s)	20.5
Intersection Capacity Utilization			85.4%									ICU Level of Service	E
Analysis Period (min)			15										
c	Critical Lane Group												

Scenario 3
Weekday PM

12: I-5 SB Ramps & Tualatin Sherwood Rd
2014 Total Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↖	↑↑					↖	↗	↗↗
Volume (vph)	0	1643	922	125	1128	0	0	0	0	660	5	1200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5					5.5	5.5	5.5
Lane Util. Factor		*0.75	1.00	1.00	0.95					0.95	0.95	0.88
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4150	1568	1787	3471					1681	1682	2760
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4150	1568	1787	3471					1681	1682	2760
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	1660	931	126	1139	0	0	0	0	667	5	1212
RTOR Reduction (vph)	0	0	485	0	0	0	0	0	0	0	0	39
Lane Group Flow (vph)	0	1660	446	126	1139	0	0	0	0	333	339	1173
Heavy Vehicles (%)	0%	3%	3%	1%	4%	0%	0%	0%	0%	2%	20%	3%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4 5
Permitted Phases			2									
Actuated Green, G (s)		55.1	55.1	11.2	50.3					40.7	40.7	62.7
Effective Green, g (s)		55.6	55.6	11.7	50.8					41.2	41.2	63.2
Actuated g/C Ratio		0.44	0.44	0.09	0.41					0.33	0.33	0.51
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		6.1	6.1	2.3	6.1					2.3	2.3	
Lane Grp Cap (vph)		1845	697	167	1410					554	554	1395
v/s Ratio Prot		c0.40		0.07	c0.33					0.20	0.20	c0.43
v/s Ratio Perm			0.28									
v/c Ratio		0.90	0.64	0.75	0.81					0.60	0.61	0.84
Uniform Delay, d1		32.1	26.9	55.2	32.8					35.0	35.2	26.6
Progression Factor		0.51	1.91	0.80	0.67					1.00	1.00	1.00
Incremental Delay, d2		3.3	1.8	15.2	4.7					1.4	1.6	4.6
Delay (s)		19.6	53.2	59.3	26.5					36.5	36.8	31.2
Level of Service		B	D	E	C					D	D	C
Approach Delay (s)		31.6			29.8			0.0			33.1	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			31.7		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			125.0		Sum of lost time (s)					16.5		
Intersection Capacity Utilization			96.2%		ICU Level of Service					F		
Analysis Period (min)			15									
c Critical Lane Group												

Scenario 3
Weekday PM

13: I-5 NB Ramps & Tualatin Sherwood Rd
2014 Total Traffic

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑			
Volume (vph)	0	1225	1078	0	525	680	728	5	175	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		6.0	6.0	5.5	5.5	5.5			
Lane Util. Factor		0.95	0.88		0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes		1.00	1.00		1.00	0.95	1.00	1.00	0.96			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3574	2760		3574	1502	1618	1620	1512			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3574	2760		3574	1502	1618	1620	1512			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1289	1135	0	553	716	766	5	184	0	0	0
RTOR Reduction (vph)	0	0	385	0	0	275	0	0	22	0	0	0
Lane Group Flow (vph)	0	1289	750	0	553	441	383	388	162	0	0	0
Confl. Peds. (#/hr)						16			17			
Heavy Vehicles (%)	0%	1%	3%	0%	1%	2%	6%	20%	2%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			2			6			8			
Actuated Green, G (s)		77.0	77.0		76.5	76.5	36.0	36.0	36.0			
Effective Green, g (s)		77.5	77.5		77.0	77.0	36.5	36.5	36.5			
Actuated g/C Ratio		0.62	0.62		0.62	0.62	0.29	0.29	0.29			
Clearance Time (s)		6.0	6.0		6.5	6.5	6.0	6.0	6.0			
Vehicle Extension (s)		6.1	6.1		4.2	4.2	2.3	2.3	2.3			
Lane Grp Cap (vph)		2215	1711		2201	925	472	473	441			
v/s Ratio Prot		c0.36			0.15		0.24	c0.24				
v/s Ratio Perm			0.27			0.29			0.11			
v/c Ratio		0.58	0.44		0.25	0.48	0.81	0.82	0.37			
Uniform Delay, d1		14.1	12.4		10.9	13.0	41.1	41.2	35.1			
Progression Factor		0.69	0.97		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.7	0.5		0.3	1.8	9.9	10.6	0.3			
Delay (s)		10.4	12.6		11.2	14.8	50.9	51.8	35.4			
Level of Service		B	B		B	B	D	D	D			
Approach Delay (s)		11.4			13.2			48.3			0.0	
Approach LOS		B			B			D			A	
Intersection Summary												
HCM 2000 Control Delay			19.5				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			125.0				Sum of lost time (s)		11.5			
Intersection Capacity Utilization			73.6%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Intersection Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Vol, veh/h	1069	122	0	1415	0	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1162	133	0	1538	0	47

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1295
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	535
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	535
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	26

Minor Lane / Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	216	-	-	535	-
HCM Lane V/C Ratio	0.216	-	-	-	-
HCM Control Delay (s)	26.2	-	-	0	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.798	-	-	0	-

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 3
Saturday Mid-Day

3: SW Martinazzi Ave & SW Boones Ferry Rd
2014 Total Traffic



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Volume (vph)	503	102	343	430	222	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
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	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1599	1787	1845	1770	1582
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1599	1787	1845	1770	1582
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	529	107	361	453	234	333
RTOR Reduction (vph)	0	60	0	0	0	64
Lane Group Flow (vph)	529	47	361	453	234	269
Confl. Peds. (#/hr)		11	11		1	3
Confl. Bikes (#/hr)	4		2	10	1	
Heavy Vehicles (%)	2%	1%	1%	3%	2%	1%
Turn Type	NA	Prot	Prot	NA	NA	pm+ov
Protected Phases	2	2	1	6	8	1
Permitted Phases					8	8
Actuated Green, G (s)	24.3	24.3	18.9	48.2	14.2	33.1
Effective Green, g (s)	24.8	24.8	19.4	48.7	14.7	34.1
Actuated g/C Ratio	0.34	0.34	0.27	0.67	0.20	0.47
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	638	547	478	1241	359	843
v/s Ratio Prot	c0.28	0.03	c0.20	0.25	c0.13	0.09
v/s Ratio Perm						0.08
v/c Ratio	0.83	0.09	0.76	0.37	0.65	0.32
Uniform Delay, d1	21.9	16.1	24.3	5.1	26.5	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.8	0.1	6.7	0.2	4.2	0.2
Delay (s)	30.6	16.2	31.0	5.3	30.7	12.1
Level of Service	C	B	C	A	C	B
Approach Delay (s)	28.2			16.7	19.8	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Intersection Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	25	45	493	30	50	390
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	49	536	33	54	424

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1085	552	0
Stage 1	552	-	-
Stage 2	533	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	240	533	-
Stage 1	577	-	-
Stage 2	588	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	227	533	-
Mov Capacity-2 Maneuver	227	-	-
Stage 1	577	-	-
Stage 2	556	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	1

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	227	533	1004	-
HCM Lane V/C Ratio	-	-	0.12	0.092	0.054	-
HCM Control Delay (s)	-	-	23	12.4	8.791	-
HCM Lane LOS			C	B	A	
HCM 95th %tile Q(veh)	-	-	0.402	0.302	0.171	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	35	45	80	483	370	45
Conflicting Peds, #/hr	10	4	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	38	49	88	531	407	49

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1148	442	466	0	-	0
Stage 1	441	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Follow-up Headway	3.5	3.3	2.2	-	-	-
Pot Capacity-1 Maneuver	222	620	1106	-	-	-
Stage 1	653	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	201	614	1105	-	-	-
Mov Capacity-2 Maneuver	201	-	-	-	-	-
Stage 1	648	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20	1	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1105	-	323	-	-
HCM Lane V/C Ratio	0.08	-	0.272	-	-
HCM Control Delay (s)	8.539	-	20.3	-	-
HCM Lane LOS	A		C		
HCM 95th %tile Q(veh)	0.259	-	1.082	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 3
Saturday Mid-Day

8: Martinazzi Ave & Nyberg St
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	5	65	350	35	353	25	195	70	0	410	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	1.00			0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.96			1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1805	1619		1698	1720	1543	1684	1792			3560	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.49	1.00			1.00	
Satd. Flow (perm)	1805	1619		1698	1720	1543	862	1792			3560	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	5	71	385	38	388	27	214	77	0	451	11
RTOR Reduction (vph)	0	65	0	0	0	293	0	18	0	0	2	0
Lane Group Flow (vph)	16	11	0	212	211	95	27	273	0	0	460	0
Confl. Peds. (#/hr)	2					2	3		16	16		3
Confl. Bikes (#/hr)						2						3
Heavy Vehicles (%)	0%	0%	1%	1%	0%	2%	7%	1%	0%	0%	1%	0%
Turn Type	Split	NA		Split	NA	Perm	Perm	NA			NA	
Protected Phases	8	8		4	4			6				2
Permitted Phases						4	6					
Actuated Green, G (s)	3.1	3.1		10.2	10.2	10.2	12.5	12.5			12.5	
Effective Green, g (s)	3.6	3.6		10.7	10.7	10.7	13.0	13.0			13.0	
Actuated g/C Ratio	0.08	0.08		0.24	0.24	0.24	0.30	0.30			0.30	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	5.0	5.0			5.0	
Lane Grp Cap (vph)	148	133		414	420	376	255	531			1056	
v/s Ratio Prot	c0.01	0.01		c0.12	0.12			c0.15			0.13	
v/s Ratio Perm						0.06	0.03					
v/c Ratio	0.11	0.08		0.51	0.50	0.25	0.11	0.51			0.44	
Uniform Delay, d1	18.6	18.6		14.3	14.3	13.3	11.2	12.8			12.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.2		0.8	0.7	0.3	0.4	1.7			0.6	
Delay (s)	18.8	18.8		15.1	14.9	13.6	11.6	14.5			13.0	
Level of Service	B	B		B	B	B	B	B			B	
Approach Delay (s)		18.8			14.3			14.2			13.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	43.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Intersection Delay, s/veh 2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	70	0	614	105	0	129
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	80	0	698	119	0	147

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	817	0	413
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	2.2	-	3.3
Pot Capacity-1 Maneuver	820	-	594
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	817	-	592
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	10	0	13

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	817	-	-	-	592
HCM Lane V/C Ratio	0.097	-	-	-	0.248
HCM Control Delay (s)	9.881	-	-	-	13.1
HCM Lane LOS	A				B
HCM 95th %tile Q(veh)	0.322	-	-	-	0.97

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Scenario 3
Saturday Mid-Day

10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

2014 Total Traffic















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘↘	↑↑↑	↗		↗	↗	↘↘	↗	
Volume (vph)	275	1375	60	255	1540	398	55	25	250	443	40	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0	4.5	5.0	5.0	
Lane Util. Factor	1.00	*0.75		0.97	0.91	1.00		1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	4091		3502	4988	1565		1800	1599	3467	1623	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	4091		3502	4988	1565		1800	1599	3467	1623	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	281	1403	61	260	1571	406	56	26	255	452	41	249
RTOR Reduction (vph)	0	3	0	0	0	249	0	0	0	0	206	0
Lane Group Flow (vph)	281	1461	0	260	1571	157	0	82	255	452	84	0
Confl. Peds. (#/hr)							4					9
Confl. Bikes (#/hr)					1			1		1		
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	3%	0%	1%	1%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	18	4	4	
Permitted Phases						6						
Actuated Green, G (s)	20.7	47.7		17.0	44.0	44.0		8.6	25.6	19.2	19.2	
Effective Green, g (s)	21.2	48.2		17.5	44.5	44.5		9.1	26.6	19.7	19.7	
Actuated g/C Ratio	0.18	0.42		0.15	0.39	0.39		0.08	0.23	0.17	0.17	
Clearance Time (s)	5.0	6.5		5.0	6.5	6.5		5.5		5.5	5.5	
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	332	1714		532	1930	605		142	369	593	278	
v/s Ratio Prot	0.16	c0.36		0.07	c0.31			0.05	c0.16	c0.13	0.05	
v/s Ratio Perm						0.10						
v/c Ratio	0.85	0.85		0.49	0.81	0.26		0.58	0.69	0.76	0.30	
Uniform Delay, d1	45.3	30.2		44.7	31.5	24.0		51.1	40.4	45.4	41.6	
Progression Factor	0.91	1.25		0.95	0.91	0.97		1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.1	4.1		0.3	2.5	0.7		4.6	5.1	5.5	0.4	
Delay (s)	54.6	41.9		42.7	31.2	24.0		55.7	45.5	50.9	42.1	
Level of Service	D	D		D	C	C		E	D	D	D	
Approach Delay (s)		43.9			31.3			48.0			47.5	
Approach LOS		D			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.82	D
Actuated Cycle Length (s)	115.0	Sum of lost time (s)
Intersection Capacity Utilization	86.6%	20.5
Analysis Period (min)	15	ICU Level of Service
		E

c Critical Lane Group

Scenario 3
Saturday Mid-Day

12: I-5 SB Ramps & Tualatin Sherwood Rd
2014 Total Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑↑
Volume (vph)	0	1554	519	195	1195	0	0	0	0	620	5	1003
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5					5.5	5.5	5.5
Lane Util. Factor		*0.75	1.00	1.00	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4150	1568	1787	3471					1681	1682	2760
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4150	1568	1787	3471					1681	1682	2760
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	1570	524	197	1207	0	0	0	0	626	5	1013
RTOR Reduction (vph)	0	0	252	0	0	0	0	0	0	0	0	35
Lane Group Flow (vph)	0	1570	272	197	1207	0	0	0	0	313	318	978
Confl. Bikes (#/hr)		1			2							
Heavy Vehicles (%)	0%	3%	3%	1%	4%	0%	0%	0%	0%	2%	20%	3%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4.5
Permitted Phases			2									
Actuated Green, G (s)		48.7	48.7	17.0	54.7					31.3	31.3	48.3
Effective Green, g (s)		49.2	49.2	17.5	55.2					31.8	31.8	45.3
Actuated g/C Ratio		0.43	0.43	0.15	0.48					0.28	0.28	0.39
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		6.1	6.1	2.3	6.1					2.3	2.3	
Lane Grp Cap (vph)		1775	670	271	1666					464	465	1087
v/s Ratio Prot		c0.38		c0.11	0.35					0.19	0.19	c0.35
v/s Ratio Perm			0.17									
v/c Ratio		0.88	0.41	0.73	0.72					0.67	0.68	0.90
Uniform Delay, d1		30.3	22.8	46.5	23.8					37.0	37.1	32.7
Progression Factor		0.63	0.42	0.87	0.68					1.00	1.00	1.00
Incremental Delay, d2		4.5	1.2	7.8	2.6					3.3	3.6	9.9
Delay (s)		23.5	10.8	48.1	18.7					40.3	40.7	42.6
Level of Service		C	B	D	B					D	D	D
Approach Delay (s)		20.3			22.8			0.0			41.8	
Approach LOS		C			C			A			D	
Intersection Summary												
HCM 2000 Control Delay			27.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			115.0			Sum of lost time (s)				16.5		
Intersection Capacity Utilization			77.3%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Scenario 3
Saturday Mid-Day

13: I-5 NB Ramps & Tualatin Sherwood Rd
2014 Total Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑			
Volume (vph)	0	1205	969	0	685	665	700	5	220	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		6.0	6.0	5.5	5.5	5.5			
Lane Util. Factor		0.95	0.88		0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00	0.98			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3574	2694		3574	1583	1618	1620	1559			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3574	2694		3574	1583	1618	1620	1559			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1268	1020	0	721	700	737	5	232	0	0	0
RTOR Reduction (vph)	0	0	383	0	0	271	0	0	24	0	0	0
Lane Group Flow (vph)	0	1268	637	0	721	429	368	374	208	0	0	0
Confl. Peds. (#/hr)			1	1			1		2	2		1
Confl. Bikes (#/hr)		1			5					1		
Heavy Vehicles (%)	0%	1%	3%	0%	1%	2%	6%	20%	2%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			2			6			8			
Actuated Green, G (s)		70.5	70.5		70.0	70.0	32.5	32.5	32.5			
Effective Green, g (s)		71.0	71.0		70.5	70.5	33.0	33.0	33.0			
Actuated g/C Ratio		0.62	0.62		0.61	0.61	0.29	0.29	0.29			
Clearance Time (s)		6.0	6.0		6.5	6.5	6.0	6.0	6.0			
Vehicle Extension (s)		6.1	6.1		4.2	4.2	2.3	2.3	2.3			
Lane Grp Cap (vph)		2206	1663		2191	970	464	464	447			
v/s Ratio Prot		c0.35			0.20		0.23	c0.23				
v/s Ratio Perm			0.24			0.27			0.13			
v/c Ratio		0.57	0.38		0.33	0.44	0.79	0.81	0.47			
Uniform Delay, d1		13.0	11.0		10.8	11.8	37.8	38.0	33.8			
Progression Factor		1.36	2.54		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.7	0.4		0.4	1.5	8.6	9.5	0.4			
Delay (s)		18.3	28.4		11.2	13.3	46.5	47.5	34.2			
Level of Service		B	C		B	B	D	D	C			
Approach Delay (s)		22.8			12.2			44.0			0.0	
Approach LOS		C			B			D			A	

Intersection Summary		
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.65	
Actuated Cycle Length (s)	115.0	Sum of lost time (s) 11.5
Intersection Capacity Utilization	70.3%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Vol, veh/h	731	88	0	773	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	795	96	0	840	0	95

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	890
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	761
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	761
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	18

Minor Lane / Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	364	-	-	761	-
HCM Lane V/C Ratio	0.26	-	-	-	-
HCM Control Delay (s)	18.3	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.022	-	-	0	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined



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**ATTACHMENT E:
SIMTRAFFIC REPORTS**

Intersection: 3: SW Martinazzi Ave & SW Boones Fe

Movement	EB	EB	B29	WB	WB	NB	NB
Directions Served	T	R	T	L	T	L	R
Maximum Queue (ft)	676	205	665	292	289	350	422
Average Queue (ft)	646	141	518	280	181	294	261
95th Queue (ft)	690	264	871	308	363	393	478
Link Distance (ft)	573		649	199	199		363
Upstream Blk Time (%)	58		12	67	11	1	9
Queuing Penalty (veh)	430		92	473	76	0	64
Storage Bay Dist (ft)		180				325	
Storage Blk Time (%)	56	6				13	5
Queuing Penalty (veh)	106	38				54	17

Intersection: 5: Martinazzi Ave & Seneca St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	LT	R	L	TR	L	TR
Maximum Queue (ft)	80	119	182	206	175	258	175	378
Average Queue (ft)	28	40	64	73	84	210	122	225
95th Queue (ft)	65	87	141	151	191	315	208	431
Link Distance (ft)	729	729	378	378		236		363
Upstream Blk Time (%)						13		9
Queuing Penalty (veh)						98		62
Storage Bay Dist (ft)					150		150	
Storage Blk Time (%)					0	26	3	21
Queuing Penalty (veh)					0	22	12	47

Intersection: 8: Martinazzi Ave & Nyberg St

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	L	TR	T	TR
Maximum Queue (ft)	76	336	297	295	312	60	302	269	272
Average Queue (ft)	21	136	185	198	171	8	196	183	188
95th Queue (ft)	54	328	327	330	318	33	345	302	306
Link Distance (ft)	712	712	227	227	227	285	285	236	236
Upstream Blk Time (%)			19	25	15		3	22	21
Queuing Penalty (veh)			52	70	42		5	59	56
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 9: Nyberg St & Site Entrance 3

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	109	101	123	490
Average Queue (ft)	30	22	58	164
95th Queue (ft)	85	85	145	461
Link Distance (ft)	227	32	32	754
Upstream Blk Time (%)		12	25	0
Queuing Penalty (veh)		48	99	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	T	R	LT	R
Maximum Queue (ft)	205	299	312	327	242	325	507	524	516	401	244	402
Average Queue (ft)	68	188	243	293	114	194	344	359	351	112	62	181
95th Queue (ft)	150	317	354	324	237	365	561	557	541	367	192	405
Link Distance (ft)	224	224	224	224			507	507	507		636	636
Upstream Blk Time (%)	0	6	18	57			2	2	2		0	1
Queuing Penalty (veh)	2	29	87	281			16	17	17		0	0
Storage Bay Dist (ft)					250	250				400		
Storage Blk Time (%)					2	6	19		10			
Queuing Penalty (veh)					14	38	43		29			

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	780	843	589
Average Queue (ft)	347	458	160
95th Queue (ft)	876	993	590
Link Distance (ft)	1660	1660	1660
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Scenario 1
Weekday PM

2014 Total Traffic

Intersection: 12: I-5 SB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	L	LT	R	R
Maximum Queue (ft)	281	300	348	253	549	668	675	225	604	777	504
Average Queue (ft)	144	164	201	53	160	485	522	186	325	338	306
95th Queue (ft)	240	274	325	164	371	768	773	269	562	586	457
Link Distance (ft)	507	507	507		643	643	643		1797	1797	
Upstream Blk Time (%)					0	6	9				0
Queuing Penalty (veh)					0	27	38				0
Storage Bay Dist (ft)				400				200			700
Storage Blk Time (%)			0	0				2	20		
Queuing Penalty (veh)			0	0				6	68		

Intersection: 13: I-5 NB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	R	T	T	R	L	LT	R
Maximum Queue (ft)	508	498	177	74	323	459	225	375	3446	300
Average Queue (ft)	277	211	6	3	72	183	58	282	1729	160
95th Queue (ft)	456	406	93	53	181	344	220	425	5750	353
Link Distance (ft)	643	643	643	643	477	477			7850	
Upstream Blk Time (%)	0	0			0	0			1	
Queuing Penalty (veh)	0	0			0	3			0	
Storage Bay Dist (ft)							150	300		225
Storage Blk Time (%)						12	0	11	34	0
Queuing Penalty (veh)						85	0	62	186	0

Intersection: 22: SW Boones Fe

Movement	WB	WB	B38	NW
Directions Served	T	T	T	R
Maximum Queue (ft)	279	271	1239	95
Average Queue (ft)	226	110	616	33
95th Queue (ft)	349	288	1451	67
Link Distance (ft)	217	217	1231	182
Upstream Blk Time (%)	32	7	5	
Queuing Penalty (veh)	184	38	61	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 3351

Intersection: 3: SW Martinazzi Ave & SW Boones Ferry Rd

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	565	230	262	213	244	218
Average Queue (ft)	210	88	166	84	111	73
95th Queue (ft)	444	206	263	167	201	150
Link Distance (ft)	1099		249	249		381
Upstream Blk Time (%)	1		4	0		
Queuing Penalty (veh)	0		15	0		
Storage Bay Dist (ft)		180			225	
Storage Blk Time (%)	12	2			0	0
Queuing Penalty (veh)	17	7			1	0

Intersection: 5: Martinazzi Ave & Seneca St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	LT	R	L	TR	L	TR
Maximum Queue (ft)	54	107	150	116	137	230	180	239
Average Queue (ft)	19	30	58	54	35	103	80	94
95th Queue (ft)	48	87	130	95	87	210	170	277
Link Distance (ft)	646	646	596	596		234		381
Upstream Blk Time (%)					0	1		4
Queuing Penalty (veh)					0	3		20
Storage Bay Dist (ft)					150		150	
Storage Blk Time (%)						3	1	10
Queuing Penalty (veh)						3	2	20

Intersection: 8: Martinazzi Ave & Nyberg St

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	L	TR	T	TR
Maximum Queue (ft)	37	203	202	223	200	64	279	244	244
Average Queue (ft)	8	77	111	129	80	10	160	152	149
95th Queue (ft)	27	206	226	235	164	37	306	267	266
Link Distance (ft)	630	630	182	182	182	259	259	234	234
Upstream Blk Time (%)			8	11	1		6	15	12
Queuing Penalty (veh)			16	21	2		9	27	21
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 9: Nyberg St & Site Entrance 3

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	75	56	94	168
Average Queue (ft)	18	4	21	51
95th Queue (ft)	60	33	96	137
Link Distance (ft)	182	55	55	310
Upstream Blk Time (%)		1	6	0
Queuing Penalty (veh)		3	19	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	T	R	LT	R
Maximum Queue (ft)	284	305	306	330	279	325	490	512	480	295	230	458
Average Queue (ft)	137	224	243	280	110	188	259	281	243	88	114	190
95th Queue (ft)	251	342	357	361	223	342	475	501	452	228	213	376
Link Distance (ft)	197	197	197	197			522	522	522		608	608
Upstream Blk Time (%)	8	17	24	46			0	0	0			0
Queuing Penalty (veh)	31	63	89	173			2	3	1			0
Storage Bay Dist (ft)					250	250				400		
Storage Blk Time (%)					0	2	10		2			
Queuing Penalty (veh)					2	9	25		6			

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	480	592	379
Average Queue (ft)	202	284	132
95th Queue (ft)	402	506	297
Link Distance (ft)	882	882	882
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Scenario 1
Saturday Mid-Day

2014 Total Traffic

Intersection: 12: I-5 SB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	L	LT	R	R
Maximum Queue (ft)	428	494	522	224	353	421	490	275	578	787	417
Average Queue (ft)	216	245	292	58	149	233	282	220	338	324	272
95th Queue (ft)	372	426	467	159	293	392	439	342	533	534	390
Link Distance (ft)	522	522	522	522	616	616	616		1139	1139	
Upstream Blk Time (%)	0	0	1		0	0	0			0	
Queuing Penalty (veh)	0	1	3		1	1	1			0	
Storage Bay Dist (ft)								200			700
Storage Blk Time (%)								4	30		
Queuing Penalty (veh)								12	92		

Intersection: 13: I-5 NB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LT	R
Maximum Queue (ft)	615	617	385	470	225	375	830	300
Average Queue (ft)	389	367	122	248	120	247	418	184
95th Queue (ft)	585	578	281	452	304	437	828	353
Link Distance (ft)	616	616	459	459			1328	
Upstream Blk Time (%)	0	0	0	1			1	
Queuing Penalty (veh)	1	1	0	5			0	
Storage Bay Dist (ft)					150	300		225
Storage Blk Time (%)				19		2	27	0
Queuing Penalty (veh)				132		10	153	4

Intersection: 22: RIRO North Access & SW Boones Ferry Rd

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	519	88
Average Queue (ft)	40	34
95th Queue (ft)	324	70
Link Distance (ft)	1622	440
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1024

Intersection: 3: SW Martinazzi Ave & SW Boones Fe

Movement	EB	EB	B29	WB	WB	NB	NB
Directions Served	T	R	T	L	T	L	R
Maximum Queue (ft)	673	205	646	296	301	224	297
Average Queue (ft)	648	153	466	278	198	209	246
95th Queue (ft)	673	265	837	313	359	237	297
Link Distance (ft)	573		649	199	199		224
Upstream Blk Time (%)	55		8	63	10	9	30
Queuing Penalty (veh)	405		61	448	73	0	226
Storage Bay Dist (ft)		180				325	
Storage Blk Time (%)	56	5				9	30
Queuing Penalty (veh)	106	37				38	104

Intersection: 4: SW Martinazzi Ave/Martinazzi Ave

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	125	2245	110	100	240
Average Queue (ft)	90	1440	80	87	163
95th Queue (ft)	171	2690	112	121	302
Link Distance (ft)		2549	82		224
Upstream Blk Time (%)		13	25		8
Queuing Penalty (veh)		0	179		54
Storage Bay Dist (ft)	50			25	
Storage Blk Time (%)	43	87		40	6
Queuing Penalty (veh)	74	61		179	13

Intersection: 5: Martinazzi Ave & Seneca St

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	533	125	187	93
Average Queue (ft)	275	52	139	26
95th Queue (ft)	675	130	234	84
Link Distance (ft)	732		166	82
Upstream Blk Time (%)	14		16	6
Queuing Penalty (veh)	0		117	29
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		2	27	
Queuing Penalty (veh)		13	23	

Intersection: 7: Martinazzi Ave

Movement	WB	NB	SB	SB
Directions Served	R	TR	T	T
Maximum Queue (ft)	52	94	166	164
Average Queue (ft)	17	46	56	53
95th Queue (ft)	45	113	159	152
Link Distance (ft)	170	71	166	166
Upstream Blk Time (%)		13	6	5
Queuing Penalty (veh)		96	17	13
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Martinazzi Ave & Nyberg St

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	L	TR	T	TR
Maximum Queue (ft)	59	213	250	282	284	53	298	102	109
Average Queue (ft)	18	92	130	144	153	7	176	74	76
95th Queue (ft)	45	268	267	278	300	27	326	101	104
Link Distance (ft)	712	712	227	227	227	285	285	71	71
Upstream Blk Time (%)			8	10	8		3	26	27
Queuing Penalty (veh)			20	28	23		5	69	74
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 9: Nyberg St & Site Entrance 3

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	103	28	47	318
Average Queue (ft)	25	8	16	102
95th Queue (ft)	93	49	72	313
Link Distance (ft)	227	15	15	1176
Upstream Blk Time (%)		4	4	
Queuing Penalty (veh)		15	17	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Scenario 2
Weekday PM

2014 Total Traffic

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	T	R	LT	R
Maximum Queue (ft)	129	299	305	332	194	325	502	487	496	473	233	450
Average Queue (ft)	48	177	233	294	89	176	320	337	337	101	66	180
95th Queue (ft)	101	297	350	325	166	340	503	507	508	314	218	398
Link Distance (ft)	224	224	224	224			480	480	480		636	636
Upstream Blk Time (%)		4	15	61			2	1	2	0	1	1
Queuing Penalty (veh)		20	75	300			12	11	17	0	0	0
Storage Bay Dist (ft)					250	250				400		
Storage Blk Time (%)					0	0	18		7			
Queuing Penalty (veh)					0	0	41		21			

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	832	899	673
Average Queue (ft)	310	482	170
95th Queue (ft)	894	1094	675
Link Distance (ft)	2011	2011	2011
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: I-5 SB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	L	LT	R	R
Maximum Queue (ft)	314	378	425	317	399	637	661	225	706	623	522
Average Queue (ft)	131	151	198	72	145	423	467	193	348	347	310
95th Queue (ft)	237	289	340	216	318	696	723	275	636	559	471
Link Distance (ft)	480	480	480		643	643	643		1797	1797	
Upstream Blk Time (%)			0		0	3	5				
Queuing Penalty (veh)			3		0	14	21				
Storage Bay Dist (ft)				400				200			700
Storage Blk Time (%)			1	0				2	23		0
Queuing Penalty (veh)			5	0				6	75		0

Scenario 2
Weekday PM

2014 Total Traffic

Intersection: 13: I-5 NB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LT	R
Maximum Queue (ft)	392	333	366	458	225	375	1745	300
Average Queue (ft)	239	170	80	190	75	259	484	145
95th Queue (ft)	364	297	215	380	249	396	1677	330
Link Distance (ft)	643	643	477	477			7850	
Upstream Blk Time (%)			0	1				
Queuing Penalty (veh)			1	4				
Storage Bay Dist (ft)					150	300		225
Storage Blk Time (%)				12		6	23	0
Queuing Penalty (veh)				80		32	124	3

Intersection: 22: SW Boones Fe

Movement	WB	WB	B38	NW
Directions Served	T	T	T	R
Maximum Queue (ft)	275	255	1007	88
Average Queue (ft)	205	84	612	29
95th Queue (ft)	354	247	1508	66
Link Distance (ft)	217	217	1231	182
Upstream Blk Time (%)	29	4	4	
Queuing Penalty (veh)	168	22	43	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 3712

Intersection: 3: SW Martinazzi Ave & SW Boones Ferry Rd

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	1133	255	264	278	182	212
Average Queue (ft)	1060	227	248	38	89	58
95th Queue (ft)	1354	280	262	176	170	150
Link Distance (ft)	1099		246	246		230
Upstream Blk Time (%)	81		90	5	0	0
Queuing Penalty (veh)	0		346	20	0	3
Storage Bay Dist (ft)		180			225	
Storage Blk Time (%)	22	80			0	1
Queuing Penalty (veh)	31	339			0	1

Intersection: 4: SW Martinazzi Ave/Martinazzi Ave

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	118	6458	66	100	246
Average Queue (ft)	109	3535	6	24	232
95th Queue (ft)	117	6556	38	91	240
Link Distance (ft)		8308	70		230
Upstream Blk Time (%)			0		85
Queuing Penalty (veh)			2		409
Storage Bay Dist (ft)	50			25	
Storage Blk Time (%)	100	0		7	89
Queuing Penalty (veh)	147	0		20	190

Intersection: 5: Martinazzi Ave & Seneca St

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	660	76	122	91
Average Queue (ft)	520	17	26	72
95th Queue (ft)	794	75	123	85
Link Distance (ft)	644		166	70
Upstream Blk Time (%)	42		9	89
Queuing Penalty (veh)	0		50	319
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		10	1	
Queuing Penalty (veh)		46	0	

Intersection: 7: Martinazzi Ave

Movement	WB	NB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	81	34	183	183
Average Queue (ft)	30	7	162	160
95th Queue (ft)	91	41	188	193
Link Distance (ft)	153	68	166	166
Upstream Blk Time (%)	4	9	79	78
Queuing Penalty (veh)	0	47	141	140
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Martinazzi Ave & Nyberg St

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	L	TR	T	TR
Maximum Queue (ft)	46	78	148	173	200	36	270	83	82
Average Queue (ft)	8	31	54	70	82	5	135	70	70
95th Queue (ft)	30	63	120	146	192	20	282	79	77
Link Distance (ft)	630	630	182	182	182	259	259	68	68
Upstream Blk Time (%)			1	1	10		10	96	96
Queuing Penalty (veh)			2	2	19		14	175	176
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 9: Nyberg St & Site Entrance 3

Movement	EB	WB	WB	SW
Directions Served	L	T	TR	R
Maximum Queue (ft)	84	15	69	331
Average Queue (ft)	21	1	15	100
95th Queue (ft)	65	11	77	397
Link Distance (ft)	182	51	51	864
Upstream Blk Time (%)		0	9	1
Queuing Penalty (veh)		1	27	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Scenario 2
Saturday Mid-Day

2014 Total Traffic

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	T	R	LT	R
Maximum Queue (ft)	283	303	306	334	260	325	492	483	469	359	273	356
Average Queue (ft)	141	241	257	290	91	186	301	318	287	123	145	161
95th Queue (ft)	250	346	354	353	189	364	541	542	528	345	347	286
Link Distance (ft)	197	197	197	197			497	497	497		608	608
Upstream Blk Time (%)	9	22	30	53			5	6	4			
Queuing Penalty (veh)	34	81	111	196			36	41	33			
Storage Bay Dist (ft)					250	250				400		
Storage Blk Time (%)					0	1	15		9			
Queuing Penalty (veh)					0	5	38		38			

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	750	788	662
Average Queue (ft)	371	444	258
95th Queue (ft)	1132	1186	844
Link Distance (ft)	3590	3590	3590
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: I-5 SB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	L	LT	R	R
Maximum Queue (ft)	372	408	478	181	479	557	559	275	1026	914	659
Average Queue (ft)	195	229	276	53	209	334	374	207	512	497	381
95th Queue (ft)	330	380	438	143	497	611	624	328	1091	1048	721
Link Distance (ft)	497	497	497	497	616	616	616		1139	1139	
Upstream Blk Time (%)		0	1		5	7	8		6	7	
Queuing Penalty (veh)		0	3		22	32	36		0	0	
Storage Bay Dist (ft)								200			700
Storage Blk Time (%)								7	30	8	2
Queuing Penalty (veh)								21	95	43	12

Intersection: 13: I-5 NB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LT	R
Maximum Queue (ft)	614	617	465	479	225	375	1014	300
Average Queue (ft)	398	372	155	298	152	261	672	197
95th Queue (ft)	619	597	366	515	324	447	1446	373
Link Distance (ft)	616	616	459	459			1328	
Upstream Blk Time (%)	0	0	0	5			19	
Queuing Penalty (veh)	1	1	1	27			0	
Storage Bay Dist (ft)					150	300		225
Storage Blk Time (%)				27	0	8	38	1
Queuing Penalty (veh)				179	0	45	215	6

Intersection: 22: RIRO North Access & SW Boones Ferry Rd

Movement	NB	SW
Directions Served	R	R
Maximum Queue (ft)	69	2036
Average Queue (ft)	31	1935
95th Queue (ft)	59	2435
Link Distance (ft)	101	2002
Upstream Blk Time (%)	0	88
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 4015

Intersection: 3: SW Martinazzi Ave & SW Boones Fe

Movement	EB	EB	B29	WB	WB	NB	NB
Directions Served	T	R	T	L	T	L	R
Maximum Queue (ft)	655	205	666	296	315	234	305
Average Queue (ft)	649	80	625	275	196	215	252
95th Queue (ft)	663	208	793	313	367	265	328
Link Distance (ft)	573		649	198	198		235
Upstream Blk Time (%)	66		20	58	11	13	37
Queuing Penalty (veh)	485		151	412	78	0	287
Storage Bay Dist (ft)		180				325	
Storage Blk Time (%)	62	1				13	37
Queuing Penalty (veh)	55	4				52	136

Intersection: 4: SW Martinazzi Ave/Martinazzi Ave

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	125	962	99	92	223
Average Queue (ft)	50	475	76	24	82
95th Queue (ft)	142	1031	115	68	254
Link Distance (ft)		2183	75		235
Upstream Blk Time (%)			33		9
Queuing Penalty (veh)			241		49
Storage Bay Dist (ft)	50			25	
Storage Blk Time (%)	21	80		9	16
Queuing Penalty (veh)	19	24		46	7

Intersection: 5: Martinazzi Ave & Seneca St

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	751	125	286	95
Average Queue (ft)	528	55	218	41
95th Queue (ft)	965	124	364	104
Link Distance (ft)	732		264	75
Upstream Blk Time (%)	46		17	16
Queuing Penalty (veh)	0		133	92
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		7	36	
Queuing Penalty (veh)		50	31	

Intersection: 8: Martinazzi Ave & Nyberg St

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	L	TR	T	TR
Maximum Queue (ft)	65	227	292	292	330	47	301	278	289
Average Queue (ft)	23	101	187	195	245	9	177	191	189
95th Queue (ft)	55	221	344	338	380	32	341	315	311
Link Distance (ft)	712	712	227	227	227	285	285	264	264
Upstream Blk Time (%)			19	22	34		4	15	16
Queuing Penalty (veh)			61	70	108		7	44	46
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 9: Nyberg St & Site Entrance 3

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	234	86	113	1309
Average Queue (ft)	116	21	67	616
95th Queue (ft)	231	80	143	1537
Link Distance (ft)	227	23	23	2306
Upstream Blk Time (%)	5	9	26	
Queuing Penalty (veh)	3	42	118	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Scenario 3
Weekday PM

2014 Total Traffic

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	T	R	LT	R
Maximum Queue (ft)	285	297	309	315	253	325	515	515	505	475	369	446
Average Queue (ft)	163	192	243	291	103	176	356	378	391	159	69	216
95th Queue (ft)	309	301	340	322	218	345	557	543	541	428	240	524
Link Distance (ft)	224	224	224	224			488	488	488		636	636
Upstream Blk Time (%)	22	5	18	58			2	2	3	0	1	5
Queuing Penalty (veh)	108	23	90	286			13	16	23	0	0	0
Storage Bay Dist (ft)					250	250				400		
Storage Blk Time (%)					0	3	22		12			
Queuing Penalty (veh)					3	17	51		41			

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	814	904	753
Average Queue (ft)	323	499	275
95th Queue (ft)	834	1003	730
Link Distance (ft)	2467	2467	2467
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: I-5 SB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	L	LT	R	R
Maximum Queue (ft)	277	300	368	345	580	679	688	225	798	681	600
Average Queue (ft)	141	154	199	68	168	527	565	189	362	351	328
95th Queue (ft)	249	278	329	215	414	770	775	270	658	536	490
Link Distance (ft)	488	488	488		643	643	643		1797	1797	
Upstream Blk Time (%)					0	6	10				
Queuing Penalty (veh)					0	25	41				
Storage Bay Dist (ft)				400				200			700
Storage Blk Time (%)			0	0				3	23	0	0
Queuing Penalty (veh)			1	0				11	76	2	0

Scenario 3
Weekday PM

2014 Total Traffic

Intersection: 13: I-5 NB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LT	R
Maximum Queue (ft)	469	422	350	480	225	375	2272	300
Average Queue (ft)	252	186	86	206	89	287	881	173
95th Queue (ft)	398	335	212	392	269	427	2642	370
Link Distance (ft)	643	643	477	477			7850	
Upstream Blk Time (%)			0	0				
Queuing Penalty (veh)			0	2				
Storage Bay Dist (ft)					150	300		225
Storage Blk Time (%)				13		14	35	0
Queuing Penalty (veh)				92		76	187	0

Intersection: 22: SW Boones Fe

Movement	WB	WB	B38	NW
Directions Served	T	T	T	R
Maximum Queue (ft)	280	274	1041	67
Average Queue (ft)	193	85	549	30
95th Queue (ft)	357	241	1461	60
Link Distance (ft)	219	219	1231	246
Upstream Blk Time (%)	28	3	6	
Queuing Penalty (veh)	160	17	64	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 4275

Intersection: 3: SW Martinazzi Ave & SW Boones Ferry Rd

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	1138	255	268	250	214	242
Average Queue (ft)	815	193	240	70	98	59
95th Queue (ft)	1459	312	303	240	188	151
Link Distance (ft)	1099		250	250		246
Upstream Blk Time (%)	52		73	15	0	0
Queuing Penalty (veh)	0		283	59	0	2
Storage Bay Dist (ft)		180			225	
Storage Blk Time (%)	37	50			0	0
Queuing Penalty (veh)	38	251			1	1

Intersection: 4: SW Martinazzi Ave/Martinazzi Ave

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	120	1039	39	94	264
Average Queue (ft)	88	415	2	13	228
95th Queue (ft)	148	1066	19	58	337
Link Distance (ft)		2690	59		246
Upstream Blk Time (%)			0		71
Queuing Penalty (veh)			1		319
Storage Bay Dist (ft)	50			25	
Storage Blk Time (%)	80	1		2	82
Queuing Penalty (veh)	36	0		8	41

Intersection: 5: Martinazzi Ave & Seneca St

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	616	68	77	72
Average Queue (ft)	393	13	6	56
95th Queue (ft)	783	50	50	81
Link Distance (ft)	644		248	59
Upstream Blk Time (%)	30		1	80
Queuing Penalty (veh)	0		3	334
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		2	1	
Queuing Penalty (veh)		8	1	

Intersection: 8: Martinazzi Ave & Nyberg St

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	L	TR	T	TR
Maximum Queue (ft)	272	606	249	237	218	91	280	263	268
Average Queue (ft)	100	353	216	128	89	11	170	246	100
95th Queue (ft)	459	712	281	244	188	51	340	277	268
Link Distance (ft)	630	630	182	182	182	259	259	248	248
Upstream Blk Time (%)	12	18	73	7	1		27	83	2
Queuing Penalty (veh)	0	0	182	16	3		40	172	4
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 9: Nyberg St & Site Entrance 3

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	181	135	112	1507
Average Queue (ft)	112	60	12	603
95th Queue (ft)	229	131	69	1578
Link Distance (ft)	182	55	55	3021
Upstream Blk Time (%)	36	54	3	
Queuing Penalty (veh)	27	193	9	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Scenario 3
Saturday Mid-Day

2014 Total Traffic

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	T	R	LT	R
Maximum Queue (ft)	298	294	315	320	224	325	519	523	522	475	303	452
Average Queue (ft)	263	160	206	259	72	223	425	427	408	210	142	180
95th Queue (ft)	355	299	350	379	187	423	636	624	622	526	365	379
Link Distance (ft)	197	197	197	197			488	488	488		608	608
Upstream Blk Time (%)	76	3	15	35			17	19	18	0	2	1
Queuing Penalty (veh)	283	11	54	130			121	136	135	0	0	0
Storage Bay Dist (ft)					250	250				400		
Storage Blk Time (%)					0	1	45		31			
Queuing Penalty (veh)					2	5	115		122			

Intersection: 10: Fred Meyer/Site Entrance 4 & Tualatin Sherwood Rd

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	1291	1324	1220
Average Queue (ft)	454	551	483
95th Queue (ft)	1174	1256	1224
Link Distance (ft)	2404	2404	2404
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: I-5 SB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	L	LT	R	R
Maximum Queue (ft)	321	366	407	177	652	668	662	275	1042	1002	706
Average Queue (ft)	148	174	212	35	347	510	546	192	555	583	444
95th Queue (ft)	279	325	381	118	742	787	779	338	1189	1193	811
Link Distance (ft)	488	488	488	488	616	616	616		1139	1139	
Upstream Blk Time (%)		0	0		10	20	34		10	14	
Queuing Penalty (veh)		0	1		44	94	155		0	0	
Storage Bay Dist (ft)								200			700
Storage Blk Time (%)								4	25	17	13
Queuing Penalty (veh)								11	77	86	65

Intersection: 13: I-5 NB Ramps & Tualatin Sherwood Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LT	R
Maximum Queue (ft)	591	591	468	491	225	375	1309	300
Average Queue (ft)	348	333	209	367	165	277	975	194
95th Queue (ft)	568	549	454	566	328	482	1717	404
Link Distance (ft)	616	616	459	459			1328	
Upstream Blk Time (%)	0	0	3	22			43	
Queuing Penalty (veh)	1	1	17	120			0	
Storage Bay Dist (ft)					150	300		225
Storage Blk Time (%)				47	0	9	64	0
Queuing Penalty (veh)				312	0	53	367	3

Intersection: 22: RIRO North Access & SW Boones Ferry Rd

Movement	NW	SW
Directions Served	R	R
Maximum Queue (ft)	102	2400
Average Queue (ft)	43	1864
95th Queue (ft)	79	3322
Link Distance (ft)	287	2370
Upstream Blk Time (%)		66
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 4557



720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500

**ATTACHMENT F:
CITY ACCESS DRIVEWAY SYNCHRO REPORTS**

Scenario 5
843 Trip Gen, One-Stage Crossing

4: SW Martinazzi Ave/Martinazzi Ave
2014 Weekday PM Total Traffic



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	41	224	570	86	240	440
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	243	620	93	261	478
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			579			204
pX, platoon unblocked	1.00	1.00			1.00	
vC, conflicting volume	1666	666			713	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1667	665			712	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	40	47			71	
cM capacity (veh/h)	75	459			886	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	45	243	713	261	478
Volume Left	45	0	0	261	0
Volume Right	0	243	93	0	0
cSH	75	459	1700	886	1700
Volume to Capacity	0.60	0.53	0.42	0.29	0.28
Queue Length 95th (ft)	65	76	0	31	0
Control Delay (s)	107.7	21.3	0.0	10.7	0.0
Lane LOS	F	C		B	
Approach Delay (s)	34.7		0.0	3.8	
Approach LOS	D				

Intersection Summary					
Average Delay			7.4		
Intersection Capacity Utilization			61.8%	ICU Level of Service	B
Analysis Period (min)			15		

Scenario 5
843 Trip Gen, Two-Stage Crossing

4: SW Martinazzi Ave/Martinazzi Ave
2014 Weekday PM Total Traffic



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	41	224	570	86	240	440
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	243	620	93	261	478
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh						2
Upstream signal (ft)			579			204
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	1666	666			713	
vC1, stage 1 conf vol	666					
vC2, stage 2 conf vol	1000					
vCu, unblocked vol	1674	628			677	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	47			70	
cM capacity (veh/h)	225	462			875	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	45	243	713	261	478
Volume Left	45	0	0	261	0
Volume Right	0	243	93	0	0
cSH	225	462	1700	875	1700
Volume to Capacity	0.20	0.53	0.42	0.30	0.28
Queue Length 95th (ft)	18	75	0	31	0
Control Delay (s)	24.9	21.2	0.0	10.9	0.0
Lane LOS	C	C		B	
Approach Delay (s)	21.7		0.0	3.8	
Approach LOS	C				

Intersection Summary					
Average Delay			5.2		
Intersection Capacity Utilization			61.8%	ICU Level of Service	B
Analysis Period (min)			15		

Scenario 5
405 Trip Gen, One-Stage Crossing

4: SW Martinazzi Ave/Martinazzi Ave
2014 Weekday PM Total Traffic



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	35	180	570	81	196	440
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	196	620	88	213	478
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			579			204
pX, platoon unblocked						
vC, conflicting volume	1568	664			708	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1568	664			708	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	58			76	
cM capacity (veh/h)	93	461			891	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	38	196	708	213	478
Volume Left	38	0	0	213	0
Volume Right	0	196	88	0	0
cSH	93	461	1700	891	1700
Volume to Capacity	0.41	0.42	0.42	0.24	0.28
Queue Length 95th (ft)	42	52	0	23	0
Control Delay (s)	68.3	18.5	0.0	10.3	0.0
Lane LOS	F	C		B	
Approach Delay (s)	26.6		0.0	3.2	
Approach LOS	D				

Intersection Summary					
Average Delay			5.1		
Intersection Capacity Utilization			59.1%	ICU Level of Service	B
Analysis Period (min)			15		

Scenario 5
405 Trip Gen, Two-Stage Crossing

4: SW Martinazzi Ave/Martinazzi Ave
2014 Weekday PM Total Traffic



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	35	180	570	81	196	440
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	196	620	88	213	478
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		TWLTL	
Median storage veh					2	
Upstream signal (ft)			579		204	
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	1568	664			708	
vC1, stage 1 conf vol	664					
vC2, stage 2 conf vol	904					
vCu, unblocked vol	1571	629			675	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	58			76	
cM capacity (veh/h)	263	463			880	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	38	196	708	213	478
Volume Left	38	0	0	213	0
Volume Right	0	196	88	0	0
cSH	263	463	1700	880	1700
Volume to Capacity	0.14	0.42	0.42	0.24	0.28
Queue Length 95th (ft)	12	52	0	24	0
Control Delay (s)	21.0	18.3	0.0	10.4	0.0
Lane LOS	C	C		B	
Approach Delay (s)	18.8		0.0	3.2	
Approach LOS	C				

Intersection Summary					
Average Delay			4.0		
Intersection Capacity Utilization			59.1%	ICU Level of Service	B
Analysis Period (min)			15		



Oregon

John A. Kitzhaber, MD, Governor

Department of Transportation

Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8531

May 17th, 2013

ODOT#5432

ODOT Service Provider Response to Completeness Review

Project Name: Nyberg Rivers Master Plan	Applicant: Centercal Properties
Jurisdiction: City of Tualatin	State Highway: I-5/Nyberg Rd Interchange
Site Address: NW Quadrant of Nyberg Interchange	

The site of this proposed land use action is adjacent to the I-5/Nyberg Rd exit ramp. ODOT has permitting authority for this facility and an interest in ensuring that this proposed land use is compatible with its safe and efficient operation.

Westbound Right Turn Lane on Nyberg Rd

ODOT supports the proposed westbound right turn lane on Nyberg Rd. as it will mitigate the traffic impacts from the development at the I-5/Nyberg Rd ramp intersection and recommends the City require this mitigation as a condition of approval. Much of the right of way needed for the right turn lane is under ODOT jurisdiction and we are currently working with the City, Washington County and the Applicant on the design of the right turn lane. At the time of development, an ODOT Permit must be obtained for all work in the highway right of way. When the total value of improvements within the ODOT right of way is estimated to be \$100,000 or more, a cooperative improvement agreement (CIA) with ODOT is required. The agreement shall address the work standards that must be followed, maintenance responsibilities, and compliance with ORS 276.071, which includes State of Oregon prevailing wage requirements.

Closure of SW 75th Ave Site Access to Nyberg Rd

ODOT supports the proposed closure of SW 75th Ave on Nyberg Rd as it will enable the construction of the right turn lane and reduce potential vehicular conflicts near the interchange ramp intersection. As part of the ODOT interchange project, ODOT developed SW 75th Ave to provide access to Nyberg Rd for tax lots 2508, 2502, 2506, 2100, 2507, and 2700. To facilitate the closure of SW 75th Ave, a permanent access easement through the Nyberg Rivers Master Plan area to shopping center/ Fred Meyer's signal must be established. We recommend that the applicant's response to Goal 5 Transportation reflect that to facilitate the closure of SW 75th Ave, a permanent access easement will be established for the tax lots mentioned above to access Nyberg Rd through the shopping center and include a tax lot map showing. We recommend the City require the permanent access easement be established as a condition of the master plan decision.

ODOT Log #xxxx

Noise Advisory

The applicant is advised that outdoor activity areas such as outdoor seating on the proposed site will be exposed to traffic noise levels that exceed federal noise guidelines. Builders should take appropriate measures to mitigate this impact. It is generally not the State's responsibility to provide mitigation for receptors that are built after the noise source is in place.

Please send a copy of the Land Use Notice to:

ODOT Region 1 Planning
Development Review
123 NW Flanders St
Portland, OR 97209

Development Review Planner: Marah Danielson	Phone: 503.731.8258
Traffic Contact: Doug Baumgartner	Phone: 503.731. 8225
District Contact: Rick Garrison	Phone: 971.673.6200



Oregon

John A. Kitzhaber, MD, Governor

Department of Transportation

Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
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TO: Marah Danielson
Senior Planner

FROM: Doug Baumgartner, E.I.T.
Development Review Traffic Analyst

DATE: May 21, 2013

RE: Nyberg Rivers Master Plan
HWY 001 (I-5)
Tualatin, Oregon

ODOT has received and reviewed the transportation impact analysis (TIA) that was submitted to the City of Tualatin and prepared by Kittelson & Associates, Inc (Kittelson) in December 2012. The proposed redevelopment of the existing shopping center will add close to 180,000 square feet of retail and office space, including restaurants, to the existing shopping center. The existing shopping center is located on the northwest corner of the interchange of I-5 with SW Nyberg Road. ODOT has jurisdiction of I-5, the interchange ramps and terminals, the SW Nyberg Road overpass, and SW Nyberg Road west of I-5 up until the signalized access to the existing shopping center. ODOT also owns the property that fronts the southbound I-5 off-ramp and SW Nyberg Road. ODOT concurred with the traffic study scope of work that was prepared and submitted to the local jurisdictions by Kittelson on August 16, 2012.

ODOT requested and received the Synchro files that Kittelson had created and used for this analysis in order to confirm that the impacts of the proposed development would not present a safety or capacity concern to the interchange. The signals at the ramp terminals of the SW Nyberg Road interchange currently operate under adaptive signal control. This technology generally improves the efficiency of the signal system but current analysis methods and technology cannot model the operation of these systems and so assumptions must be made in order to provide capacity and queuing results by which to measure the impact of the redevelopment. ODOT had the Synchro files reviewed by an ODOT Region 1 traffic signal manager to confirm that the assumptions were reasonable for analyzing the interchange signal system. The signal manager confirmed that the model would represent a possible situation given the adaptive signal control. The mobility standards for capacity were not exceeded and so ODOT checked the queuing results by taking the Synchro files and creating a simulation using SimTraffic and following the methods outlined in the ODOT Analysis Procedures Manual. The result of the simulation showed that the increase in vehicle queue lengths on the off-ramps would

be negligible and that the proposed right turn lane into the site from SW Nyberg Road would accommodate the predicted queuing.

If there are any questions regarding the contents of this memorandum, please contact me at (503) 731-8225.



Oregon

John A. Kitzhaber, MD, Governor

Department of Transportation

Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8531

July 15th, 2013

ODOT #: 5432

ODOT Response to Local Land Use Notification

Project Name: Nyberg Rivers Master Plan	Applicant: CenterCal Properties, LLC
Jurisdiction: City of Tualatin	Jurisdiction Case #: MP-13-01
Site Address: NW Quadrant of I-5/Nyberg Rd Interchange	Legal Description: Tax Lot(s)
State Highway: I-5/Nyberg Rd Interchange	Mileposts:

The site of this proposed Nyberg Rivers Master Plan includes property owned by ODOT that is operating right of way as well as being adjacent to Nyberg Rd and the I-5/Nyberg St freeway exit ramp which are ODOT facilities. To clarify, Nyberg Rd is under ODOT jurisdiction from the freeway exit ramp to the signalized access to the site. Washington County maintains and operates the signalized access on Nyberg Rd through an Intergovernmental Agreement with ODOT. Please see the attached Nyberg II Vicinity Aerial and Ownership map which was provided by the applicant during the Pre-application Process. ODOT has an interest in ensuring that the proposed land use action is consistent with the safe operation and maintenance of our facilities and operating rights of way.

On page 5 of Addendum #1, CenterCal is specifically requesting the following which affect ODOT operating right of way:

- **Approve the general site layout and land uses as part of the Master Plan.**

ODOT Response:. The city's land use process for a master plan only requires the "general site layout" and the Nyberg Rivers Master Plan includes a specific site plan layout for building placement and circulation. The proposed right of way (r/w) boundary of the ODOT property shown on the site plan has not been agreed to by ODOT and does not reflect ODOT maintenance needs or the transportation infrastructure needed to support the right turn lane. ODOT has been working with the applicant to define how much right of way the department may consider as surplus and available for sale. In the attached modified Exhibit H Nyberg Rd cross section GG, we have identified the potential future r/w line (2ft from retaining wall footing) and potential future ODOT maintenance easement (15ft from the face of wall) including maintenance vehicle access through the development that has been discussed with the applicant. The proposed site plan will need to be modified to reflect the ODOT transportation needs including a 15ft maintenance easement which includes restrictions on land uses which are necessary for the business operations. No private improvements may be constructed on the ODOT property while it is still under ODOT ownership.

- **Approve right of way vacation of the Oregon Department of Transportation property along Nyberg Road. This vacation would be done with the recognition that final approval is subject to coordination and review by ODOT.**

ODOT Response: The process for obtaining ODOT right of way for the development is through the ODOT Surplus Property Review Process and not through the City of Tualatin's street vacation process. The ODOT Surplus Property Review Process has not been initiated and can take up to 1 year or more. Through this process, ODOT determines whether or how much of the property is no longer needed for transportation purposes and may be declared surplus and available for sale. Because the property was originally purchased using federal funds, FHWA concurrence is required for any sale. Additionally, ODOT cannot surplus property until alternative access for the tax lots (2508, 2502, 2506, 2100, 2507, and 2700) served by SW 75th Ave is established through a permanent access easement as well as a maintenance easement for ODOT adjacent to the proposed retaining wall and vehicle access through the development. The applicant has also agreed to enter into an agreement with ODOT for the development to be responsible for providing graffiti removal and maintenance of the retaining wall.

- **Approve the proposed street designs which are provided as separate cross-section exhibits. Nyberg Street between the entrance of the site and I-5: cross-section G-G**
 - **The applicant is proposing a 4-foot planter strip with curb, streetlights, and trees. With direction received from ODOT (who has jurisdiction over this section of roadway). The City has requested a 6-foot planter.**
 - **A 15-foot westbound right-turn lane, which is greater than the requested 12 foot lane.**

ODOT Response: As stated above, ODOT has modified Exhibit H cross-section G-G to reflect the potential future ODOT right of way line and potential future ODOT maintenance easement. Since the Nyberg Rd frontage improvements are being constructed within ODOT right of way, there is no right of way dedication needed. The existing travel lanes may vary through this road section, so the only widths that should be shown are for the ones that will be constructed as a condition of the development. The ODOT standard for a right turn lane is 15ft with a minimum 5ft bike lane and a minimum 6ft sidewalk. Since ODOT does not have a standard for the planter strip, we advised the applicant that it is a City of Tualatin requirement and that a 4ft planter strip would be acceptable. Cross-section GG as shown in Exhibit H has the bike lane at a 5ft min width, while in the text description on page 13 has a 6 foot bike lane. We recommend the city provide clarification on the required bike lane and planter strip widths as either is acceptable to ODOT.

ODOT previously submitted comments on May 17th, 2013 for the Completeness Review relating to the proposed closure of SW 75th Ave on Nyberg Rd. As stated, SW 75th Ave is an ODOT access road that serves 6 tax lots. While ODOT supports the closure of this access road, in order to facilitate the closure a permanent access easement is required to provide access for these tax lots to another public roadway.

ODOT RECOMMENDED MASTER PLAN CONDITIONS OF APPROVAL

- Along Nyberg Rd between the I-5 ramp intersection and the eastern entrance, the applicant shall construct a bike lane, right turn lane, planter strip and sidewalk.
- Applicant shall modify the site plan including placement of buildings and circulation to reflect the potential 15 ft ODOT maintenance access from the face of the retaining wall as well as the potential future ODOT right of way line 2ft from the retaining wall footings.

ODOT RECOMMENDED ARCHITECTURAL REVIEW CONDITIONS OF APPROVAL

- The applicant shall obtain an ODOT Permit for construction of the bike lane, right turn lane, planter strip, sidewalk, retaining wall and drainage within the state highway right of way. Tree placement and design shall be consistent with the ODOT Highway Design Manual or a design exception shall be obtained. Applicant shall enter into a Cooperative Improvement Agreement with ODOT to address ODOT permit requirements, providing graffiti removal and maintenance of the retaining wall, and the transfer of ownership of the improvement to ODOT. The agreement shall address the work standards that must be followed, maintenance responsibilities, and compliance with ORS 276.071, which includes State of Oregon prevailing wage requirements.
- To facilitate the closure of SW 75th Ave, the applicant shall:
 1. Ensure that a permanent access easement is recorded to provide access to a public roadway (Nyberg Rd) for tax lots 2508, 2502, 2506, 2100, 2507, and 2700.
 2. Record a 15ft maintenance easement adjacent to the retaining wall and a maintenance vehicle access easement through the development with ODOT.
- Illumination within the ODOT right of way must be in accordance with AASHTO illumination standards and the ODOT Lighting Policy and Guidelines, January 2003, which states that local jurisdictions must enter into an intergovernmental agreement (IGA) with ODOT wherein the local jurisdiction is responsible for installation, maintenance, operation, and energy costs.

Noise Advisory:

The applicant is advised that a outdoor activity areas on the proposed site may be exposed to traffic noise levels that exceed federal noise guidelines. Builders should take appropriate measures to mitigate this impact. It is generally not the State's responsibility to provide mitigation for receptors that are built after the noise source is in place.

Comments:

Thank you for coordinating your transportation review with ODOT. If you have any questions or need additional information, please contact Marah Danielson, ODOT R1 Development Review Planning Lead at 503-731-8258.

Please send a copy of the Notice of Decision including conditions of approval to:

ODOT Region 1 Planning
Development Review
123 NW Flanders St
Portland, OR 97209

Development Review Planner: Marah Danielson	Phone: 503.731.8258
Traffic Contact: Doug Baumgartner	Phone: 503.731.8200
District 2B Contact: Rick Garrison	Phone: 971.673.6216



Nyberg II

Vicinity Aerial and Ownership



SCALE IN FEET
0 62.5 125 250



TUALATIN, OREGON DATE: May 25, 2012

Delta Summary

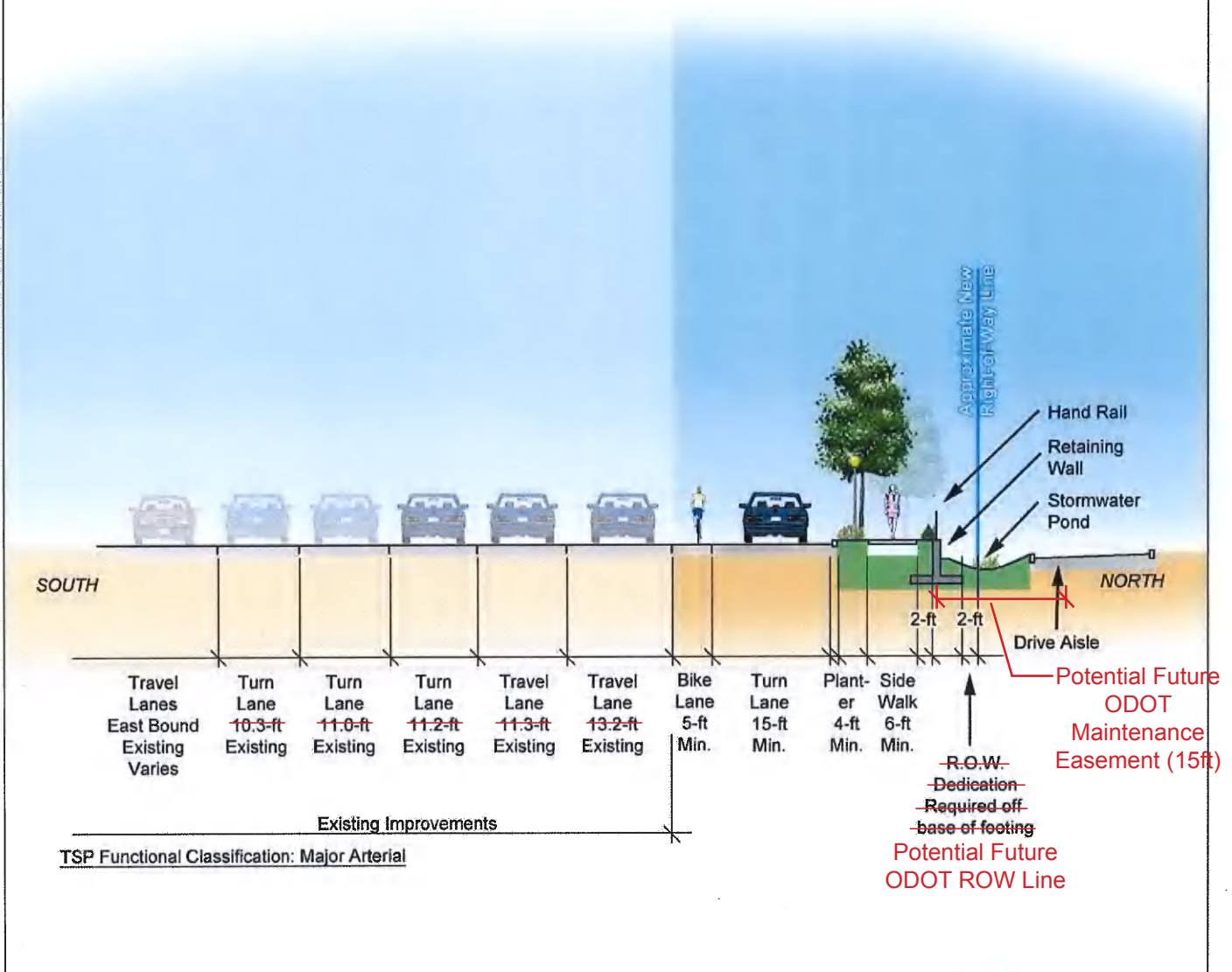
2013 TSP Minimum Standards

- ☐ 15-ft turn lane north of bike lane
- ☐ 4-ft planter along north turn lane
- ☐ No change to existing travel lanes

City Comments (June 3, 2013)

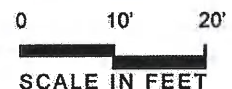
- ☐ 15-ft turn lane north of bike lane
- ☐ 4-ft planter along north turn lane
- ☐ No change to existing travel lanes
- ☐ No cross walk notes added (to be addressed in development application)
- ☐ 5-ft bicycle lane

For conceptual purposes only. Specific design to be approved by ODOT.



Nyberg Rivers

DATE: 6-25-2013



G-G - Nyberg Road - I-5 to Eastern Entrance

TUALATIN, OREGON

SCALE IN FEET

Exhibit H




WASHINGTON COUNTY, OREGON

Department of Land Use and Transportation, Engineering/Surveying Division
1400 SW Walnut St., MS 17A, Hillsboro, Oregon 97123
(503) 846-7900 · FAX: (503) 846-7910

DATE: May 21, 2013

TO: Naomi Vogel, Associate Planner

FROM: Jinde Zhu, P.E., Traffic Engineer 

CC: Assurances, Gary Stockhoff, Traffic Analysis File #1505, C/File

RE: **TRAFFIC STAFF REPORT
NYBERG RIVERS
CITY OF TUALATIN**

This report summarizes the impacts of the proposed redevelopment, Nyberg Rivers, located in the northwest quadrant of the I-5/Nyberg Road interchange. This redevelopment consists of a reconfiguration of portions of the larger existing shopping center site and also includes demolition of existing buildings and construction of new retail pads and relocation of some existing uses. This proposed redevelopment will consist of a total of 307,000 square feet of retail space.

The main access to the site will be still via the existing signalized access on SW Nyberg Road, and also via the other existing accesses. With the proposed redevelopment the main access will be improved to accommodate the traffic which will be generated by the proposed redevelopment. SW Nyberg Road is a county roadway and classified as an arterial.

A traffic impact analysis report was submitted by the applicant's traffic engineer ("Transportation Impact Analysis, Nyberg Rivers, Tualatin, Oregon, April 2013", Kittelson & Associates, Inc.). The findings and recommendations given below are based on the information provided in the report.

FINDINGS:

1. The net site trip generation from the redevelopment, was calculated based on the existing traffic counts and trip generation information contained in the report "Trip Generation, 9th Edition", ITE, and is summarized in the following table.

**TRAFFIC STAFF REPORT
 NYBERG RIVERS
 CITY OF TUALATIN**

May 21, 2013

Page 2

	Weekday PM Peak Hour (vph)	Saturday Peak Hour (vph)
Enter	310	515
Exit	305	440
Total	615	955

2. The site impact on streets under Washington County jurisdiction, based on a 10 percent increase in average daily traffic or the minimum impact area, is described below.

Site Impact Area		
Link	From	To
SW Nyberg Road	Site Access	Site Access

3. Intersections within the impact area under Washington County jurisdiction were analyzed (weekday PM and Saturday peak hours) with the following results.

Intersection	Weekday PM Peak Hour V/C Performance*	Saturday Peak Hour V/C Performance*
SW Nyberg Rivers/Site Access	0.83	0.71

* Intersection performance is assessed for the entire signalized intersection and with the following recommended improvements.

The applicant's traffic engineer recommended the following road improvements at the intersection of SW Nyberg Road and the site main access:

- a. A westbound right-turn lane on SW Nyberg Road.
- b. Two southbound left turn lanes and a shared through/right-turn lane from the site driveway and also two inbound receiving lanes.
- c. Change from the existing north/south permissive phasing to split phasing with overlap phasing for the westbound right-turn movement.

With these improvements, the intersection of SW Nyberg Road and the site main access is calculated to operate at a volume-to-capacity ratio of 0.83 and 0.71 during the weekday PM peak hour and Saturday peak hour respectively. These v/c ratios are below the county's maximum v/c standard of 0.99.

It should be noted that all the traffic signals along the Nyberg Road/Tualatin-Sherwood Road corridor from the I-5 northbound ramps to SW Teton Avenue including the traffic signal at

**TRAFFIC STAFF REPORT
NYBERG RIVERS
CITY OF TUALATIN**

May 21, 2013

Page 3

Martinazzi Avenue/Nyberg Road are operated with SCATS, an adaptive traffic signal system, to optimize the corridor signal operations. The proposed traffic signal phasing change at the site main access will require the county to retime/fine-tune the signal system.

RECOMMENDATIONS:

To mitigate the redevelopment traffic impacts the intersection of SW Nyberg Road and the site main access shall be designed and constructed with the following intersection improvements:

- a. A westbound right-turn lane on SW Nyberg Road.
- b. Two southbound left turn lanes and a shared through/right-turn lane from the site driveway and also two inbound receiving lanes.

The applicant shall also pay a lump sum of \$10,000 to the county for field visit and retiming of the existing corridor signal system with the recommended traffic signal phasing change at this intersection.

JZ:da



May 24, 2013

Will Harper
Senior Planner
City of Tualatin
Tualatin, Oregon
97062

Re: Nyberg Rivers, Master Plan MP 13-01

Dear Mr. Harper,

Thank you for the opportunity to review the proposed site plan surrounding the above named development project. Tualatin Valley Fire & Rescue endorses this proposal predicated on the following criteria and conditions of approval:

- 1) **FIRE APPARATUS ACCESS ROAD DISTANCE FROM BUILDING AND TURNAROUNDS:** Access roads shall be within 150 feet of all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building. An approved turnaround is required if the remaining distance to an approved intersecting roadway, as measured along the fire apparatus access road, is greater than 150 feet. (OFC 503.1.1) ***Adequate perimeter access is reflected on the site plan dated 04/08/13.***
- 2) **FIRE APPARATUS ACCESS ROAD EXCEPTION FOR AUTOMATIC SPRINKLER PROTECTION:** When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access may be modified as approved by the fire code official. (OFC 503.1.1) ***For the purposes of this review it is assumed that all new development within this project will be afforded with full NFPA 13 fire sprinkler systems.***
- 3) **ADDITIONAL ACCESS ROADS – COMMERCIAL:** Where buildings exceed 30 feet in height or three stories in height shall have at least two separate means of fire apparatus access. Buildings or facilities having a gross area of more than 62,000 square feet shall be provided with at least two separate means of fire apparatus access. Buildings up to 124,000 square feet provided with fire sprinklers may have a single access. (OFC D104) ***Campus square footage is approximately 300,000 square feet and an approved secondary means of access is required.***
- 4) **AERIAL FIRE APPARATUS ACCESS:** Buildings or portions of buildings or facilities exceeding 30 feet in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway. Fire apparatus access roads shall have a minimum unobstructed width of 26 feet in the immediate vicinity of any building or portion of building more than 30 feet in height. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. (OFC D105) ***Please identify aerial apparatus access lanes on each building in excess of 30 feet in height.***
- 5) **REMOTENESS:** Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses. (OFC D104.3) ***The secondary means of access, SW Seneca Street is not separated by one half of the diagonal of the overall site dimension. Please separate or propose an Alternate Means of Protection.***
- 6) **FIRE APPARATUS ACCESS ROADS WITH FIRE HYDRANTS:** Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet. (OFC D103.1)
- 7) **NO PARKING SIGNS:** Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, "No Parking" signs shall be installed on one or both

sides of the roadway and in turnarounds as needed. Roads 26 feet wide or less shall be posted on both sides as a fire lane. Roads more than 26 feet wide to 32 feet wide shall be posted on one side as a fire lane. Signs shall read "NO PARKING - FIRE LANE" and shall be installed with a clear space above grade level of 7 feet. Signs shall be 12 inches wide by 18 inches high and shall have red letters on a white reflective background. (OFC D103.6) **Please provide a parking restriction sign plan for fire district review and approval.**

- 8) **SURFACE AND LOAD CAPACITIES:** Fire apparatus access roads shall be of an all-weather surface that is easily distinguishable from the surrounding area and is capable of supporting not less than 12,500 pounds point load (wheel load) and 60,000 pounds live load (gross vehicle weight). You may need to provide documentation from a registered engineer that the design will be capable of supporting such loading. (OFC D102.1) ***Parking lots and drive aisles to sustain 60,000 pounds GVW and 12,500 pounds point load.***
- 9) **TURNING RADIUS:** The inside turning radius and outside turning radius shall be not less than 28 feet and 48 feet respectively, measured from the same center point. (OFC 503.2.4 & 103.3) ***Please provide a full size scaled drawing at a scale of 1" = 40' or 1" = 50' for verification of turning radius.***
- 10) **PAINTED CURBS:** Where required, fire apparatus access roadway curbs shall be painted red and marked "NO PARKING FIRE LANE" at approved intervals. Lettering shall have a stroke of not less than one inch wide by six inches high. Lettering shall be white on red background. (OFC 503.3) ***Please provide a fire lane curb marking plan for fire district review and approval.***
- 11) **GATES:** Gates securing fire apparatus roads shall comply with all of the following: Minimum unobstructed width shall be 16 feet, or two 10 foot sections with a center post or island. Gates serving one- or two-family dwellings shall be a minimum of 12 feet in width. Gates shall be set back at minimum of 30 feet from the intersecting roadway. Gates shall be of the swinging or sliding type. Manual operation shall be capable by one person. Electric automatic gates shall be equipped with a means for operation by fire department personnel. Locking devices shall be approved. Electric automatic gates shall comply with ASTM 220-5 and UL 325. (OFC D103.6) ***Control gates are not shown or otherwise approved.***
- 12) **COMMERCIAL BUILDINGS - REQUIRED FIRE FLOW:** The required fire flow for the building shall not exceed 3,000 gallons per minute (GPM) or the available GPM in the water delivery system at 20 psi, whichever is less as calculated using IFC, Appendix B. A worksheet for calculating the required fire flow is available from the Fire Marshal's Office. (OFC B105.3) ***Please provide a current fire flow test of the nearest fire hydrant demonstrating available flow at 20 psi residual pressure as well as fire flow calculation worksheets. Please forward copies to both TVF&R as well as local building department. Fire flow calculation worksheets as well as instructions are available on our web site at www.tvfr.com.***

Please provide fire flow calculation worksheets for each new building on the campus.

- 13) **FIRE HYDRANTS – COMMERCIAL BUILDINGS:** Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants and mains shall be provided. This distance may be increased to 600 feet for buildings equipped throughout with an approved automatic sprinkler system. (OFC 507.5.1)
- 14) **FIRE HYDRANT NUMBER AND DISTRIBUTION:** The minimum number and distribution of fire hydrants available to a building shall not be less than that listed in Appendix C, Table C 105.1.

Considerations for placing fire hydrants may be as follows:

- Existing hydrants in the area may be used to meet the required number of hydrants as approved. Hydrants that are up to 600 feet away from the nearest point of a subject building that is protected with fire sprinklers may contribute to the required number of hydrants.
- ***Please provide a fire hydrant distribution plan based on fire flow calculations.***

- 15) **FIRE HYDRANT DISTANCE FROM AN ACCESS ROAD:** Fire hydrants shall be located not more than 15 feet from an approved fire apparatus access roadway. (OFC C102.1)
- 16) **REFLECTIVE HYDRANT MARKERS:** Fire hydrant locations shall be identified by the installation of reflective markers. The markers shall be blue. They shall be located adjacent and to the side of the centerline of the access road way that the fire hydrant is located on. In case that there is no center line, then assume a centerline, and place the reflectors accordingly. (OFC 510.1)

- 17) **PHYSICAL PROTECTION:** Where fire hydrants are subject to impact by a motor vehicle, guard posts, bollards or other approved means of protection shall be provided. (OFC 507.5.6) **Provide bollards at each new fire hydrant and fire department connection.**
- 18) **CLEAR SPACE AROUND FIRE HYDRANTS:** A 3 foot clear space shall be provided around the circumference of fire hydrants. (OFC 507.5.5)
- 19) **FIRE HYDRANT/FIRE DEPARTMENT CONNECTION:** A fire hydrant shall be located within 100 feet of a fire department connection (FDC). Fire hydrants and FDCs shall be located on the same side of the fire apparatus access roadway and or drive aisle. FDCs shall normally be remote except when approved by the fire code official. **Fire sprinkler FDCs shall be plumbed to the fire sprinkler riser downstream of all control valves.** Each FDC shall be equipped with a metal sign with 1 inch raised letters and shall read, "AUTOMATIC SPRINKLERS OR STANDPIPES" or a combination there of as applicable. (OFC 912.2)
- 20) **ACCESS AND FIRE FIGHTING WATER SUPPLY DURING CONSTRUCTION:** Approved fire apparatus access roadways and fire fighting water supplies shall be installed and operational prior to any combustible construction or storage of combustible materials on the site. (OFC 1410.1 & 1412.1)
- 21) **KNOX BOX:** A Knox Box for building access is required for this building. Please contact the Fire Marshal's Office for an order form and instructions regarding installation and placement. (OFC 506.1) **Each new building is to be afforded with a Knox box.**
- 22) **PREMISES IDENTIFICATION:** Buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet numbers. Numbers shall be a minimum of 4 inches high with a ½ inch stroke. (OFC 505.1) **Location, elevation, size and stroke of addressing to be deferred until further building design information and elevations are available.**
- 23) **FIRE DEPARTMENT ACCESS TO EQUIPMENT:** Fire protection equipment shall be identified in an approved manner. Rooms containing controls for HVAC, fire sprinklers risers and valves or other fire detection, suppression or control features shall be identified with approved signs. (OFC 509.1)

If you have questions or need further clarification, please feel free to contact me at 503-259-1404.

Sincerely,

Drew S. DeBois

Drew DeBois
Deputy Fire Marshal II/CFI

Copy: File, J. Sayers, COT



WASHINGTON COUNTY, OREGON

Department of Land Use and Transportation, Operations & Maintenance Division
1400 SW Walnut Street, MS 51, Hillsboro, Oregon 97123-5625
(503) 846-7623 · FAX: (503) 846-7620

May 29, 2013

Will Harper, Senior Planner
City of Tualatin
18880 SW Martinazzi Avenue
Tualatin, OR 97062-7092
No. of pages: 6 (including attachment)

RE: Nyberg Rivers
City File Number: **MP-13-01**
Tax Map and Lot Number: **2S124B0 2000/2001/2100 & 2S124A
2502/2506/2507/2508/2700**
Location: **7455-7925 SW Nyberg Avenue**



Washington County Department of Land Use and Transportation has reviewed this development application and submits the following comments and required conditions for access to SW Nyberg Road, a County-maintained Arterial.

REQUIRED CONDITIONS OF APPROVAL (Revised)

- I. **PRIOR TO ISSUANCE OF A BUILDING PERMIT BY THE CITY OF TUALATIN:**
 - A. The following shall be recorded with Washington County (*Contact Scott Young, Survey Division: 846-7933*):

1. Dedication of additional right-of-way and/or easements to provide adequate right-of-way for the required traffic mitigation measures identified in Washington County's Traffic Staff report dated May 21, 2013.
 2. Dedication of additional right-of-way to provide adequate corner radius.
 3. Provision of a non-access reservation along the subject site's frontage of SW Nyberg Road.
- B. Submit to **Washington County** Public Assurance Staff, 503-846-3843:
1. Completed "Design Option" form.
 2. **\$15,000.00** Administration Deposit.

Note: The Administration Deposit is a cost-recovery account used to pay for County services provided to the developer, including plan review and approval, field inspections, as-built approval, and project administration. The Administration Deposit amount noted above is an estimate of what it will cost to provide these services. If, during the course of the project, the Administration Deposit account is running low, additional funds will be requested to cover the estimated time left on the project (at then-current rates per the adopted Washington County Fee Schedule). If there are any unspent funds at project close out, they will be refunded to the applicant. PLEASE NOTE: Any point of contact with County staff can be a chargeable cost. If project plans are not complete or do not comply with County standards and codes, costs will be higher. There is a charge to cover the cost of every field inspection. Costs for enforcement actions will also be charged to the applicant.

3. A copy of the City's Land Use Approval with Conditions, signed and dated.
 4. Three (3) sets of complete engineering plans for construction of the following public improvements to County standards (refer to attached Traffic Staff Report dated May 21, 2013):
 - a. A westbound right-turn lane on SW Nyberg Road.
 - b. Two (2) southbound left-turn lanes and a shared through/right-turn lane from the site's access on SW Nyberg Road and two (2) inbound receiving lanes.
- B. Obtain a Washington County **Facility Permit** upon completion of the following:
1. Obtain Engineering Division approval and provide a financial assurance for the construction of the public improvements listed in conditions **I.B.4**.

NOTE: The Public Assurance staff (503-846-3843) will send the required forms to the applicant's representative **after** submittal and approval of items listed under **I.B**.

*The **Facility Permit** allows construction work within County rights-of-way and permits site access only after the developer first submits plans and obtains Washington County Engineering approval, obtains required grading and erosion control permits, and satisfies various other requirements of Washington County's Assurances Section including but not*

limited to execution of financial and contractual agreements. This process ensures that the developer accepts responsibility for construction of public improvements, and that improvements are closely monitored, inspected, and built to standard in a timely manner.
Access will only be permitted under the required Washington County Facility Permit, and only following submittal and County acceptance of all materials required under the facility permit process.


II. PRIOR TO OCCUPANCY:

Obtain a Finaled Washington County **Facility Permit**, contingent upon the following:

- A. The road improvements required in condition I.B.4. above shall be completed and accepted by Washington County.

Requirements identified within this letter are considered by the County to be minimum warranted improvements (and/or analyses) that are necessitated by the proposed development, therefore it is requested that they be conveyed to the applicant within the City's Approval document. Please send a copy of the subsequent Final City Notice of Decision and any appeal information to the County.

Thank you for the opportunity to comment. If you have any questions, please contact me at 503-846-7639.


Naomi Vogel
Associate Planner

Attachment: Washington County Traffic Staff Report – May 21, 2013 (3 pages)

Cc: Chris Harrell, Operations Division
Road Engineering Services Section
Jinde Zhu, P.E., Traffic Engineer
Assurances Section
Transportation File



WASHINGTON COUNTY, OREGON

Department of Land Use and Transportation, Operations & Maintenance Division
1400 SW Walnut Street, MS 51, Hillsboro, Oregon 97123-5625
(503) 846-7623 · FAX: (503) 846-7620

May 21, 2013

Will Harper, Senior Planner
City of Tualatin
18880 SW Martinazzi Avenue
Tualatin, OR 97062-7092
FAX: 503-692-5421
No. of pages: 6 (including attachment)

RE: Nyberg Rivers
City File Number: **MP-13-01**
Tax Map and Lot Number: **2S124B0 2000/2001/2100 & 2S124A
2502/2506/2507/2508/2700**
Location: **7455-7925 SW Nyberg Avenue**



Washington County Department of Land Use and Transportation has reviewed this development application and submits the following comments and required conditions for access to SW Nyberg Road, a County-maintained Arterial.

REQUIRED CONDITIONS OF APPROVAL

- I. PRIOR TO ISSUANCE OF A BUILDING PERMIT BY THE CITY OF TUALATIN:**
 - A. Submit to Washington County Public Assurance Staff, 503-846-3843:**

1. Completed "Design Option" form.
2. **\$20,000.00** Administration Deposit

Note: The Administration Deposit is a cost-recovery account used to pay for County services provided to the developer, including plan review and approval, field inspections, as-built approval, and project administration. The Administration Deposit amount noted above is an estimate of what it will cost to provide these services. If, during the course of the project, the Administration Deposit account is running low, additional funds will be requested to cover the estimated time left on the project (at then-current rates per the adopted Washington County Fee Schedule). If there are any unspent funds at project close out, they will be refunded to the applicant. PLEASE NOTE: Any point of contact with County staff can be a chargeable cost. If project plans are not complete or do not comply with County standards and codes, costs will be higher. There is a charge to cover the cost of every field inspection. Costs for enforcement actions will also be charged to the applicant.

3. A copy of the City's Land Use Approval with Conditions, signed and dated.
4. Three (3) sets of complete engineering plans for construction of the following public improvements to County standards (refer to attached Traffic Staff Report dated May 21, 2013):
 - a. A westbound right-turn lane on SW Nyberg Road.
 - b. Two (2) southbound left-turn lanes and a shared through/right-turn lane from the site's access on SW Nyberg Road and two (2) inbound receiving lanes.

B. Obtain a Washington County **Facility Permit** upon completion of the following:

1. Obtain Engineering Division approval and provide a financial assurance for the construction of the public improvements listed in conditions **I.A.4.**

NOTE: The Public Assurance staff (503-846-3843) will send the required forms to the applicant's representative **after** submittal and approval of items listed under **I.A.**

*The **Facility Permit** allows construction work within County rights-of-way and permits site access only after the developer first submits plans and obtains Washington County Engineering approval, obtains required grading and erosion control permits, and satisfies various other requirements of Washington County's Assurances Section including but not limited to execution of financial and contractual agreements. This process ensures that the developer accepts responsibility for construction of public improvements, and that improvements are closely monitored, inspected, and built to standard in a timely manner. Access will only be permitted under the required Washington County Facility Permit, and only following submittal and County acceptance of all materials required under the facility permit process.*

II. **PRIOR TO OCCUPANCY:**

Obtain a Finaled Washington County **Facility Permit**, contingent upon the following:

- A. The road improvements required in condition **I.A.4.** above shall be completed and accepted by Washington County.

Requirements identified within this letter are considered by the County to be minimum warranted improvements (and/or analyses) that are necessitated by the proposed development, therefore it is requested that they be conveyed to the applicant within the City's Approval document. Please send a copy of the subsequent Final City Notice of Decision and any appeal information to the County.

Thank you for the opportunity to comment. If you have any questions, please contact me at 503-846-7639.



Naomi Vogel
Associate Planner

Attachment: Washington County Traffic Staff Report – May 21, 2013 (3 pages)

Cc: Chris Harrell, Operations Division
Road Engineering Services Section
Jinde Zhu, P.E., Traffic Engineer
Assurances Section
Transportation File




WASHINGTON COUNTY, OREGON

Department of Land Use and Transportation, Engineering/Surveying Division
1400 SW Walnut St., MS 17A, Hillsboro, Oregon 97123
(503) 846-7900 · FAX: (503) 846-7910

DATE: May 21, 2013

TO: Naomi Vogel, Associate Planner

FROM: Jinde Zhu, P.E., Traffic Engineer 

CC: Assurances, Gary Stockhoff, Traffic Analysis File #1505, C/File

RE: **TRAFFIC STAFF REPORT
NYBERG RIVERS
CITY OF TUALATIN**

This report summarizes the impacts of the proposed redevelopment, Nyberg Rivers, located in the northwest quadrant of the I-5/Nyberg Road interchange. This redevelopment consists of a reconfiguration of portions of the larger existing shopping center site and also includes demolition of existing buildings and construction of new retail pads and relocation of some existing uses. This proposed redevelopment will consist of a total of 307,000 square feet of retail space.

The main access to the site will be still via the existing signalized access on SW Nyberg Road, and also via the other existing accesses. With the proposed redevelopment the main access will be improved to accommodate the traffic which will be generated by the proposed redevelopment. SW Nyberg Road is a county roadway and classified as an arterial.

A traffic impact analysis report was submitted by the applicant's traffic engineer ("Transportation Impact Analysis, Nyberg Rivers, Tualatin, Oregon, April 2013", Kittelson & Associates, Inc.). The findings and recommendations given below are based on the information provided in the report.

FINDINGS:

1. The net site trip generation from the redevelopment, was calculated based on the existing traffic counts and trip generation information contained in the report "Trip Generation, 9th Edition", ITE, and is summarized in the following table.

**TRAFFIC STAFF REPORT
 NYBERG RIVERS
 CITY OF TUALATIN**

May 21, 2013

Page 2

	Weekday PM Peak Hour (vph)	Saturday Peak Hour (vph)
Enter	310	515
Exit	305	440
Total	615	955

2. The site impact on streets under Washington County jurisdiction, based on a 10 percent increase in average daily traffic or the minimum impact area, is described below.

Site Impact Area		
Link	From	To
SW Nyberg Road	Site Access	Site Access

3. Intersections within the impact area under Washington County jurisdiction were analyzed (weekday PM and Saturday peak hours) with the following results.

Intersection	Weekday PM Peak Hour V/C Performance*	Saturday Peak Hour V/C Performance*
SW Nyberg Rivers/Site Access	0.83	0.71

* Intersection performance is assessed for the entire signalized intersection and with the following recommended improvements.

The applicant's traffic engineer recommended the following road improvements at the intersection of SW Nyberg Road and the site main access:

- a. A westbound right-turn lane on SW Nyberg Road.
- b. Two southbound left turn lanes and a shared through/right-turn lane from the site driveway and also two inbound receiving lanes.
- c. Change from the existing north/south permissive phasing to split phasing with overlap phasing for the westbound right-turn movement.

With these improvements, the intersection of SW Nyberg Road and the site main access is calculated to operate at a volume-to-capacity ratio of 0.83 and 0.71 during the weekday PM peak hour and Saturday peak hour respectively. These v/c ratios are below the county's maximum v/c standard of 0.99.

It should be noted that all the traffic signals along the Nyberg Road/Tualatin-Sherwood Road corridor from the I-5 northbound ramps to SW Teton Avenue including the traffic signal at

**TRAFFIC STAFF REPORT
NYBERG RIVERS
CITY OF TUALATIN**

May 21, 2013

Page 3

Martinazzi Avenue/Nyberg Road are operated with SCATS, an adaptive traffic signal system, to optimize the corridor signal operations. The proposed traffic signal phasing change at the site main access will require the county to retime/fine-tune the signal system.

RECOMMENDATIONS:

To mitigate the redevelopment traffic impacts the intersection of SW Nyberg Road and the site main access shall be designed and constructed with the following intersection improvements:

- a. A westbound right-turn lane on SW Nyberg Road.
- b. Two southbound left turn lanes and a shared through/right-turn lane from the site driveway and also two inbound receiving lanes.

The applicant shall also pay a lump sum of \$10,000 to the county for field visit and retiming of the existing corridor signal system with the recommended traffic signal phasing change at this intersection.

JZ:da

From: J. Michael Riley [mailto:jmyke2000@comcast.net]
Sent: Tuesday, March 12, 2013 4:07 PM
To: Alan Apin; Jeff DeHaan; Cameron Grile; Nic Herriges; Bill Beers; Steve Klingerman
Cc: AQUILLA HURD-RAVICH
Subject: Fwd: TPAC

Group -

FYI. Joe lives in my building & used to be on TPAC as you can tell from context. He is a retired architect. I haven't seen the plan ... who has among you? I got some blow-back about it from Jan Giunta, too.

Aquilla - if the dept. has this plan, could we have a look at it? Either add it to the agenda for this month or send it to us by email? Or both (preferable).

Mike

From: "Joe Lipscomb" <tgc205@comcast.net>
To: "Mike Riley" <jmyke2000@comcast.net>
Sent: Tuesday, March 12, 2013 1:58:28 PM
Subject: TPAC

Mike,

I just had a opportunity to look at the proposed sit plan for the Nyberg Rivers re-development and I must said I am really shocked at what is being proposed. This site is one of only a very very few river frontage properties available within the metro area and it looks like we are being ask to accept a ' 50's - 60's strip mall ' concept for development as something new and exciting. Not only does this make any sense in todays market, but my 40 years of design and development of properties tells me, as presented, this is basically a stupid use of the site. I understand that our local planning is not the best or most experienced but it should still be way above this level and should at least be showing some imagination. It makes me truly glad that I resigned from TPAC. Besides , being a really bad design - it also does an extremely poor job of following our regional trail system plan and of accommodation design wise for the east-west as well as the north-south trails.

As an Architect and Chairman of TPAC I truly hope that TPAC rejects this concept in total and sends it back for a complete re-design and thinking about how to give the city a showcase type of project which would bring a sense of pride to the city.

June 19, 2013

Aquilla Hurd-Ravich
Planning Manager
City of Tualatin

RE: Nyberg Rivers Project

As the city continues with public comment for the Nyberg Rivers project, the Ibach CIO held a board meeting to discuss issues we believe are important to the community, and asked the Ibach CIO community to comment on several areas the board identified as concerns.

We received several comments from the community, with one letter from Ed Casey that was very detailed with some concerns about the appearance of the structure. Ed Casey's letter is attached.

There are five areas of concern that the Ibach CIO has currently identified.

1. Parking. We wanted to be assured that the parking identified in the Master Plan will be sufficient to handle the inflows of cars coming to the development. Has the city developed any plans to handle traffic overflows, which are sure to happen on any given day? As one board member commented, can the city "*handle what is expected to be an extraordinary amount of traffic for the opening of this proposed development?*"
2. Traffic Flow. Currently, the city of Tualatin is working on a traffic study to determine if a second and third entrance and exit is needed. The "Seneca Street development" is in the current master plan, but the developer has not included it in their plan because their traffic study shows it is not necessary. We are still waiting for the City to complete its study. Developing that exit would require City Hall council chambers to be relocated. The second exit is the "A Street" exit. There are several questions that have not been made clear, first and most important, how will that exit effect traffic on Boones Ferry Road. We understand that the traffic flow will be right turn only, but does the city understand the "unintended consequences" of traffic flowing north on Boones Ferry Road?
3. Trail way along river. The current plan shows a walking trail along the Tualatin River and an easement granted to the city. Currently, the developer is not including the shared pathway in its plan, and the city has no budget to develop the easement. Can we include a request to the developer to develop the easement?
4. Bike access to development. Currently there are no plans to create a bike access to the development. We would like to see some plan included in the development to allow bike access to and from the area.

5. Truck access. Currently it appears from the Master Plan that truck access will be shared through the main entrance with normal traffic. What thought has the city given to requiring the developer to create a separate traffic pattern for trucks?

The overwhelming concern is that the city needs to have plans, and require the developer to mitigate these plans for the traffic. The concern here is that developers tend to under-estimate the traffic flows, leaving the city and the residents with problems that should have been considered from the beginning.

Thank you,

Paul Morrison

Ibach CIO Land Use Officer

Community Development Department
Planning Division
City of Tualatin
18880 SW Martinazzi Ave.
Tualatin, OR 97062

June 3, 2013

Re: MP-13-01 Comments on Nyberg Rivers Master Plan and Cabela's proposed store in Tualatin.

As a former committee member of the Tualatin Architectural Review Board, I looked at numerous plans and proposals for development within Tualatin. I have a number of concerns regarding the Cabela's proposal for their store within this development. Their elevations and plat plan standards seem to differ somewhat from the proposal for the rest of the development. Besides being from different architects, there seems to be a disconnect between the multi-faceted design of the majority of the buildings and the split face concrete walled box for Cabela's.

Although the elevation drawings for the Cabela's are preliminary, they show a basic "box" structure with a specific "Cabela's style" entry area to the store. The elevations on the preliminary plan are downgraded in comparison with most of their other stores, as well as with most of the other structures in this development. This is not the type of "just get by" building we want in Tualatin. This is especially true with the possible visibility from I-5 and Nyberg Rd. and this being at the main entry to Tualatin.

We have lived with the K-Mart concrete box with its open parking lot for over 40 years and now is the time to make a change and a statement for Tualatin. We don't want another K-Mart box and parking lot in Tualatin!

The box shape of this building is not as evident on the plans, where perspective is lost. A ground level view of the building will diminish the green roof structure, and the long line of the wall will be viewed as another flat roofed concrete "box" from the parking lot, from the freeway, and from many areas within the development. Looking down on the building from Nyberg Rd. will show the true box shape of the building. I'd suggest you request different perspectives on the building, and look at the size and shape of the building from the freeway, from the Nyberg overpass, and from eye-level throughout the development. Maybe the landscaping as planned will hide some of this, but I doubt it.

In 7 of the 8 attached photos from the Cabela's website, their other stores have substantially more impact and more architectural flair than this one. A few rock patches on the walls don't significantly upgrade the design.

Nearly all the other stores in the attached photos have full height rock columns holding up the entry structure and have the entry structure projecting out substantially from the building. In some cases, it appears that this projection could exceed 60 feet. With the weather in Oregon – rain, wind etc. – this store should have a good sized canopy over its entry. Also, a larger entry structure will soften the "box."

One of the benefits of the canopy is that it projects into the roadway in front of the building, eliminating the straight line roadway in front of the entry. This will make for safer pedestrian access to the store

and will cut down the speed in the parking area. Possible addition of slightly raised textured concrete walkways and cross walks within the development would enhance the safety of pedestrians while only removing a few parking spaces.

Many of the existing Cabela's stores have extensive landscaping near and around the entry area. This proposal doesn't have such landscaping, other than in minimal use of trees in the scarce planter strips in the parking areas. The other portion of the development appears to have substantially more and wider planting areas, more ground cover, and especially, more landscaping near to their building elevations.

Many of the Cabela's also have impressive flag poles – usually 3 poles – U.S., State (or city?) and Cabela's – this store should have these also. We have too few American flags in town. – and this is a “signature” part of most Cabela's stores. Also, many Cabela's stores have some type of LARGE signature sculpture at the entry. I wouldn't suggest this, but it goes to show that Cabela's is not adverse to spending to make a statement!

In looking at the other elevations in the master plan, the other buildings have more architectural design features, different fascia heights, wider sidewalks and more up front landscaping material. In contrast, the Cabela's plan shows no landscaping to break up the sizable block wall exterior, except for 5 trees in the NE corner of the building. All that breaks up the expanse of concrete are a few rock columns. Without modification, this ends up being a box in a development of boutique storefronts, multiple roof lines and facades.

Finally, Cabela's sells boats, and normally display them in the front of the store. Have they explained where the boats will be? Most likely the trailered boats will be on the sidewalk to the left side of the building and the canoes and kayaks under the canopy to the right of the entry. Is this acceptable?

Please consider these points when reviewing this master plan. Please inform me of any public hearings on this project, especially Architectural Review meetings. I have been a customer of Cabela's for the past 10+ years, have gone to a number of stores, and feel they are a wonderful addition to Tualatin... if their design standards meet with other developments in the area.

Any questions, please let me know.

Sincerely,

Ed Casey
22255 SW 102nd Pl
Tualatin, OR
edkcnw@comcast.net
503-692-0513

Cc: Tualatin Chamber of Commerce
Ibach CIO

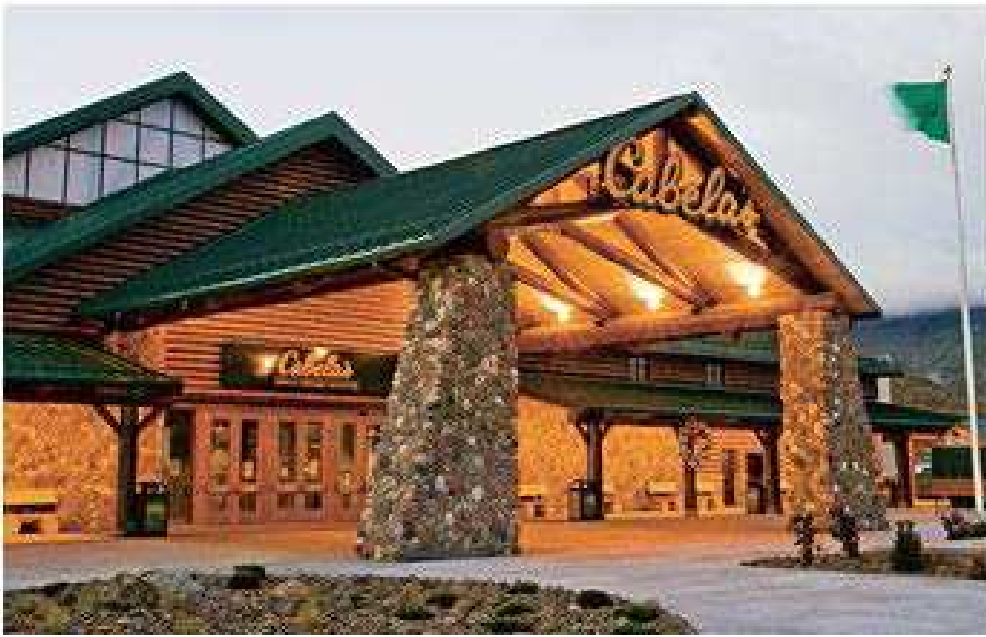


Cabela's Lacey, Washington Retail Store is located near the junction of I-5 and Marvin Road at the Lacey Gateway Project in the Hawks Prairie business district. The 185,000-square-foot retail showroom is an educational and entertainment attraction, featuring a décor of museum-quality animal displays, huge aquariums and trophy animals interacting in realistic re-creations of their natural habitats.



Cabela's Tulip, Washington store is located within Quil Ceda Village on the Tulip Tribes Indian reservation adjacent to Marysville about 30 miles north of Seattle along Interstate 5. The 110,000-square-foot store is designed to immerse customers in the outdoor experience and includes conservation-themed wildlife displays and trophy animal mounts.

ATTACHMENT TO COMMENTS ON MP-13-01 (pg 1)



Cabela's Reno, Nevada Retail Store is located along I-80 near the California border. The 125,000 square-foot retail showroom is an educational and entertainment attraction, featuring a décor of museum-quality animal displays, huge aquariums and trophy animals interacting in realistic re-creations of their natural habitats.



Cabela's Fort Worth, Texas Retail Store is located at junction of state highway 170 and I-35W. In addition to offering quality outdoor merchandise, the massive 230,000 sq. ft. showroom is an educational and entertainment attractions, featuring a décor of museum-quality animal displays, huge aquariums and trophy animals interacting in realistic re-creations of their natural habitats.

ATTACHMENT TO COMMENTS ON MP-13-01 (pg 2)

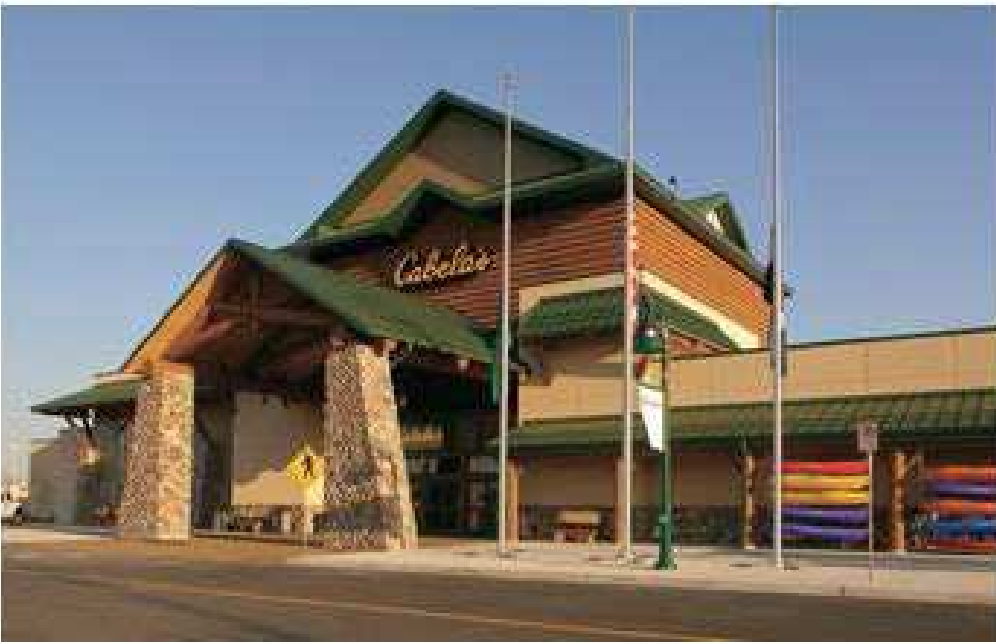


Cabela's Buda, Texas Retail Store is located just off I-35 between Austin and San Antonio. In addition to offering quality outdoor merchandise, the 185,000 sq. ft. showroom is an educational and entertainment attraction, featuring a décor of museum-quality animal displays, huge aquariums and trophy animals interacting in realistic re-creations of their natural habitats.



Cabela's Billings, Montana Retail Store is located at 4550 King Avenue East, Billings (South Billings Blvd. exit off I-90). The 80,000-square-foot, next-generation Cabela's store is an educational and entertainment attraction featuring a décor of museum-quality animal displays, a 7,000-gallon aquarium and trophy animals interacting in realistic re-creations of their natural habitats.

ATTACHMENT TO COMMENTS ON MP-13-01 (pg 3)



Cabela's Hazelwood, Missouri Retail Store is located just off I-270, north of I-70 (Exit 22B, Hwy. 370). The 130,000 sq. ft. showroom is an educational and entertainment attraction, featuring a décor of museum-quality animal displays, huge aquariums and trophy animals interacting in realistic re-creations of their natural habitats.



Cabela's Post Falls, Idaho Retail Store is located at The Pointe at Post Falls, an 800,000 square-foot shopping center located off I-90 Exit 2, west on West Seltice Way near the Washington/Idaho State line. The 125,000-square-foot retail showroom is an educational and entertainment attraction, featuring a décor of museum-quality animal displays, aquarium and trophy animals interacting in realistic re-creations of their natural habitats.

ATTACHMENT TO COMMENTS ON MP-13-01 (pg 4)

CITY OF TUALATIN
RECEIVED

JUL 9 2013

COMMUNITY DEVELOPMENT
PLANNING DIVISION

Will Harper
Associate Planner
City of Tualatin

July 7, 2013

Will,

The pictures I brought you were taken at the Springfield, Oregon Cabela's on June 21, 2013.

This Cabela's site is part of a larger connected mall, but this store faces I-5. There are mature trees and landscaping along I-5 which somewhat block Cabela's, and only part of the building can be seen from the freeway. The site is on the same level as I-5, and adjacent interchanges (such as our Nyberg Rd interchange) are either away from the store or at a different grade. This store is not looked down on as it would be in Tualatin.

The rest of the store is much smaller in length (I believe the total footprint of the store is 68,000 s.f.)

The pictures are a mixture of the exterior frontage of the building that faces I-5 (W) and some corner shots of the NW corner of the building. The one of the main things I noticed was the large number of "outside sales" items displayed both on the walkways and walls under the canopy structures and the canopy ends. Another main point was the entry canopy. This extends about 30' from the main structure and includes two large rock columns holding the canopy up. I would think that this would visually cut the length of the building as presented to Tualatin.

Two of the pictures are from the Cabela's website – the Tulalip store (similar design exterior as Tualatin's) and the Springfield store. Both of their pictures show no outside sales items. (Interesting...)

The picture showing the North side of the building also shows some trees – I'm not sure how long that store has been open, but it has been a number of years, and those trees are still pretty small. What will the Nyberg Rivers Trees look like in a few years?

Hopefully these pictures are helpful to you.

Any questions, please email me or give a call. (503) 692-0513

Thanks,



Ed Casey
22255 SW 102nd Pl
Tualatin, OR 97062



MP-13-01 Attachment 107, page 11

[Photo Gallery](#) | [Video Tour](#)















ER

Cabela's

STAIN

NG · OUTDOOR GEAR



2000 GATEWAY STREET
Cabela's

2000 GATEWAY STREET
Cabela's

Monday - Sat 9:00 AM - 9:00 PM
Sunday 9:00 AM - 7:00 PM
This is a General Public Use Area





emotion
KAYAKS

LEGENDARY
KAYAKS





WORLD'S FOREMOST OUTFITTER

Cabela's

FISHING OUTDOORS





From: AQUILLA HURD-RAVICH
Sent: Wednesday, March 13, 2013 9:05 AM
To: p.sivley
Cc: Will Harper
Subject: RE: Tualatin Business & Community Advocate!

Hi Paul,
Thank you for your comments. We will include them with other comments we receive regarding this development.

Aquilla Hurd-Ravich, AICP
Planning Manager|Community Development Department

From: p.sivley [mailto:p.sivley@comcast.net] On Behalf Of p.sivley
Sent: Tuesday, March 12, 2013 10:58 AM
To: AQUILLA HURD-RAVICH
Subject: Fwd: Tualatin Business & Community Advocate!

Aquilla
I hope the City will consider this issue of buildings up front to create a better looking entry to the city than a sea of cars. I think the stores could still front toward the street with cars parking in the back. Customers would have to walk around, but there are plenty of open spaces between the buildings that people could walk through. Just a different approach to retail I think merits some consideration.
Paul Sivley

Paul Sivley Photography
Award Winning Architectural, Product/Food, Travel and Photo-journalistic Images, Business Portraiture, Fine Art
503.502.3385
Facebook | Yelp | Angie's List | Linked In | Google+ | Youtube | www.paulsivley.com | Houzz
Tualatin Chamber Interview | Tualatin Life Article

From: "Ron Audette" <raudette@centercal.com>
To: "p.sivley" <psfoto@comcast.net>
Sent: Monday, March 11, 2013 10:08:52 PM
Subject: RE: Tualatin Business & Community Advocate!
Hi Paul,

Typically retails centers are configured with buildings in the rear and parking lots up front for the convenience of the motorist and so store fronts face the streets.

We can discuss in greater detail next time we meet.

Ron

From: p.sivley [p..sivley@comcast.net] On Behalf Of p.sivley [psfoto@comcast.net]
Sent: Monday, March 11, 2013 5:49 PM
To: Ron Audette
Subject: Fwd: Tualatin Business & Community Advocate!
Ron
Re Nyberg Rivers. Has any consideration been given to putting the parking spaces in

the back and buildings up front? Just seems the buildings make a more attractive city entrance than the sea of cars.

Thanks!

Paul Sivley

From: "Tualatin Chamber of Commerce" <linda@tualatinchamber.com>

To: psfoto@comcast.net

Sent: Monday, March 11, 2013 1:10:20 PM

Subject: Tualatin Business & Community Advocate!

Having trouble viewing this email? [Click here](#)

Tualatin Chamber and Rotary Host
State of City Address

Tualatin Chamber of Commerce
Business & Community Advocate!
March 2013

In This Issue

Save the Date!

K-Mart Re-Development

January Economic Indicators

Martinazzi Street Closure

Chamber Leads Transit Study

Welcome New Businesses!

Chamber Logo & Motto

Chamber Mission

The Mission of the Tualatin Chamber of Commerce is to promote, educate and support a vital business community and enhance the livability of the greater Tualatin, Oregon area.

Chamber Core Competencies

1. Creating a Strong Local Economy.
2. Promoting the Community.
3. Providing Networking Opportunities to Build Business Relationships.
4. Representing the Interests of Business with Government.
5. Political Action.

Annual Events

April 25th, Celebrate Tualatin

June 22nd, Tualatin Home
Improvement Show

July 15th, Crawdaddy Open Golf
Tournament

Aug. 9th-10th Tualatin Crawfish
Festival

Oct. 2nd-3rd, Membership
Palooza!

Oct. 19th, Regatta Run 5K
December 10th, Holiday Auction
& Luncheon

Join Our Mailing List

Dear Paul,

On February 27th, the Tualatin Chamber and Rotary Club partnered to host Mayor Lou Ogden for the Annual State of the City Address. It was exciting to watch the 2012 video review and remember the incredible business being done right here in Tualatin. For the last year, Tualatin businesses invested over \$90 million dollars in Commercial and Industrial development and created 2,600 jobs. This growth is outpacing the region and keeping Tualatin as one of the best places to open a business. The Chamber is your business advocate before government on everything from Building & Permitting, Energy Savings, Parking, Sign Code, Transit, Transportation and more. We're working everyday to support your needs and to promote the Tualatin Area Business Community.

Thanks in advance for making Tualatin your business home! As always, please don't hesitate to give us a call if there's anything that we can do for you.

Sincerely,

Linda Moholt, CEO
Tualatin Chamber of Commerce

Save the Date!

Networking Events:

* AM Networking-every Friday morning at 7:30am, location varies, check website.

Committees:

* Marketing & Membership-2nd Tuesday of every month, 11:30am, at the Chamber office.

* Ambassador's- 3rd Tuesday of every month, 9:00am, at the Chamber office.

* Board of Directors-4th Monday of every month, 3:30pm, location varies.

* Economic Development Council-4th Wednesday of every month, 3:30pm, at Country Financial Insurance.

Business Teams:

* Fit City Tualatin-1st Tuesday of every month, program & location varies, check website.

* WIN, Women in Networking-3rd Thursday of every month, 11:30am, includes featured speaker & lunch at Game Time.

* TVYP, Tualatin Valley Young Professionals-program rotates between 2nd Thursday and 3rd Wednesday of every other month, location varies, check website.

* Home Improvement Team-4th Tuesday of every month, 7:30am at the Village Inn Restaurant.

Annual Events:

* Celebrate Tualatin, Thursday, April 25th, Tualatin Country Club, 11:30am-1:00pm

* Tualatin Home Improvement Show, Saturday, June 22nd, Bridgeport Village, 10:00am-7:00pm

* Crowdaddy Open Golf Tournament, Monday, July 15th, Tualatin Country Club, Noon-7:00pm

* Tualatin Crawfish Festival, August 9th and 10th, for more info go to www.tualatincrawfishfestival.com

* Regatta Run 5K, Saturday Oct. 19th, Tualatin Commons, 9:00-10:00am

* Holiday Auction & Luncheon, Tuesday, Dec. 10th, 4:00-7:00pm

For more information go to: www.tualatinchamber.com

Linking Tualatin - Property Owners

Possible Changes to Land Use Planning

Four different times available:

Tuesday, March 12 - 12:00 to 1:30 p.m., or

Tuesday, March 12 - 5:30 to 7:00 p.m., or

Thursday, March 14 - 12 to 1:30 p.m., or

Thursday, March 14 - 5:30 to 7:00 p.m.

See attached for meeting locations & more information.

All interested parties are invited to attend.

RSVP - Email bsteffen@ch2m.com

On February 25, 2013

The City of Tualatin adopted the TSP

Ordinance #1354-13 (File No. PTA-12-02), an Ordinance Adopting the 2013 Transportation System Plan Update and Amending Tualatin Development Code Chapters 1, 3, 11, 31,

34, 38, 71, 73, 74,75.

[Click Here](#) or more information:

K-Mart Re-Development

CenterCal Properties submitted a concept plan for the re-development of the K-Mart Property. Plan version 2013-02-21 submitted to the City of Tualatin as part of the pre-application packet will be called "Nyberg Rivers".

[Click Here](#) to view the Concept Plan

Tualatin Chamber Supports Improvements for Tonquin Road & Grahams Ferry Road

[Click Here](#) to read letter of support:

124th Project Update

You are invite you to an open house presented by Washington County on Thursday March 20th.

Washington County is looking for feedback from the local area and it will be a good informational meeting.

Open house:

Wed, March 20 2013

5:00 p.m. to 7:30 p.m.

Tualatin Valley Fire & Rescue Training Center

12400 SW Tonquin Road, Sherwood

Here is the timeline:

For the next year, (through summer of 2014) Washington County is working on the road alignment and preliminary design.

* Spring of 2014 through spring 2015 will be final design

* Summer 2014 and to summer of 2015, Washington County will be working on right of way and land acquisition

* Construction to begin spring of 2015

Here is the link to the website: <http://124thproject.com/>

Here is a link that provides information on area projects that may be of interest to you:

http://124thproject.com/?page_id=2

Southwest Tualatin Concept Plan Basalt Creek and West Railroad Planning Areas Boones Ferry Road Improvements

Oregon's Unemployment Rate Was Essentially
Unchanged at 8.4% in January, as Payroll
Employment Grew by 4,200

January Labor Market Highlights

* Oregon's seasonally adjusted unemployment rate was 8.4% in January. The rate has been between 8.3% and 8.9% during the past 12 months.

* Oregon's seasonally adjusted non-farm payroll employment grew by 4,200 in January.

* Payroll employment for 2012 was revised upward by 6,500 jobs or .4%.

[Click Here to read more:](#)

The Martinazzi Avenue project consists of replacing the water line from Nyberg Street to north of the Tualatin River, replacing the sewer line from Seneca Street to Boones Ferry Road, completely rebuilding the pavement from just south of Nyberg Street to Boones Ferry Road, replacing the traffic signal at the intersection of Nyberg Street and Martinazzi Avenue, and replacing all the catch basins in the roadway.

The project is expected to go out to bid in April and be under construction by summer 2013.
To learn more information, please attend this open house.
For questions contact Kaaren Hofman at either khofmann@ci.tualatin.or.us or 503-691-3034.

Tualatin Chamber Leads Transit Study

The Tualatin Chamber of Commerce in partnership with Ride Connection, Westside Transportation Alliance, City of Tualatin, WorkSource Tualatin, TriMet and volunteers was one of seven teams selected to participate in a nation-wide study regarding job access through Transit. Team Tualatin has spent the last six months creating a coordinated, fixed route shuttle system to provide transit options to job seekers, trainees and employees of local businesses within Tualatin.

We're very excited about the study using employee zip code data to understand when and where our workforce comes from to apply for a series of grants that would allow us to more than double our current Tualatin Shuttle service. Grants will be determined by the end of April with funding awarded by July 1st.

Another example of your Chamber working to support local businesses!

Tualatin Chamber Welcomes New Businesses!

Lighthouse Business Solutions Ribbon Cutting

Farmers Insurance, AJ Johnson
Fitness Together

Roth Heating & Cooling
Tonquin Industrial Group
Videosurveillance.com
Primary Residential Mortgage
Nothing Bundt Cakes
Stafford Hills
Pacific Ride
AlphaCard
Warm Springs Dental
Malama Pono, Nikken
Light House Business Solutions
Body Mind Soul 100

Thanks for creating JOBS in Tualatin!

Your Business and Community Advocate!

I hope you enjoyed the Business and Community Advocate.
We thank you for making Tualatin your business home and
please don't hesitate to give me a call if there's anything
that we can do for you.

Linda@TualatinChamber.com
503-692-0780
www.tualatinchamber.com

Forward this email

This email was sent to psfoto@comcast.net by linda@tualatinchamber.com |
Update Profile/Email Address | Instant removal with SafeUnsubscribe™ | Privacy Policy.
Tualatin Chamber of Commerce | PO Box 701 | 18791 SW Martinazzi Ave | Tualatin | OR | 97062

Marissa,

Thank you for your comments and questions regarding the Nyberg Rivers Master Plan. The Tualatin Park Advisory Committee (TPARK) was provided a copy of your email and the questions were answered by the developer's (CenterCal Properties) representative, Hank Murphy, who attended the meeting. I have inserted in underlined red text a summary of his responses and the TPARK comment to Council, if there was one. I will include this email in the summary of the committee meeting.

Paul Hennon
Community Services Director
City of Tualatin | Community Services
18880 SW Martinazzi Avenue | Located at 8515 SW Tualatin Road
Tualatin, OR 97062-7092
503.691.3060 | phennon@ci.tualatin.or.us

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

From: Marissa Houlberg
Sent: Tuesday, June 18, 2013 5:18 PM
To: Paul Hennon
Subject: I may not make it tonight...

Hi Paul,

I reviewed the Master Plan again and the attachments for tonight's meeting.

If I may just send my concerns through you.

The transportation plan shows heavy trucks only in the back of the buildings traveling on Street A and the future enhanced Seneca. No trucks entering from the closest I5 connection. How will this affect trail safety?

The CenterCal Properties representative said a new truck route would be proposed that would use Nyberg Street to enter the site with exits at Nyberg Street, Street A, and the Seneca Street extension (if constructed), and that the large truck traffic would occur after business hours.

TPARK expressed specific concern for public safety along the proposed Shared Pathways and Other Pedestrian and Bikeway Facilities in all the locations where various combinations of bicyclists, pedestrians, people outdoor dining, and motor vehicles will use the same space or be in close proximity, particularly between buildings, truck routes and loading docks, all street and drive isle crossings, and all the street intersections. The committee emphasized the need for "Best Practices" in design to allow adequate space for separation of uses to address the public safety concerns.

The trail appears to end south of Boones Ferry Rd on Street A. Will a sidewalk up to Boones Ferry Rd. be constructed along Street A?

The CenterCal Properties representative presented a revised plan that showed the trail (Shared Pathway) crossing Street A then extending north to Boones Ferry Road on the west side of Street A. There is a sidewalk extending north to Boones Ferry Road on the east side of Street A.

TPARK expressed concern over the public safety of the design of the Street A crossing. The committee was also concerned about the lack of a cross walk on Boones Ferry Road at the north end of Street A.

If the plan includes a wall next to the trail will it affect the natural feel of the trail?

The CenterCal Properties representative said there will a retaining wall or walls at the north side of the developed area where the parking lot and drive isles are located, which is where the east-west Tualatin River Greenway Trail (shown as a Shared Pathway) wraps around the southeast corner of Future Planning Area 4 and where each of the arterial paths connect with the parking and drive isle on the northeast side of the project site. The CenterCal Properties representative said they would design the paths to be fully accessible with the Americans with Disabilities Act and would plant appropriate vegetation in the areas of the retaining wall(s) and trail ramps to ensure that the natural area retained its natural appearance as it segways into the urban development. The Landscaping Plan calls for Tualatin River Plantings scheme (native plants and trees) at the retaining wall.

TPARK was concerned about both the landscaping and the accessibility at the retaining wall(s) and suggested to Council that the Shared Pathways be designed with "Best Practices" for addressing these issues.

Will the trail be prone to flooding?

The CenterCal Properties representative said the trail will flood only when the Tualatin River is flooding. There are no low spots that would cause flooding during typical rainy periods, only during major flood events when the river spills over the riverbank. CenterCal said the site was not flooded in the big flood of 1996. There are no wetlands within the area where the trail will be located.

The pedestrian paths through the parking fields are not interconnected and don't feel pedestrian friendly at all.

The CenterCal Properties representative clarified the location of the pedestrian pathways shown as orange lines on the Pedestrian and Bicycle Plan in the parking lot areas. CenterCal said they feel the proposed sidewalks and drive isle crossings will work well and be far more friendly than the existing parking lot.

TPARK had the same general comment to Council regarding the use of "Best Practices" in designing the pedestrian facilities though TPARK's main focus was on the Shared Pathways and Riverbank protection. The Architectural Review Board will be looking more closely at the pedestrian circulation issues where they are outside of Shared Pathways.

May we consider pervious surfaces as part of the parking field pavement?

The CenterCal Properties representative said they proposing to capture, convey, and treat the stormwater on the site before discharging it into the Tualatin River. The water will be treated with below ground storm filter structures. A dry creek bed and landscaped islands are proposed and they are pervious surfaces. The CenterCal Properties representative said the proposal fully complies with the Tualatin Development Code.

TPARK members support the use of pervious surfaces to let stormwater infiltrate into the ground rather than be piped to the river wherever possible.

Marissa

From: Joe Lipscomb
Subject: **Urban pathway system – Best Practices**
Date: June 16, 2013 1:36:54 PM PDT

Our **Greenway system of park and open space** networks are planned and being developed to provide linear open space corridors that meet environmental and recreational needs of our community.

These corridors of park and open spaces are planned to be interconnected with a **Pedestrian Multi-mode Path** system which provide recreation opportunities and transportation options (to reduce the use of vehicles) which include walking, group fitness activities, jogging, dog walking and cycling, all among today's most popular activities in every community. As such they also must include the best practices design needs of seniors and persons with disabilities by providing seating with specific facilities for their use in appropriate locations.

Our Pedestrian Multi-mode Path Systems Urban Design should ensure that all new development -

- is of highest standard of Best practices
- will harmonize with neighboring development
- will promote best practices in urban design, which contributes to the improvement of the community
- are designed with the highest regard for public safety and accessibility

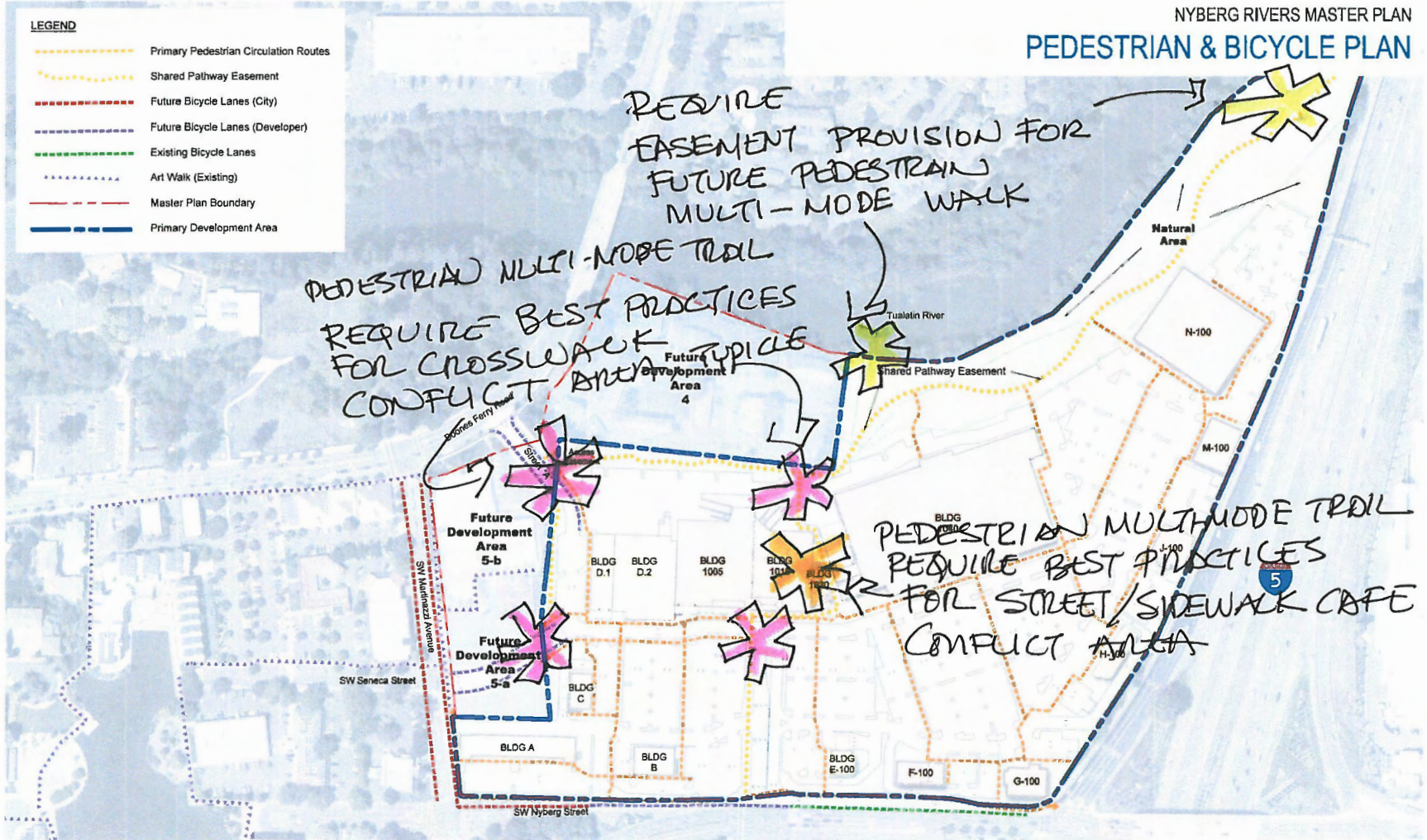
From: Joe Lipscomb
Subject:
Date: June 13, 2013 1:48:59 PM PDT

Multi-Modal paths are facilities designed to accommodate pedestrians, bicyclists, jogging and other ADA forms of transportation. These facilities are provided as alternatives to sidewalks or on-street bicycle lanes. Multi-Modal paths can be provided along existing vehicular facilities or designed to link important destinations without being within or adjacent to public motor vehicle facilities.

Historically the minimum width was established at 3 meters (1 meter for pedestrian, 1 meter for bicyclist and 1 meter for passing) or ±10 feet minimum with a greater width recommended for urban high intensity use areas such as about our Commons area. Today (2013) almost all cities are updating their Pedestrian and Bicycle Master Plans to accommodate Multi-Modal usage

(pedestrians, bicyclists, jogging and other ADA forms of transportation) where the **minimum width is now considered 20 feet** with an additional 6-8 feet at 1/4 mile intervals for seating and other amenities. **The minimum width is allocated** with 5 feet for jogging, 6 feet for pedestrian, 6 feet for bicycle and 3 feet for edge space.

NYBERG RIVERS MASTER PLAN
PEDESTRIAN & BICYCLE PLAN



Consider the distinct needs of various types of pedestrians

Pedestrians are a group with diverse characteristics, capabilities and needs. The specific needs of children, elderly people and people with disabilities should be considered and prioritized when designing pedestrian safety measures (see Box 4.1). More information on children and people with disabilities is provided later in this module.

BOX 4.1: Considering older people in pedestrian safety measures

Age is related to a variety of characteristics and skills that influence the risk of pedestrian traffic injury. These age-related characteristics can also affect the way in which people of different ages interact with pedestrian safety measures and therefore require unique attention when planning interventions.

Several factors work together to increase the risk of older pedestrians:

- Deterioration in visual acuity may have a negative impact on their ability to cross the road safely. In general, older pedestrians look less at traffic and accept significantly smaller gaps in traffic when crossing the road than younger pedestrians (8).
 - Reduced mobility can render older pedestrians unable to react quickly in imminent danger to avoid a crash.
 - Underlying health conditions or frailty can result in greater injury severity when a crash occurs.
 - Reduced speed when crossing the road. The speed of elderly pedestrians does not itself increase risk; the risk comes from the speed of the traffic and, in particular, from automated signals that do not allow sufficient time for slower pedestrians to cross safely. In many municipalities the assumed walking speed used to set crossing times at signalized crossings is faster than an older person can walk, leaving them stranded on the road when the signal phase changes to allow vehicle movement (8).
- Install high-visibility crossings and advance stop bars.
 - Repair broken kerbs and pedestrian ramps.
 - Replace missing and/or upgrade existing signs.
 - Install pedestrian refuge islands or, preferably, raised medians.
 - Narrow roadways with traffic-calming techniques.
 - Raise public awareness about the safety needs of elderly pedestrians.
 - Reduce legal speed limits.
 - Strengthen enforcement of laws on speed limits, and drink-driving.

The following measures can be implemented to improve the safety of elderly pedestrians:

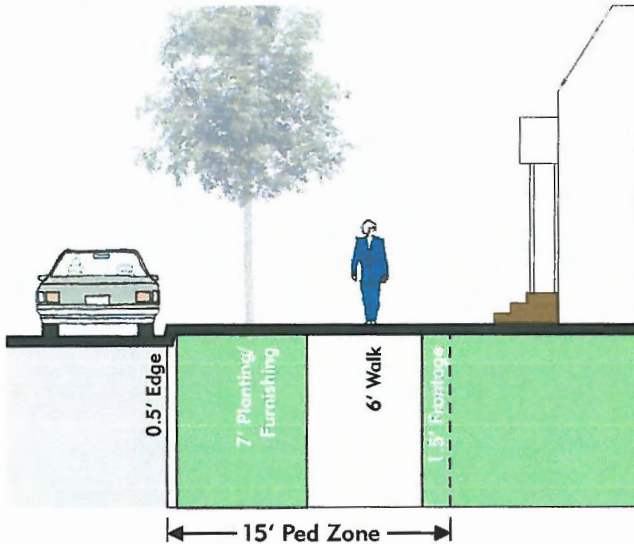
- Increase the time allocated to pedestrians at signalized pedestrian crossings.



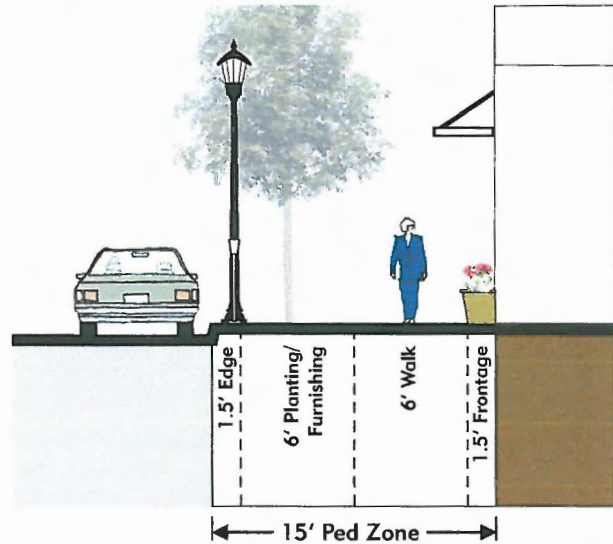
Neighborhood / Community Connector Street - 80' Right-of-way

Pedestrian Zone Dimensions

Residential District



Commercial District



Alternative Cross-sections

Community & Neighborhood Connectors - 2 Lanes

15' Ped Zone	8' Parking	6' Bike	11' Travel Lane	11' Travel Lane	6' Bike	8' Parking	15' Ped Zone
19' Ped Zone	8' Parking	6' Bike	11' Travel Lane	11' Travel Lane	6' Bike		19' Ped Zone
21' Ped Zone	8' Parking		11' Travel Lane	11' Travel Lane	8' Parking		21' Ped Zone
23' Ped Zone		6' Bike	11' Travel Lane	11' Travel Lane	6' Bike		23' Ped Zone

Community Connectors - 3 Lanes

12' Ped Zone	7' Park	6' Bike	11' Travel Lane	10' Turn Lane or Median	11' Travel Lane	6' Bike	7' Park	12' Ped Zone
14' Ped Zone	6' Bike	11' Travel Lane	10' Turn Lane or Median	11' Travel Lane	6' Bike	8' Park		14' Ped Zone
16' Ped Zone	8' Park	11' Travel Lane	10' Turn Lane or Median	11' Travel Lane	8' Park			16' Ped Zone
19' Ped Zone	2'	11' Travel Lane	11' Travel Lane	11' Travel Lane	8' Park			19' Ped Zone
18' Ped Zone	6' Bike	11' Travel Lane	10' Turn Lane or Median	11' Travel Lane	6' Bike			18' Ped Zone
22' Ped Zone	2'	11' Travel Lane	10' Turn Lane or Median	11' Travel Lane	2'			22' Ped Zone

☐ = Curb & Gutter

ILLUSTRATIVE ONLY -
NOT TO BE USED AS CONSTRUCTION PLANS

Figure 6-6 (continued)



Site Amenities

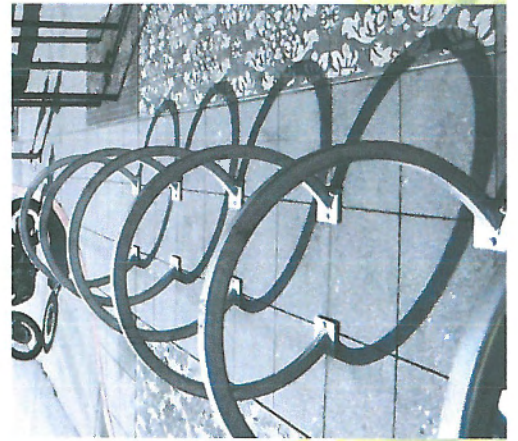


Native Plantings

Log Barrier

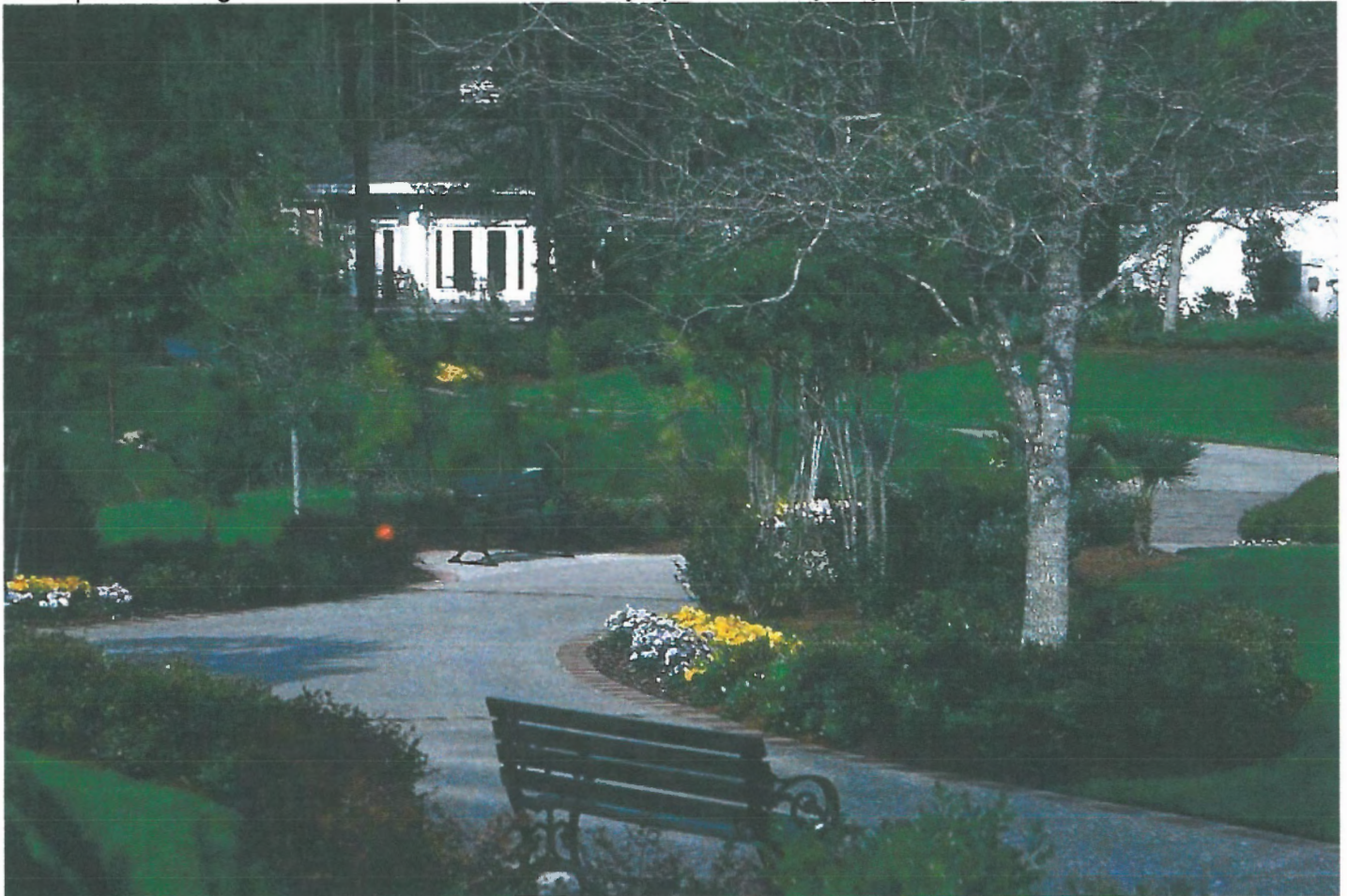
Vegetated Swale

Jogging Path



From: Joe Lipscomb ·
Subject: **group #1 photos**
Date: June 4, 2013 9:14:10 AM PDT
To: Paul Hennon <phennon@ci.tualatin.or.us>
📎 2 Attachments, 177 KB [Save](#) [Slideshow](#)

Examples of design element requirements for todays pedestrian/cycle pathways -



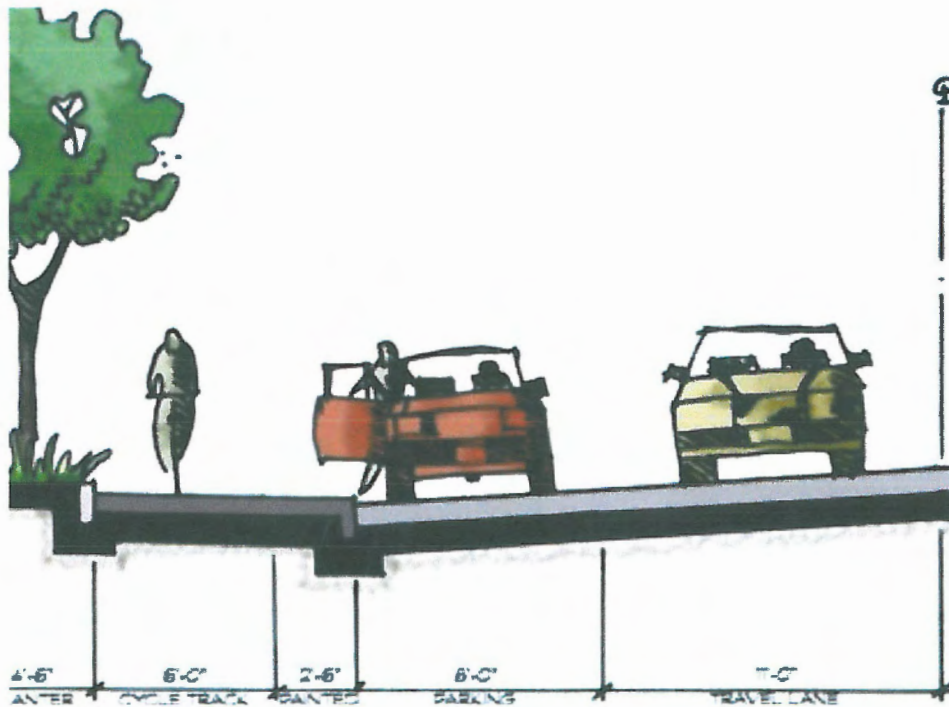
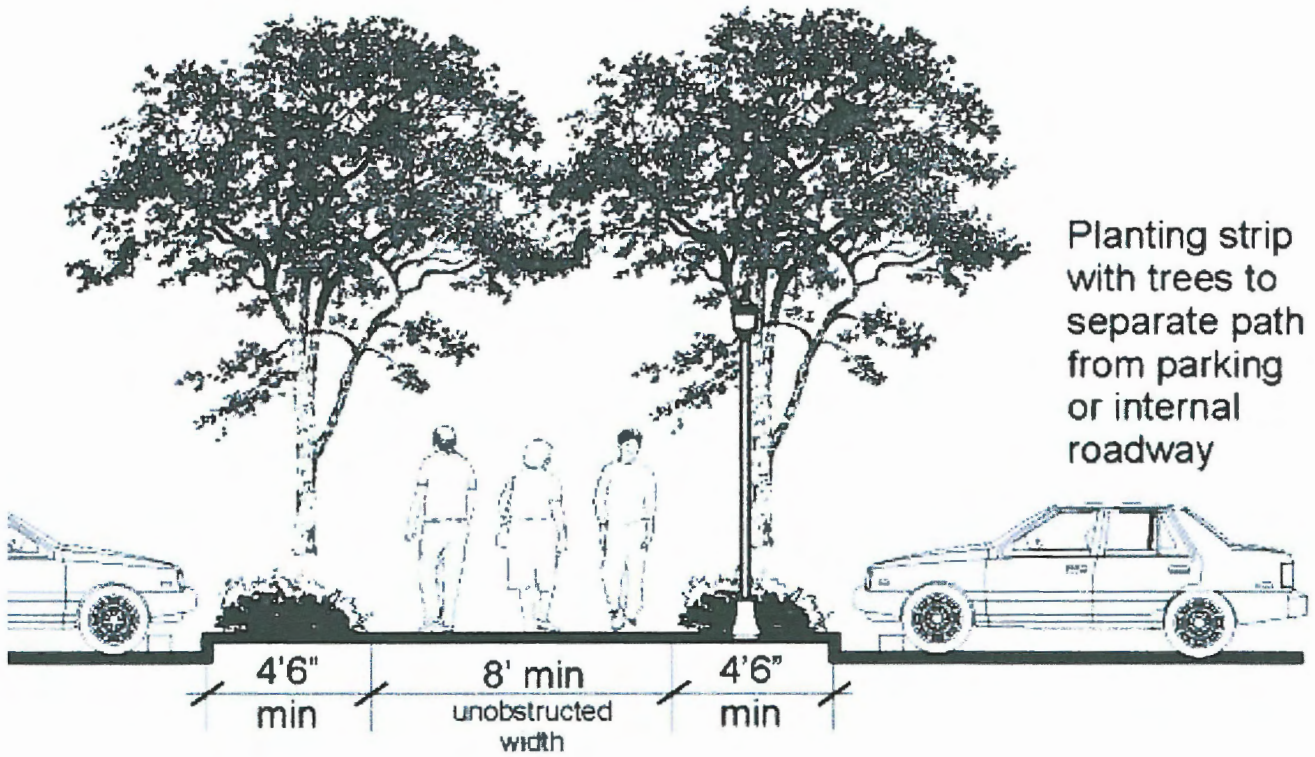


Raised pathway, Pedestrian Friendly,
Miami FL.

From: Joe Lipscomb
Subject:

Date: June 12, 2013 12:49:23 PM PDT

2 Attachments, 563 KB [Save](#) [Slideshow](#)





EXAMPLE ILLUSTRATION OF THE I-5 CORRIDOR MULTI-MODE PEDESTRIAN BRIDGE OVER THE WILLAMETTE CONNECTING TO SW CHLWS ROAD THEN ON TO BRIDGE PORT.

EXAMPLE ILLUSTRATION OF THE I-5 CORRIDOR MULTI-MODE PEDESTRIAN PATH BEST PRACTICES DESIGN GUIDELINE WHEN PASSING THRU 'SIDEWALK CAFE' LOCATIONS WITHIN THE NYBER RIVERS DEVELOPMENT.



FURNISHINGS
AND CURB
ZONE
VARIES

UN-OBSTRICTED
REQUIRED
MULTI-MODE
PATH WIDTH.

SEATING AREA
VARIES



MEMORANDUM

CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

FROM: Core Area Parking District Board

DATE: July 12, 2013

SUBJECT: Core Area Parking District Board Request

At the regular Core Area Parking District (CAPD) Board meeting on July 10, 2013 with a quorum present, Board Members had a discussion on the Nyberg Rivers development project and the potential impact on the Core Area Parking District. During this discussion, the Board wished to present three concerns they would like the Mayor and City Council to consider during the Master Plan process for the Nyberg Rivers project.

Three Concerns for Council Consideration:

- Reductions in current parking spaces within the CAPD boundaries
- Increased parking and traffic activity impacting the Core Area Parking
- Look at possible parking enforcement/time restrictions

Members of the Core Area Parking District respectfully request the Mayor and City Council Members consider the potential impacts of the Nyberg Rivers project on the Core Area Parking with the possible reduction of existing parking spaces due to the realignment of Southwest Seneca Street, additional parking overflow impacts of the new development on existing Core Area Parking spaces and the need for additional enforcement action to ensure time limits are adhered to on existing parking spaces. We do not wish to negatively impact the current businesses which depend on the existing Core Area Parking District.

The Board wishes to thank the Mayor and Council for the opportunity to present this request for your consideration.

AQUILLA HURD-RAVICH

From: JERIANNE THOMPSON
Sent: Thursday, July 11, 2013 10:23 AM
To: Alice Rouyer; AQUILLA HURD-RAVICH
Cc: Paul Hennon
Subject: FW: Street 'A' project

As Paul is out of town until next week, and I know you are working on a staff report in advance of the Council meeting, I wanted to pass these concerns along to you directly.

Thanks,

Jerianne Thompson, Public Services Supervisor
Tualatin Public Library
18878 SW Martinazzi Ave.
Tualatin OR 97062
503.691.3063

From: AIMEE MEUCHEL
Sent: Thursday, July 11, 2013 9:10 AM
To: Paul Hennon
Cc: JERIANNE THOMPSON
Subject: Street 'A' project

Hi Paul,

Samantha Wikstrom and I have been discussing the proposed Street 'A' project in conjunction with the construction and we have concerns that we don't believe have been addressed yet. Our work area has windows out to the back parking lot of the library, so we are able to see a lot of the foot/bike/skateboard traffic that comes down off of Boones Ferry Road. In addition, both of us staff the desk in the Teen Room which is a direct window on the pedestrian traffic on Boones Ferry. Dozens and dozens of kids, teens, and families use Boone's Ferry Road every day to walk/bike/skateboard into the main core area of Tualatin. There is no easy pedestrian crossing of Boone's Ferry from the apartments north of the library until Martinazzi Avenue. Adding the proposed street increases the danger for our pedestrians as they are being asked to go further out of their way for a safe crossing. We don't believe that pedestrians, especially children and teens, will use the out of the way crossing, but will instead risk their lives to cross Street 'A' on Boones Ferry Road.

By creating a cross walk hundreds of feet down proposed Street 'A', we are creating further confusion and danger for our citizens. Plenty of people walk down Boone's Ferry to go to shopping areas, Community Park, catch the bus, and more. Moving the sidewalk/crossing zone into the shopping area is poor design. We don't believe that people will go out of their way to cross safely and then head back up the road on their way. This new crossing asks them to go out of their way and normal route. Instead, we believe people, especially children, will be putting themselves at risk to cross the newly proposed right turn in/out only street. As we all know, people making right turns in vehicles are looking to their left and not necessarily paying attention on the right. This makes for a very dangerous situation.

We have had many close calls and even people hit on the Martinazzi crossing of Boone's Ferry by cars turning right since the library opened 5 years ago. Our concern is that this situation will get even worse with the proposed Street 'A'. We need to provide our citizens with a safe way to cross Street 'A' on Boones Ferry Road, not force them to go out of their way to cross safely. We as a city have a responsibility to our citizens to provide safe routes for them with their chosen mode of transportation-car, foot, pedal, or wheel. The current suggested plan is unrealistic and dangerous for the citizens of Tualatin and needs to be reconsidered so that our youngest pedestrians can be safe in our town.

Thanks for passing our concerns on,
Aimee and Samantha

Aimee Meuchel
Teen Services Librarian
City of Tualatin | Tualatin Public Library
18878 SW Martinazzi Avenue, Tualatin, OR 97062-7092
503-691-3083 | www.ci.tualatin.or.us

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Aimee and Samantha

Aimee Meuchel
Teen Services Librarian
City of Tualatin | Tualatin Public Library
18878 SW Martinazzi Avenue, Tualatin, OR 97062-7092
503-691-3083 | www.ci.tualatin.or.us

July 17, 2013

Marissa Houlberg
9789 SW Coquille Court
Tualatin, Oregon 97062

Dear Tualatin City Councilors,

I appreciate you taking a few minutes to read my input on the future Nyberg Rivers development. What we develop today will last for thirty to fifty years. I hope we can work to make our new development environmentally friendly and welcoming to the community.

I have concerns as an average citizen regarding the Nyberg Rivers development. My first concern is the volume of stormwater. I am confident the runoff will be treated properly before it is discharged into the Tualatin River. The amount of water entering the river from Nyberg Woods, Stafford Hills Club and all the other development outside of Tualatin along the river needs to be addressed. Our local development occurred after the 1996 flood so we truly don't know how the flooding in our downtown will be affected.

Our library sits in the floodplain and an increase in flood waters from additional development is a real concern. Flood maps are updated every so many years because flood levels change and the reason for the change is the addition of impervious surfaces where stormwater is redirected after treatment.

I request that the city review and request CenterCal Properties include pervious pavers to their parking 'fields'. Clean Water Services does not require pervious pavement but they and the City of Tualatin have several locations where they are installed.

<http://www.cleanwaterservices.org/PermitCenter/NewsAndResources/LIDAHandbook.aspx>

I emailed several questions to the TPARK committee but this one question specifically addresses pervious surfaces:

May we consider pervious surfaces as part of the parking field pavement?

The CenterCal Properties representative said they proposing to capture, convey, and treat the stormwater on the site before discharging it into the Tualatin River. The water will be treated with below ground storm filter structures. A dry creek bed and landscaped islands are proposed and they are pervious surfaces. The CenterCal Properties representative said the proposal fully complies with the Tualatin Development Code.

TPARK members support the use of pervious surfaces to let stormwater infiltrate into the ground rather than be piped to the river wherever possible.

I agree with TPARK, we need to avoid piping water to the river. Landscaped islands and a dry creek bed will offset how much water from flowing into the Tualatin River? My understanding is that none of these features are planned to be a part of the stormwater system. If it isn't designed into the system, it doesn't count toward offsetting stormwater quantity even though it does create less runoff. How much pervious surface and how much impervious surface in this project?

http://www.tualatinriverkeepers.org/lid_website/runoff.htm

Preliminary calculations for Nyberg Rivers estimates a release of 19.162 cfs for the 25-year storm water event for the entire proposed site(Statistics, City of Tualatin).

Nyberg Woods stormwater goes into three different basins. The North Basin (which is the majority of the site) goes to the wetlands north of the site, at 11.08cfs and has an overflow pipe. The South Basin (2nd largest) drains to Nyberg Street at 5.51cfs. The East Basin (small area that drains to the wetlands near Forest Rim) at 1.80cfs. (Statistics, City of Tualatin). Total of 18.39 cfs

Stafford Hills releases to the wetlands to the west of their development. The 25-year storm rate is 3.93 cfs. You can see their three treatment swales in series near the street. (Statistics, City of Tualatin). I wonder if these swales can handle all of the stormwater, all of the time.

It looks as if we will be releasing a considerable amount of stormwater to a river that overflows in these areas. It seems like a good time for us to tighten our development code and try to lower the volume of filtered stormwater going directly into the river.

Additional Concerns:

These are my additional questions to the TPARK committee regarding my other concerns with the development of Nyberg Rivers; included are CenterCal representative responses and TPARK concerns.

The transportation plan shows heavy trucks only in the back of the buildings traveling on Street A and the future enhanced Seneca. No trucks entering from the closest I5 connection. How will this affect trail safety?

The CenterCal Properties representative said a new truck route would be proposed that would use Nyberg Street to enter the site with exits at Nyberg Street, Street A, and the Seneca Street extension (if constructed), and that the large truck traffic would occur after business hours.

TPARK expressed specific concern for public safety along the proposed Shared Pathways and Other Pedestrian and Bikeway Facilities in all the locations where various combinations of bicyclists, pedestrians, people outdoor dining, and motor vehicles will use the same space or be in close proximity, particularly between buildings, truck routes and loading docks, all street and drive isle crossings, and all the street intersections. The committee emphasized the need for "Best Practices" in design to allow adequate space for separation of uses to address the public safety concerns.

After business hours for truck traffic does not mean pedestrian and bicycle traffic end after business hours. These paths will not just be used by Nyberg Rivers customers and not only during business hours.

The trail appears to end south of Boones Ferry Rd on Street A. Will a sidewalk up to Boones Ferry Rd. be constructed along Street A?

The CenterCal Properties representative presented a revised plan that showed the trail (Shared Pathway) crossing Street A then extending north to Boones Ferry Road on the west side of Street A. There is a sidewalk extending north to Boones Ferry Road on the east side

of Street A.

TPARK expressed concern over the public safety of the design of the Street A crossing. The committee was also concerned about the lack of a cross walk on Boones Ferry Road at the north end of Street A.

Considering large delivery trucks will also use this road, I feel, it raises safety concerns about trail use and Street A.

The pedestrian paths through the parking fields are not interconnected and don't feel pedestrian friendly at all.

The CenterCal Properties representative clarified the location of the pedestrian pathways shown as orange lines on the Pedestrian and Bicycle Plan in the parking lot areas. CenterCal said they feel the proposed sidewalks and drive isle crossings will work well and be far more friendly than the existing parking lot.

TPARK had the same general comment to Council regarding the use of "Best Practices" in designing the pedestrian facilities though TPARK's main focus was on the Shared Pathways and Riverbank protection. The Architectural Review Board will be looking more closely at the pedestrian circulation issues where they are outside of Shared Pathways.

My comment back to the CenterCal Properties Representative's response is the sidewalk/ pedestrian path is located every four to six lanes of parked cars. So up to two lanes, both sides of parking lane, will contain pedestrians trying to connect to shared sidewalks locked between rows of parked cars or walking through the parking lot itself to the desired retail establishment. Far more pedestrian traffic is geared toward blacktop walking, than sidewalks.

The Nyberg Woods parking lot really lends itself to driving from say Panera to Best Buy, not walking. We can and should do better than the Nyberg Woods parking lot with pedestrian flow.

In the Addendum to the Master Plan (http://www.tualatinoregon.gov/sites/default/files/fileattachments/planning/projects/16657/nyberg_rivers_final_copy_06-28-13.pdf) I noted many instances of one and two foot reductions in city requested lengths and widths of planter strips, travel lanes and pedestrian walkways. Why does CenterCal Properties offer ranges when the city has specific requirements? Why shortchange ourselves on what can really make a difference for center attractiveness and pedestrian comfort?

CenterCal Properties also eliminated requested curbs, streetlights and trees at the Nyberg Street entrance (cross-section F-F). I remember Nyberg Woods development being sold as the next Bridgeport Village. We need to make sure we are not sold short. Our building code needs to be improved if we set specifications and then we receive a counter offer.

Thank you for reading and thinking about my comments,
Marissa Houlberg

Architectural Review Board Advisory Meeting

June 19, 2013

Summary of discussion about Nyberg Rivers Proposed Master Plan

Redevelopment Opportunity

- The ARB viewed redevelopment of the site as a positive and the members expressed gratitude to the applicant for a chance to give early feedback. The following themes emerged from a discussion by the seven members.

Gateway Development and Entrance to Downtown

- This site is significant as an eastern extension of downtown Tualatin and a major gateway to the City. Given this, the development should offer the City a “wow factor or “big idea.” The development proposal has not yet articulated this. The development does not connect with downtown in an obvious way
- The site is missing a grand sense of entry that draws people to the center regardless of the large anchor tenant. A question was asked what happens if the major tenant is no longer in business?
- This development should present a style different from Nyberg Woods – which offers a large parking lot with the appearance of minimal interior landscaping.
- Stand-alone pad buildings on the periphery of the development should be more intentionally integrated with the rest of the center.

Automobile Access and Connections

- The ARB supports the construction of Seneca Street to facilitate better traffic flow, a stronger connection to downtown Tualatin and more separation between traffic and the public plaza in front of the library.
- Freight traffic should avoid Seneca Street or the City’s existing easement.

Pedestrian and Bicycle Access

- The ARB placed emphasis on pedestrian and bicycle connections and all Board Members gave feedback on this topic. Pedestrian connections through the site

should be more inviting and the applicant should consider making them wider. The extra width may be necessary to create inviting connections between buildings, parking lots and the street. Feedback was given encouraging the applicant to think bigger about these connections.

- Specific concerns were addressed:
 - Consider widening the bike and pedestrian access along the north side of Nyberg Street between I-5 and the main development entrance. This is an important connection to the site from eastern Tualatin, especially considering that the Tualatin River greenway trail between this site and Nyberg Rivers is not proposed to be built at this time.
 - Consider adding another sidewalk on the east side of the main access driveway leading north from Nyberg to the shopping center.
 - Address choke points on east to west walk way on the southern edge of the shopping center. This walkway should be wide enough to accommodate bicycles and pedestrians. The pedestrian and bicycle connections need to avoid conflicts with the parking lot and ensure they are useable.
 - Make the north to south pedestrian access between buildings more inviting with lots of way-finding signs.
 - Finally, make connections to the natural area and the site stronger and clarify if the developer intends to build the shared use path along the River in the natural area.

Landscaping, Plazas and Public Spaces

- Discussion about site design included attention to landscaping and the creation of outdoor spaces:
 - Create areas that people gather and stay.
 - Create a sense of place in outdoor areas including parking lots by using landscaping. A high priority is the preservation of the existing plaza in front of the library, which means no freight traffic on the City driveway. Priority is also placed on the creation of other high quality public spaces on the development site.
 - Landscaping against the building is very attractive.

- Parking lot landscaping on the Master Plan is underwhelming including the parking diamonds.
- Encourage tree preservation and use of LIDA (low impact development approaches) to create more inviting landscaping and treat storm water.

Architecture

- During the applicant's presentation, it was expressed how the development is unique and integrates with the Tualatin River. The design and architecture do not yet match those aspirations. The Cabela's architecture, as submitted, does not present the four-sided architecture or northern building entrance. Since this building will be most visible from the future Tualatin River Greenway Trail, it is essential that the development team and its anchor tenant address this issue.
- The architecture should be unique to Tualatin and reflect the city's image and culture.

Tualatin River Integration

- A prominent discussion point was integration with and access to the Tualatin River. Board members suggested reconsidering the design of the site and the building architecture to engage the river. A good example of river integration is the Old Mill District in Bend, OR. The current proposal turns its back to the River. One suggestion included relocating the Cabela's building to back up to I-5 and open up views to the Tualatin River. At a minimum, the back of the store should open up to the River with an entrance rather than a large blank wall to create a better experience for people visiting the site.

TUALATIN PARK ADVISORY COMMITTEE (TPARK)
Community Services Department
City of Tualatin

June 18, 2013 TPARK Meeting
DRAFT JUNE 28, 2013

**SUMMARY OF REVIEW COMMENTS ON
PROPOSED NYBERG RIVERS MASTER PLAN**

Purpose and Scope of TPARK Review

The Tualatin Park Advisory Committee (TPARK) reviewed the proposed Nyberg Rivers Master Plan to provide the Council with TPARK's comments regarding the extent to which the proposed Nyberg Rivers Master Plan achieves the goals of the Central Urban Renewal District Plan, Goal 6 Pedestrian and Bikeways and Goal 9 Parks, and how well it complies with the Tualatin Development Code, Chapter 11.650 Pedestrian, Bicycle, and Multi-Use Path Modal Plan and Chapter 72 Natural Resource Protection Overlay District.

TPARK's reviewed the proposed Nyberg Rivers Master Plan pursuant to its roles to comment to Council on matters pertaining to parks and recreation and coordination of planning activities as defined in the Tualatin Municipal Code, sections 11-2-060 and 11-2-080, and the Tualatin Development Code, Section 2.070.

Hank Murphy representing CenterCal Properties, the developer, attended the meeting. He presented the Master Plan using an updated site plan and answered questions.

Summary of Review Comments

1. Parks (Central Urban Renewal District Plan Goal 9)

a. Tualatin River Greenway

TPARK recognizes that the proposed master plan preserves the natural value of the Tualatin River as a scenic, recreational, and open space asset to a greater extent than required in the Tualatin Development Code.

b. Forested Area Along River

TPARK members felt the proposal adequately addresses the forested Significant Natural Resource along the Tualatin River in a manner that benefits the Tualatin River Greenway.

c. Linking Downtown to Community Park

TPARK supports the system of pedestrian and bicycle facilities that contribute to and promote linkage between the downtown project site and Community Park. The committee members are especially appreciative of the continuation of the Shared Pathway that will serve as the Tualatin River Greenway Trail from I-5 to Boones Ferry Road.

d. *Connecting to ArtWalk and Ice Age Discovery Trail*

TPARK was pleased to hear that the developer would like to bring connections to the ArtWalk and the Ice Age Discovery Trail into the site, and that the proposed Mastodon sculpture brings a sense of place, local history, and interpretive opportunities to the development.

2. Pedestrian and Bikeways (Central Urban Renewal District Plan Goal 6)

a. *Connectivity In All Directions*

TPARK recognizes that the location of the proposed bicycle and pedestrian facilities serve the purposes planned for in the Tualatin Development Code. The bicycle and pedestrian facilities would provide on-and-off street connectivity in all directions to residential, commercial, and industrial areas with public parks, the library, and schools, in addition to facilitating on-site circulation.

b. *“Best Practices” in Multi-Modal Trail Design Needed*

To that end, the committee strongly urges that the bicycle and pedestrian facilities be designed consistent with current “Best Practices” for multi-modal facilities in downtown urban areas. These “Best Practices” include factors such as: pathway width, landscaped safety buffers, accommodating use by people of all abilities, special street crossing treatments at mid-block and at intersections, benches and shade for comfort, convenience, and connectivity with adjoining properties, attractive design and landscaping, compatibility with outdoor dining, lighting where appropriate, security, and access to transit.

c. *Provisions for Future Connections*

Regarding the pathway locations and routes, there are two places where the proposal does not make provision for important future pathway connections as shown in the Tualatin Development Code. These are along and over the Tualatin River. TPARK suggests these be incorporated into the Nyberg Rivers Master Plan and the CenterCal Properties representative indicated that it could be done.

The first future pathway connection is located at the northwest corner of the “Natural Area” to enable the Tualatin River Greenway Trail to continue as planned along the south bank of the Tualatin River (within the north boundary of Future Development Area 4 whenever it redevelops). This segment of pathway should be covered under the proposed easement.

The second future pathway connection is located in the northeast corner of the “Natural Area” at the west side of I-5 to enable the north/south bicycle path to continue over the river. This segment of pathway could be covered under the current easements or an agreement to dedicate an easement in the future when the precise location is known.

d. *Bicycle and Pedestrian Safety is a Concern*

TPARK expressed a pronounced concern for public safety along the proposed Shared Pathways and other pedestrian and bikeway facilities where bicyclists,

pedestrians, motor vehicles, and outdoor dining or seating will occur in the same space or in close proximity. The committee encourages Council to require that safety be built into the design through “Best Practices” in all these congested locations.

The committee identified and discussed where these conditions are found on the proposed plan. The locations include: all street intersections (Nyberg Street, Seneca Street, and Boones Ferry Road), mid-block (Street “A,” Seneca Street, and the Primary Vehicular and Truck Routes), drive isle (Nyberg Street entrance and in front of all buildings), between buildings, and at the loading docks. The committee emphasized the need to use modern “Best Practices” in designs to address these public safety concerns.

e. *Tualatin River Greenway Trail is Needed*

TPARK suggests Council determine and take appropriate actions to see that the Shared Pathway serving as the Tualatin River Greenway Trail between I-5 and Boones Ferry Road be constructed as quickly as possible to promote safe circulation across the site and to provide connectivity with east Tualatin.

TPARK questions how the bicycle and pedestrian circulation and connectivity will function on the site without the pathway. The developer is proposing to provide an easement allowing future construction by the public and not to construct that pathway as part of the Nyberg Rivers redevelopment project. All other designated bicycle and pedestrian facilities are proposed to be constructed. The developer’s representative did inform the committee that CenterCal Properties would like to construct the path, but the final decision on that could not be made until all the construction requirements and financial information on the project is known.

This Shared Pathway is especially important because it will serve as an alternative route that would be safer than using the I -5 bridge where bicyclists and pedestrians are required to cross freeway on-and-off ramps with high traffic volumes in both north and south directions. The I-5 bridge was identified as a high accident location in the recently adopted Transportation System Plan.

f. *Location of North/South Bikeway*

A bikeway is planned to run along the eastern boundary of the project site from the Tualatin River to the Nyberg Street intersection and extending in both directions. CenterCal Properties has proposed relocating the north/south bikeway to the center of the site and then between buildings and south to the Nyberg Street intersection. This routing avoids crossing the main entrance driveway and enables crossing Nyberg Street on the west side of the intersection to reduce conflicts with vehicles traveling westbound wishing to enter the development from Nyberg Street.

After considerable discussion, TPARK generally supports changing the location of the north/south bikeway provided the alternative route is designed with “Best Practices” to address related safety issues and any use restrictions to facilitate safety (such as walking bikes and no skateboarding) be approved by the City.

g. Connecting Shared Pathway with Boones Ferry Road

The CenterCal Properties representative presented a new site plan showing the Shared Pathway (that serves as the Tualatin River Greenway) crossing Street “A” and continuing north along the west side of Street “A” until it connects with Boones Ferry Road. TPARK strongly supports this extension of the Shared Pathway, expressing the need for “Best Practices” in the design of the related street and driveway crossings.

h. Crosswalk Needed Along Boones Ferry Road at Street “A”

TPARK expressed a need for a safely design crosswalk on Boones Ferry Road at the north end of Street “A” since pedestrians need a direct and convenient route when moving east and west on Boones Ferry Road, which is a fairly busy sidewalk. The current design calls for pedestrians to go about 400’ out of their way to cross Street “A” and TPARK thinks people will not do that. Instead they may choose to attempt to dart across the street without the benefit of a safely designed cross walk.

i. Access Connections to Future Development Area 4

TPARK suggests there be several access connections between the Future Development Area 4 and the proposed Shared Pathway as is required by the Tualatin Development Code.

j. Bicycle Parking

TPARK suggests that Council ensure that adequate bicycle parking be included, as is required in the Tualatin Development Code.

3. Other Comments

a. Parking Lot Shade Trees

Through the course of the review TPARK members also commented on the Parking Lot Shade Trees and question if the Tree Diamonds proposed in lieu of the standard landscape islands will result in strong, healthy trees that produce the full amount of shade and landscaping beauty for which they are intended. The CenterCal representative said a new design was being proposed that is larger and would improve drainage in the root zone, and they felt this would help the trees grow better than other locations where Tree Diamonds have been used.

b. Use of Pervious Surfaces to Reduce Stormwater Runoff

TPARK members support the use of pervious surfaces to let stormwater infiltrate into the ground rather than be piped to the river wherever possible. The CenterCal Properties representative said they are proposing to capture, convey, and treat the stormwater on the site before discharging it into the Tualatin River.

The water will be treated with below ground storm filter structures. A dry creek bed and landscaped islands are proposed and they are pervious surfaces. He said the proposal fully complies with the Tualatin Development Code.

4. Public Comments and Questions

One citizen emailed a series of questions and concerns that were answered by the developer's representative and were considered by TPARK in forming their comments to Council. See Attachment A for the email with a summary of the developer's response and TPARK's comments inserted into the email.

Two members of the public were in attendance at the meeting. One member of the public spoke to the committee and distributed materials defining the purposes of greenways and multi-modal paths, a site plan with notes highlighting key conflict areas between vehicles and bicycles and pedestrians, a list of considerations for older people in designing pedestrian safety measures, diagrams of alternative cross-sections to provide adequate space for mixed use pathways in commercial areas, and photographs of modern "Best Practice" designs for outdoor dining, paths, street and river crossings. See Attachment B.



City of Tualatin

www.ci.tualatin.or.us

Unofficial

ARCHITECTURAL REVIEW BOARD

MINUTES OF June 19, 2013

MEMBERS PRESENT:

Ed Truax, Chair
John Howorth
Terry Novak
Skip Stanaway
Michael Ward
Chris Goodell

STAFF PRESENT:

Aquilla Hurd-Ravich
Will Harper
Lynette Sanford
Alice Cannon Rouyer
Kaaren Hofmann
Paul Hennon
Cindy Hahn

MEMBERS ABSENT: John Medvec, Robert Perron

GUESTS: Fred Bruning, Ben Williams, Hank Murphy, Joe Lipscomb, Ed Casey

1. **CALL TO ORDER**

Councilor Truax called the meeting to order at 7:02 p.m.

2. **APPROVAL OF MINUTES**

Councilor Truax asked for review and approval of the March 7, 2012 ARB minutes. MOTION by Howorth, SECONDED by Ward, to approve the March 7, 2012 minutes. MOTION PASSED unanimously. (6 -0)

4. **NEW BUSINESS**

Architectural Review Board Advisory Review of the Nyberg Rivers Master Plan

Alice Cannon Rouyer, Assistant City Manager, welcomed the members. Ms. Rouyer explained that the Architectural Review Board will review and comment on the Nyberg Rivers Master Plan. The comments collected will be forwarded to the City Council for consideration at the public hearing scheduled for July 22nd.

Will Harper, Senior Planner, began the discussion on the Nyberg Rivers Master Plan. The Nyberg Rivers commercial center project proposal is to redevelop the former Kmart site and adjacent properties along Nyberg Road and I-5. The application was submitted by Center Cal Properties, owners of the Bridgeport Village and Nyberg Woods retail centers. The project is called a Master Plan due to the location in the Central Urban Renewal District, which requires approval from the City Council. This is located in four

These minutes are not verbatim. The meeting was recorded, and copies of the recording are retained for a period of one year from the date of the meeting and are available upon request.

different Urban Renewal blocks, and three different planning districts associated with this property. The planning districts are: CC-Central Commercial; CO-Office Commercial; and RH-High-Density Residential.

Mr. Harper acknowledged that the proposed Master Plan includes demolition of three existing buildings (including the former Kmart building), construction of eight new buildings, access and public facilities improvements, parking, pedestrian, bicycle, and landscaping improvements. Five existing buildings including the Michael's store, the US Bank, and Banner Bank will remain. Wendy's will be moving to a position just east of Banner Bank. There will be other restaurants and stores along the I-5 side. The Master Plan process addresses access, transportation, sewer, water, storm drainage, internal circulation, building location, building design and materials, parking, landscaping, and pedestrian facilities.

Mr. Harper explained that there is also a Conditional Use Permit associated with the Master Plan. This will allow retail uses in the Office Commercial (CO) Planning District and allow outside sales in the Central Commercial (CC) Planning District. The ARB comments will be provided to the Council to consider at the public hearing for the Master Plan. The Nyberg Rivers Architectural Review application will be considered by the ARB in respect to the Council's Master Plan decision and Conditional Use Permit decision as well as the usual Community Design Standards and other relevant standards in the Tualatin Development Code (TDC).

Ms. Rouyer noted that DKS Associates is conducting a peer review regarding the traffic impact analysis submitted by the applicant and will be available to answer questions if required. Ms. Rouyer explained that this site includes three jurisdictions; ODOT with I-5, and Washington County having oversight over Tualatin-Sherwood Road. The City has jurisdiction over Martinazzi and Boones Ferry Road. The Transportation System Plan (TSP) envisioned a loop road which is an extension of Seneca Street that goes through the Council Building.

Fred Bruning, CenterCal Properties, began his presentation of the proposal. Mr. Bruning stated that Nyberg family approached them to redevelop the property and they are very excited about this opportunity. Mr. Bruning explained that when they acquired the property, 20 tenants had long term leases; Michael's has 20 more years on their lease; Wendy's has an additional 10 years on theirs. The goal of this redevelopment includes bringing something new and different to the community and to incorporate access to the Tualatin River. There are currently eight acres of riverfront property where the proposed trails will connect.

Mr. Bruning stated that if the City wanted to improve the road system, they are willing to assist and added that if Seneca Street goes through, it will have a positive impact. There is also a proposed new trail system: a paved trail that follows the river, giving

pedestrian and bicyclist's great access to the river area. Eventually the goal is to connect the pathway under the freeway from Nyberg Woods to the east.

Mr. Bruning noted that to the north of the project, a large fitness center is proposed. The largest building will accommodate Cabela's, a store that is unique to the city in some states, is a tourist attraction. In the buildings next to Cabela's, retail stores are planned, a major upscale grocery store, and a number of sit-down restaurants including a brew pub. Plans also include robust landscaping honoring the three landscape regions of Oregon, plaza areas, urban parks, and sculptures including a 9 foot Mastodon. Currently they have letters of intent and signed leases for 97 percent of the project. Their plan is to begin construction in October, 2013 and open October, 2014 if all approvals go through.

Mr. Stanaway began the discussion and inquired as to what the key concepts and goals are of this project. The planning goals, organization, pedestrian, vehicular, and how it affects Tualatin and the community. Mr. Bruning responded that the earlier goal was to engage the river and add tenants that could relate to that. Cabela's will be a good fit because of their outdoor theme and they offer kayak, canoe, and fly fishing classes. Cabela's also gives huge donations to the Audobon society. Mr. Stanaway stated that CenterCal has a unique opportunity to redevelop a property in a downtown core that will be the long term image of the City. Mr. Stanaway acknowledged that engaging the river can be enhanced by creating stronger links to the river from the south side. Mr. Bruning responded that it could have been laid out differently if it wasn't for the existing tenants in control of the west side. Mr. Bruning continued that there will be many access points to the river along with outdoor seating areas. Eventually when the trail system is complete, there will be opportunities to go for miles along the trail. Mr. Stanaway asked about the concept behind the smaller buildings on the southeast side. Mr. Bruning stated that these are proposed freestanding restaurants, with the possibility of outdoor seating and garden areas. Mr. Stanaway thought they needed to enhance circulation from Nyberg Road and create smaller open spaces.

Mr. Ward acknowledged that he is very excited about the proposed development and the proposed trail. He continued that he's concerned about pedestrian access since the plans show a sidewalk on only one side of the street with no bike lanes. Are there plans to expand that? Ben Williams, Cardno SRG, responded that the primary reason they don't have a sidewalk proposed is because they don't want to impact the signal. There is pedestrian access off of Nyberg, but they're trying to minimize pedestrian crossing at the entrance. Mr. Ward wanted to insure that the pathway in front of the stores is big enough to accommodate bikes and pedestrians. Mr. Bruning added they are tripling the width of the sidewalk into the development. They've also added designed "choke points", which will encourage people to slow down and linger. Mr. Ward expressed concern about the landscaping in the parking lot area. He encouraged tree preservation and the use of LIDA (low impact development approaches) to create more inviting landscaping and treat storm water.

Mr. Novak stated that he felt there was disconnect between the development and the river. A good example of river interaction is the Old Mill District in Bend. He felt the building design was similar to what we've seen in the past. The architecture doesn't really have anything to do with Tualatin or the Northwest in general. He would encourage the developer to encourage interaction between the buildings and pedestrian connectivity. People should be drawn into the center.

Mr. Goodell asked about the collector street shown in the TSP that goes through the site. Is it accurately mapped? Ms. Rouyer replied that they are implementing the TSP plan with a loop road. Mr. Bruning replied that they do want the connectivity through the site and help with pedestrian access. Mr. Goodell added he wanted stronger north/south access to the natural area and it's important to make sure pedestrian walkways are useable.

Mr. Howarth commented that he spent a year working with the TSP and focus groups, and one topic that seemed to obtain a lot of support was bike and pedestrian connections through Tualatin. He encouraged the developers to take into consideration not only the anchors of the development, but the people who live here. He also wanted them to consider integrating the downtown area and is in favor of Seneca Street going through. A good use of the area would be to open up the back of the Cabela's building and to utilize the back area for classes towards the river. Mr. Howarth asked what the intent of the shared pathway easement was and who constructs the trail. Mr. Bruning responded that the intent is to construct the path and give to the City. Mr. Truax also questioned the proposed construction of the path and felt the path should extend to Nyberg Woods. Mr. Bruning replied they would like to build the path on their site. Mr. Howarth thought it would really enhance the river and would also like to see a wider bicycle path from I-5 on the north side.

Councilor Truax stated that he agrees with the other ARB member's comments. He expressed concern that he hoped it would not turn out like Nyberg Woods. Mr. Truax noted that regarding the transportation plan, the drive aisle in front of the library should not be used as truck/freight access. He also didn't see the plazas and gathering spaces in the plan, other than the existing one in front of the library, which he would like protected. Mr. Bruning replied that Michael's is currently using their freight trucks off Martinazzi and currently designed their plan to not use Martinazzi as truck/freight access. Councilor Truax added that he would not like speed humps added to this property.

Mr. Novak noted that they should add additional public amenities between buildings, such as plazas and gathering spaces, other than parking and asphalt. Mr. Stanaway added that the goal should be for people to walk the site other than drive from building to building. It was also noted that given the site location, the development should offer

the City a “wow” factor or “big idea”. Mr. Howorth added that Bridgeport Village is successful because it is pedestrian oriented.

Mr. Truax opened the discussion to the public. Joe Lipscomb, a Tualatin resident, expressed concern regarding the pedestrian shared use. His first concern is the width of the pedestrian path and stated 10-14 feet is inadequate by today’s best standards. Another area of concern was the conflict between pedestrians, bicycle, joggers, and a loading dock. Mr. Lipscomb also commented that the I-5 pedestrian multi-mode path is adjacent to a proposed restaurant location with outside seating. The distance between the buildings appears far less than best practices requirements. Lastly, Mr. Lipscomb suggested an option would be to have a raised pedestrian path and a pedestrian controlled stop light.

Ed Casey, Tualatin resident and former ARB member, brought up the concern of the Cabela’s design. He stated that out of all the Cabela’s in the county, this one is downgraded in comparison. Nearly all the other stores have full height rock columns holding up the entry structure and interesting roof lines. Without modification, this ends up being a box in a development of boutique storefronts, multiple roof lines and facades. He had a handout of the different look of Cabela’s across the country and will have a copy sent to the ARB members.

Councilor Truax asked for a volunteer to meet with the City Council. Mr. Stanaway agreed to meet with the Council and suggested they attend as a group. The other members agreed.

5. **COMMUNICATIONS FROM BOARD MEMBERS**

None

7. **ADJOURNMENT**

MOTION to adjourn the meeting at 9:14 p.m. MOTION PASSED (5-0).

_____ Lynette Sanford, Office Coordinator



Nyberg Rivers Master Plan Public Hearing

City Council July 22, 2013



Meeting Purpose

- **Master Plan Public Hearing:** application to allow redevelopment on the former K-Mart Site.
 - Note: The developer has also submitted an application for a **Conditional Use Permit** which will be reviewed in an additional public hearing if the Master Plan is approved.



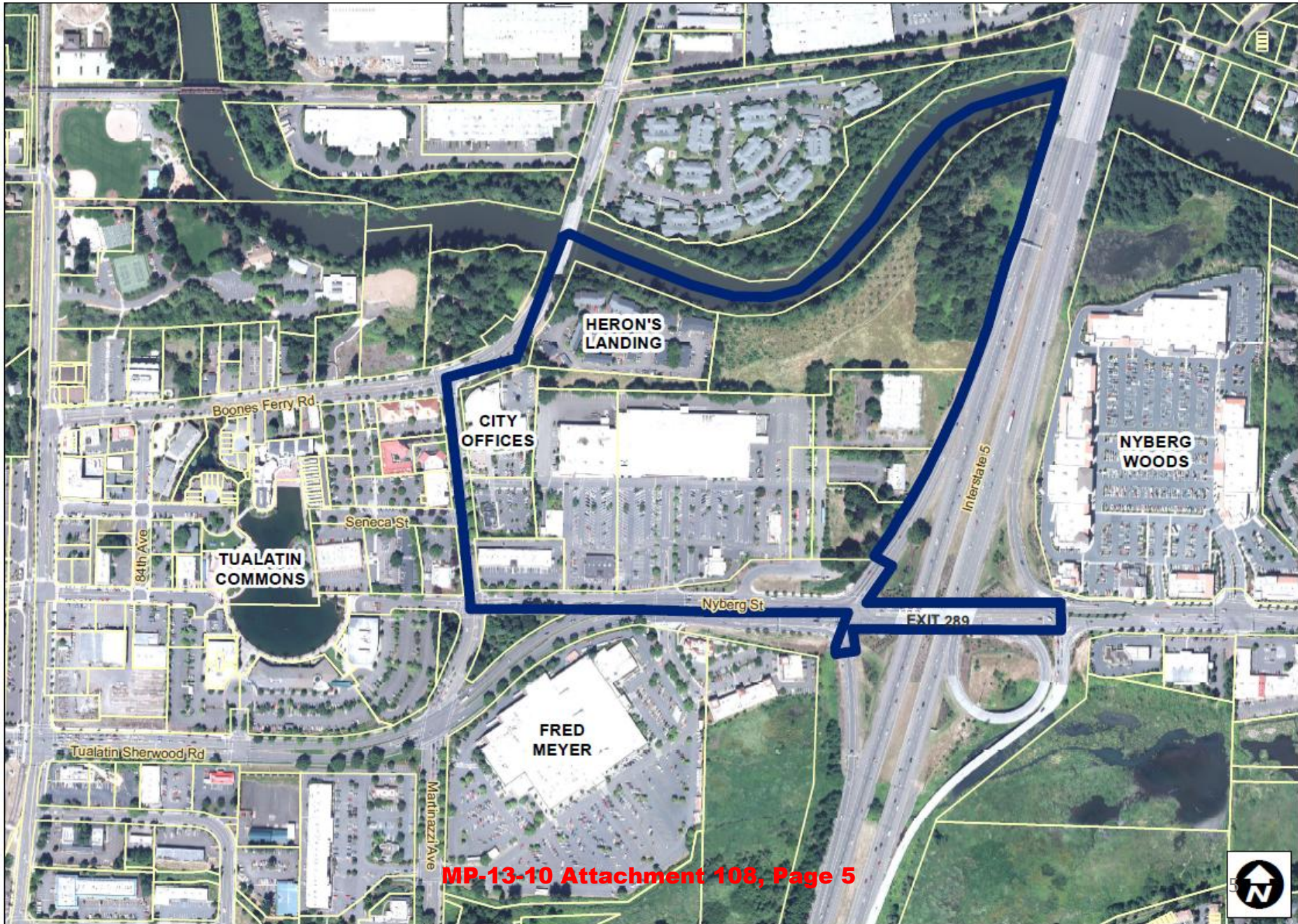
Master Plan Overview

- **Why a Master Plan?**
 - Central Urban Renewal District Plan requires approval of a Master Plan to govern development in the district in a manner that complies with CURD goals and objectives
- **What is a Master Plan?**
 - Provides physical and aesthetic guidance for proposed redevelopment
 - Outlines private and public improvements (i.e. buildings, streets, trails, water and sewer lines, etc.)
- **What has been the process to date?**
 - March: Neighborhood Developer Meeting
 - April: Application Submitted
 - June: Courtesy Review by TPARK and ARB
 - July/August: City Council Review and Direction



CURD Plan Goals

1. Commercial Development
2. Housing
3. Industrial
4. Civic Development
5. Transportation
6. Pedestrian and Bikeways
7. Transit
8. Utilities
9. Parks
10. Flood Protection
11. Design Considerations



Proposed Site Plan





Review of Application

Important Dates

- Submitted Application on April 22, 2013
- Deemed Complete on May 22, 2013
- 120-day review period ends on Sept. 19, 2013

Analysis and Findings

- Staff finds that the proposed Master Plan can show consistency with CURD goals, subject to conditions.



Proposed Conditions of Approval

Goal 1: Commercial Development

Council Direction Needed:

Should the number of drive-thru uses be limited to the existing number?



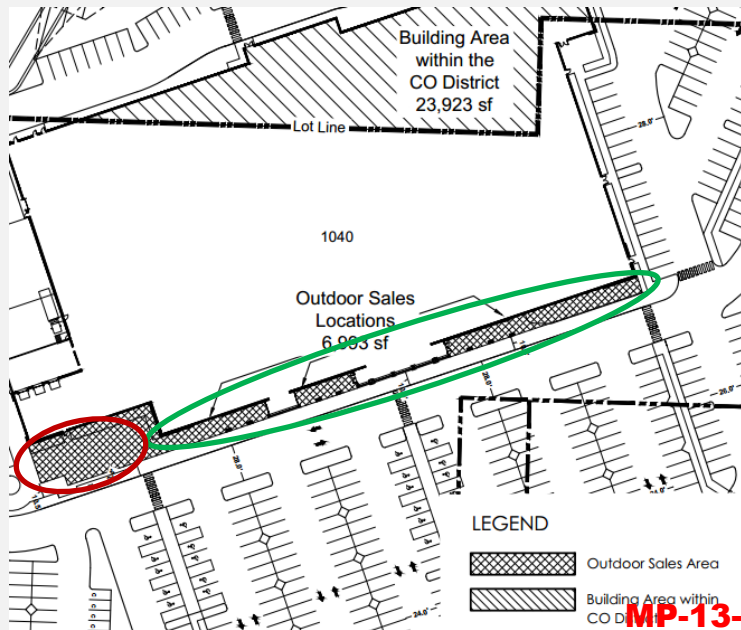


Proposed Conditions of Approval

Goal 4: Civic Development

Condition:

Recreational equipment, apparel and sports outfitting sales are prohibited in the public gathering place identified below.



Legend

○ Not Allowed

○ Allowed





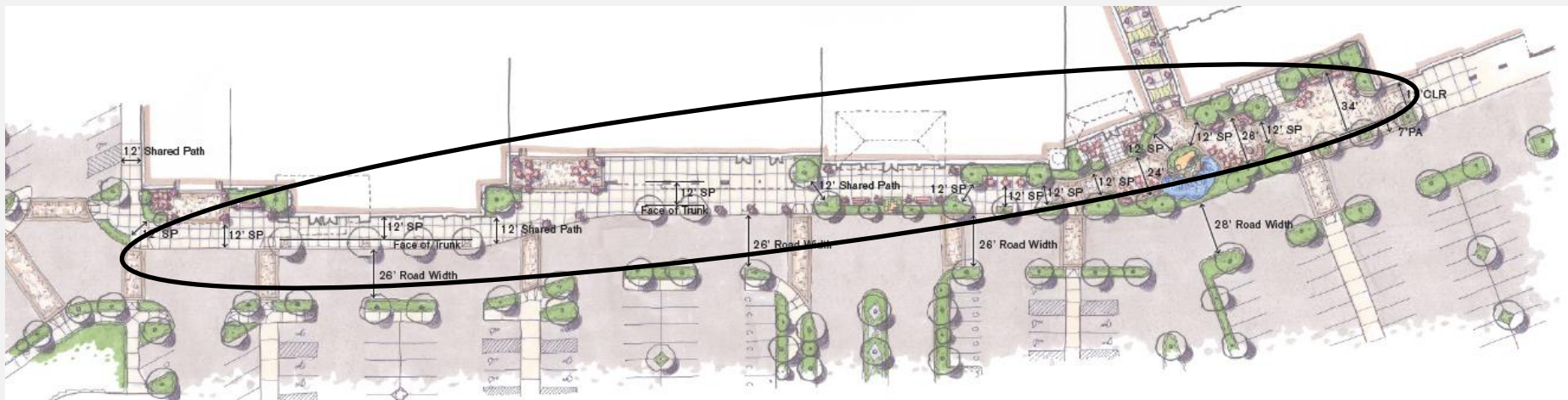
Proposed Conditions of Approval

Goal 4: Civic Development

Conditions:

The proposed “outside sales areas” should be configured to provide a minimum of 12 feet in clear, unobstructed width for public gathering spaces, accessways and walkways measured from the edge of an “outside sales area”, and;

A minimum of 12 feet of clear, unobstructed width for walkways or accessways through a plaza or along the building frontage between Building D1 on the west and southeast corner of Building 1040 on the east northwest corner of the public gathering, multi-function open plaza and plaza seating with fire pit on Attachment 102D page 60 Building Frontage landscape plan.



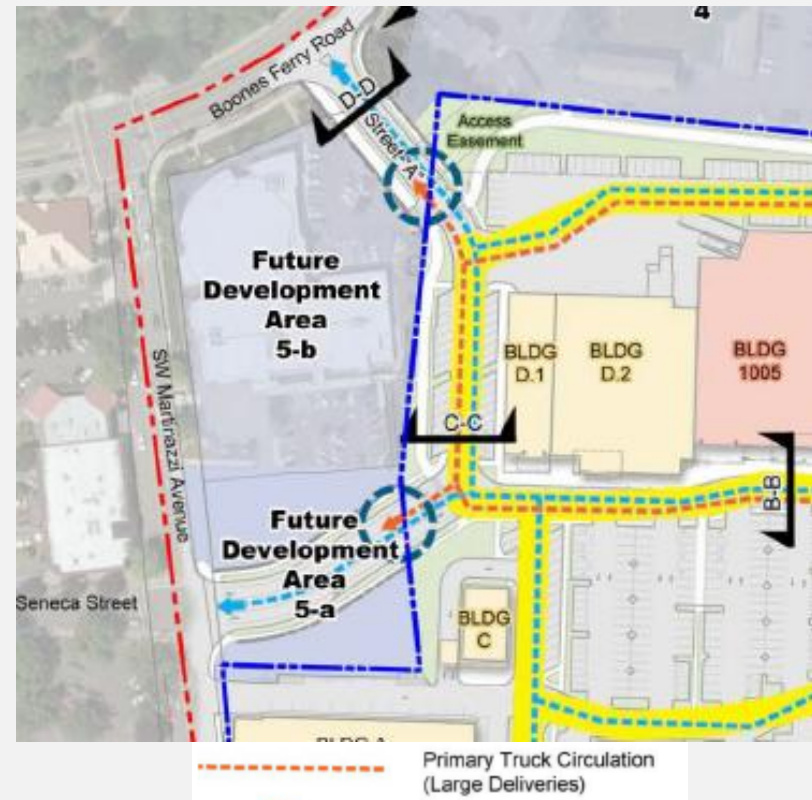


Proposed Conditions of Approval

Goal 4: Civic Development

Condition(s):

Remove the Truck Route designations from Street "A" and Seneca Street in order to eliminate impacts to the Library/City Hall Plaza, Shared Pathway, and other pedestrian crossings of these roads and drive aisles





Proposed Conditions of Approval

Goal 5: Traffic and Transportation

Condition(s):

The proposed Seneca Street extension to the Nyberg Rivers site with a signal at SW Martinazzi Avenue are constructed to the standards of a Minor Collector Street





Proposed Conditions of Approval

Goal 5: Traffic and Transportation

Condition(s):

The following are also necessary for this development:

1. A westbound right-turn lane on SW Nyberg Road
2. Two southbound left-turn lanes and a shared through/right-turn lane from the sites' access on SW Nyberg Road
3. Two inbound receiving lanes
4. The associated signal improvements at the main entrance





Proposed Conditions of Approval

Goal 6: Pedestrian and Bikeways

Condition Removed:

~~The Master Plan shall provide a 12' sidewalk with a curbside planter on the north side of Nyberg Street between the Nyberg Rivers access and the SW Nyberg Street overpass at I-5~~





Proposed Conditions of Approval

Goal 11: Design Considerations

Condition(s):

~~Building 1040 shall have public entrance and windows on the north sides of at the northeast corner of the building~~

Additional window and architectural feature on each of the four sides of Buildings





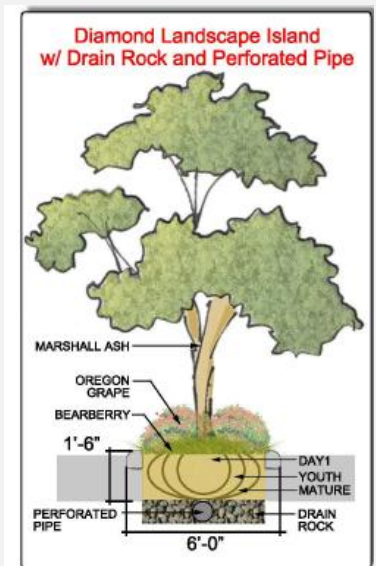
Proposed Conditions of Approval

Goal 11: Design Considerations

Council Direction Needed:

Are “diamond-style” planter areas sufficient to meet landscaping requirements?

*Staff report contains 2 alternate conditions





Proposed Conditions of Approval

Goal 11: Design Considerations

Condition(s):

Provide additional tall-maturing conifer tree plantings along the site's eastern frontage along I-5

A tree maintenance and preservation plan to protect trees on the former Nyberg House site (where not possible, provide 3" caliper or 10-12 foot replacement tree plantings)





Possible Council Actions

- Approve
- Approve with Conditions
- Deny





Next Steps

If the Master Plan is approved, these are the next steps:

