SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

***Instructions for applicants*:** [help]

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:
Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals: [help]

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. BACKGROUND [help]

1. Name of proposed project, if applicable: [help]
   Moore property
2. Name of applicant: [help]
   Pulte Group
3. Address and phone number of applicant and contact person: [help]
   3535 Factoria Blvd. SE, Ste. 110 Bellevue, WA 98006 (425) 931-6530
4. Date checklist prepared: [help]
   September 2014
5. Agency requesting checklist: [help]
   City of Kirkland Planning and Development Services
6. Proposed timing or schedule (including phasing, if applicable): [help]
   Construction is anticipated to start in the Spring of 2015

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [help]

No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [help]

A Geotechnical Engineering Study has been prepared by Terra Associates, Inc.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. [help]

A Boundary Line Adjustment is currently in for review at the city. The project boundaries as shown are based on approval of the subject BLA?

10. List any government approvals or permits that will be needed for your proposal, if known. [help]

Road, Storm, Grading, Building Permits, Right of way use permit, Sewer & Water plan approval, NPDES, and FPA

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) [help]

The proposal is for the subdivision of 4 parcels totaling 9.87 acres into 48 single family lots.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. [help]

The property includes parcel numbers 2726059029,2726059032,2726059038,2726059073
NE 1/4, NW 1/4, SEC 27, TWN 26 N, RGE 5 E, W.M.
12860 136th Ave NE, Kirkland, WA 98034, 13034 136th Ave NE, Kirkland, WA, 98034
See attached Preliminary plat for Site Plan and Vicinity Map

B. ENVIRONMENTAL ELEMENTS [help]

1. Earth

a. General description of the site [help]
(circle one): Flat, rolling, hilly, steep slopes, mountainous,
other _____

b. What is the steepest slope on the site (approximate percent slope)? [help]

The steepest slope on the site is approximately 50%

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [help]

Alderwood gravelly sandy loam, 15 to 30 percent slopes.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [help]

No?

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [help]

Road and building sites would be cleared, graded, and compacted as necessary to acheive proper grade transition, drainage, and stability. A balance between cut and fill will be sought.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [help] During construction, the potential for increased erosion would be present. Following construction erosion potential would decrease when drainage is controlled and cleared areas re-vegetated.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [help]

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [help]

Temporary measures to control erosion could include sedimentation ponds, filter fences and diversion swales; permanent measures could include landscaping, piping and armoring of outfall areas.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [help] Dust and emissions from construction equipment during construction, and auto emissions from residents, would likely be the only emissions.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [help] Vehicular emissions from traffic on nearby roadways would be the primary off-site source of air pollution that could affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [help]

If construction activities occur during dry months of the year, dust emissions will be controlled through the application of water as appropriate.

3. **Water**

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [help]

No

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [help]

N/A

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [help]

N/A

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [help]

N/A

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [help] No

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [help]
Post development storm water runoff containing some pollutants, along with water-soluble household products, would be collected by the storm drainage system.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [help] Any alteration to the direction or rate of flow of ground water due to grading operations should be localized on site. Water onto adjoining properties would not vary from the present condition.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. [help]
The project would be on sewers; therefore, there would be no major sources of waste material which could be discharged to the ground

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [help] During construction the existing runoff pattern would be locally modified. Runoff would be generated from building and the water would be collected by the storm drainage system.

2) Could waste materials enter ground or surface waters? If so, generally describe. [help]
Refer to Surface Water Response #6 and Ground Water Response #2

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.
No?

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: Temporary erosion control devices would be installed during construction. After construction, storm water runoff will be collected and directed to detention/ retention facilities by the storm drainage system.

4. **Plants** [help]

a. Check the types of vegetation found on the site: [help]

__X__deciduous tree: alder, maple, aspen, other
__X__evergreen tree: fir, cedar, pine, other
__X__shrubs
__X__grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

b. What kind and amount of vegetation will be removed or altered? [help]
Existing vegetation will be removed as necessary for the road, utilities and home construction.

c. List threatened and endangered species known to be on or near the site. [help]
None Known.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [help] Development would reduce existing vegetation. Cleared and graded areas would be re-vegetated with some native species and species common to urban areas. Landscaping will be provided.

e. List all noxious weeds and invasive species known to be on or near the site.
None known.

5. **Animals**

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include: [help]

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened and endangered species known to be on or near the site. [help]
None Known

c. Is the site part of a migration route? If so, explain. [help]
Pacific Flyway Migration Route

d. Proposed measures to preserve or enhance wildlife, if any: [help]
Retention of as many existing trees as is compatible with road, utility and home construction will preserve wildlife habitat.

e. List any invasive animal species known to be on or near the site.
None Known

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [help] Electricity and natural gas would be the primary sources of energy for the proposal and would be used for heating and other household purposes. Wood burning and passive solar gain would be used for secondary sources.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [help]
No the project will not affect the potential use of solar energy.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: [help]
None

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. [help]

None known

1) Describe any known or possible contamination at the site from present or past uses.
None Known

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.
The Olympic Pipeline is located on the West side. 136th Ave NE.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.
None Known

4) Describe special emergency services that might be required.
No special emergency services would be required by the proposed project.

5) Proposed measures to reduce or control environmental health hazards, if any:
None required or proposed

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [help]
Minor traffic on surrounding roadways could have a minimal impact on the project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. [help] Short term construction noise would be intermittently high and will occur during City of Kirkland work hours. There will be no long term noise.

3) Proposed measures to reduce or control noise impacts, if any: [help]
Standard soundproofing materials would be used in the construction of residences. Use of proper muffling devices and limitation of construction to normal waking hours would minimize noise.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [help] Current use of the site and adjacent properties are single family residences and vacant. The proposal will not affect current land uses on nearby or adjacent properties.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?
[help] No

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:
No

c. Describe any structures on the site. [help]
There are currently 3 homes on the site.

d. Will any structures be demolished? If so, what? [help]
All 3 existing homes will be demolished

e. What is the current zoning classification of the site? [help]
RSA-6

f. What is the current comprehensive plan designation of the site? [help]
Urban Residential 4-12 du/ac

g. If applicable, what is the current shoreline master program designation of the site? [help]
N/A

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [help]
No

i. Approximately how many people would reside or work in the completed project? [help]
Approximately 149 people would reside at the completed project (48 lots x 3.1 residents per lot)

j. Approximately how many people would the completed project displace? [help]
None

k. Proposed measures to avoid or reduce displacement impacts, if any: [help]
N/A

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [help]
Compliance with existing regulatory codes and standards.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:
Compliance with existing regulatory codes and standards.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [help]
48 Units will be provided for middle income housing.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [help]
Three middle income homes will be eliminated.

c. Proposed measures to reduce or control housing impacts, if any: [help]
None

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [help] The tallest height of any structure would be per the building code. Exterior building materials are expected to be of wood.

b. What views in the immediate vicinity would be altered or obstructed? [help]
None

c. Proposed measures to reduce or control aesthetic impacts, if any: [help] The observance of building setbacks, retention of as much native vegetation as practical during construction and provision of ornamental and native landscaping would reduce aesthetic impacts of the project.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [help] The proposal would produce light from automobile headlights, street lighting and home lighting, primarily at night.

b. Could light or glare from the finished project be a safety hazard or interfere with views? [help]
Not to our knowledge. Night lighting would actually promote safety.

c. What existing off-site sources of light or glare may affect your proposal? [help]
Surrounding residences and traffic.

d. Proposed measures to reduce or control light and glare impacts, if any: [help]
Shielding of street lighting as necessary.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity? [help]
132nd Square Park is approximately .5 miles away. Northshore Athletic Fields are approximately 2.3 miles away. Willows Run Golf Complex is approximately 2 miles away.

b. Would the proposed project displace any existing recreational uses? If so, describe. [help]
No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [help]
Payment of park mitigation fees as required by code and usable open space on site as required by code.

13. **Historic and cultural preservation**

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe. [help]
Not to our knowledge

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [help]
Not to our knowledge

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.
[help] Should any archeological evidence be revealed during construction, activity would be temporarily halted in order to review and evaluate the situation in accordance with state laws.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.
Compliance with state regulatory codes and best practices will be utilized.

14. **Transportation**

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [help] The site will be served by 137th PL NE and 136th Ave NE

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [help] Yes there is s transit stop approximately .4 miles away at 132nd Ave NE and NE 132nd St.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [help] Off-street parking would be accomodated in resident's driveways and garages. No parking would be eliminated.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [help] Internal roadways will be constructed on site. Frontage improvements are anticipated along 136th Ave NE. See Plan set.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [help]
The project should not generate any extraordinary use of water, rail or air transportation.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [help] The proposal would generate approximately 472 ADT (9.85x48), the majority of which would occur during morning and evening peak periods.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.
No

h. Proposed measures to reduce or control transportation impacts, if any: [help]
Mitigation measures will include payment of mitigation fees in accordance with City Code.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [help]
The project would place additional demands on public services; however, facilities are in place to handle these demands.

b. Proposed measures to reduce or control direct impacts on public services, if any. [help]
Mitigation measures will include payment of mitigation fees in accordance with City Code.

16. **Utilities**

a. Circle utilities currently available at the site: [help]
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [help] See preliminary plat map for list of utilities and purveyors.

C. SIGNATURE [HELP]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee Steve Anderson

Position and Agency/Organization Senior Project Manager / Planner

Date Submitted: _____

TENW
Transportation Engineering NorthWest

MEMORANDUM

DATE: December 18, 2014

TO: Thang Nguyen
City of Kirkland

FROM: Jeff Schramm, Curtis Chin, P.E.
TENW

SUBJECT: Traffic Impact Analysis
Marinwood Preliminary Plat
TENW Project No. 4903

12/18/14

This memorandum documents the Traffic Impact Analysis for the proposed Marinwood residential project. The analysis includes a project description, review of collision histories in the project vicinity, trip generation estimate, concurrency assessment, proportional share calculations, level of service analysis, and site access analysis.

Approach

The scope and approach of this Traffic Impact Analysis (TIA) is consistent with the City's TIA Guidelines (adopted August 2012). The project has more than 20 residential units proposed, which triggers the SEPA threshold and road concurrency review. The project was formerly called the Moore Property and received transportation concurrency approval on August 18, 2014 and a concurrency extension was approved on November 20, 2014.

The following off-site intersections were determined to be Significant Intersections based on City guidelines and the proportional share impact worksheet:

- Slater Ave / NE 124th St
- NE 126th Pl / NE 128th St

In addition, our analysis evaluated traffic impacts at the off-site intersection of 124th Ave NE/NE 116th Street and the proposed site access on 136th Ave NE.

Project Description

The project site is located on the east side of 136th Avenue NE south of NE 132nd Street in the City of Kirkland. The proposed project includes 48 new single-family detached residential dwelling units. The existing site is currently vacant. The project is anticipated to be built out in year 2017. A vicinity map showing the location of the project site is shown in Figure 1. A preliminary project site plan concept is provided in Figure 2.

Vehicle access is proposed onto 136th Avenue NE in alignment with a future access to the Vintners West residential development. The access is approximately 230 feet north of the access to the Momco Development which would also align with the Vineyards project site access. A secondary access connection is also proposed to the north via 137th Pl NE.

Figure 1: Site Vicinity Map

N
NOT TO SCALE

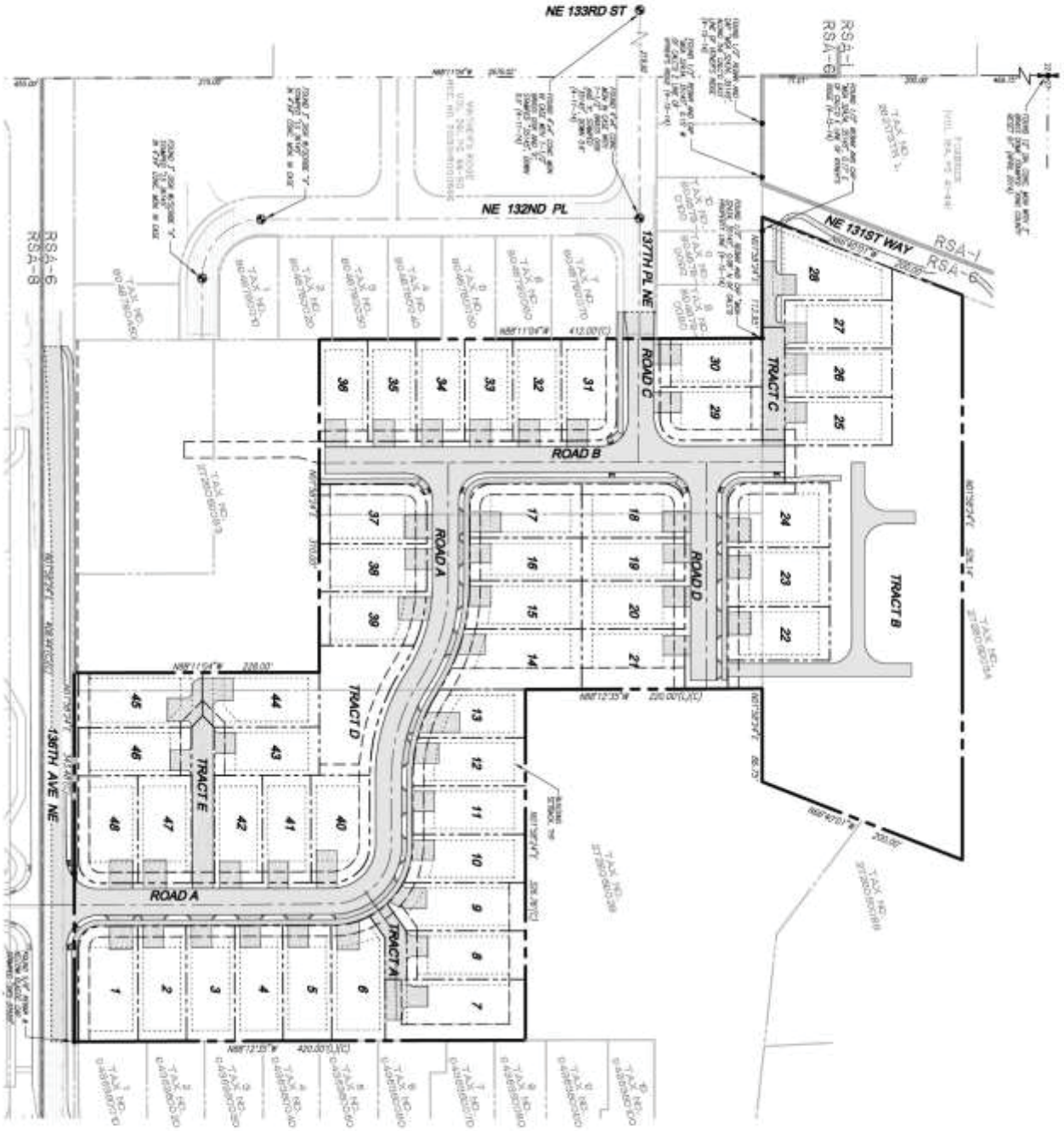

Figure 2: Preliminary Site Plan

Collision History

Collisions at the study intersections and on the 136th Avenue NE corridor (from NE 128th Street to NE 132nd Street) were documented for the five-year period January 1, 2009 to December 31, 2013. Collision data was provided by the WSDOT. Summaries of the total and yearly average collisions at the study intersections during this period are provided in Table 1. Summaries of the 5-year collision history for the 136th Avenue NE corridor are provided in Table 2.

Table 1
5-Year Collision Data Summary at Study Intersections

	5-Year Total Collisions			Average Annual Collisions		
Study Intersection	Total	Personal Injury	Property Damage Only	Total	Personal Injury	Property Damage Only
1. NE 128th St/NE 126th Pl	0	0	0	0.00	0.00	0.00
2. Slater Ave NE/NE 124th St	22	8	14	4.40	1.60	2.80
3. 124th Ave NE/NE 116th St	49	13	36	9.80	2.60	7.20

Source: WSDOT (1/1/2009 - 12/31/2013).

Table 2
5-Year Collision Data Summary at Mid-Block Sections

	5-Year Total Collisions			Average Annual Collisions		
Mid-block Sections	Total	Personal Injury	Property Damage Only	Total	Personal Injury	Property Damage Only
136th Avenue NE						
NE 128th St and NE 132nd St	3	0	3	0.60	0.00	0.60

Source: WSDOT (1/1/2009 - 12/31/2013).

Trip Generation

The weekday daily, AM, and PM peak hour trip generation estimate for the proposed Marinwood residential project were based on methodology from the Institute of Transportation Engineers (ITE) *Trip Generation* manual, 9th edition for Land Use Code (LUC) 210, Single-Family Detached Housing. The resulting net new trips are summarized in Table 3.

Table 3
Marinwood Residential – Trip Generation Summary

	Net Trips Generated		
Time Period	In	Out	Total
Weekday Daily	267	268	535
Weekday AM Peak Hour	11	32	43
Weekday PM Peak Hour	34	20	54

As shown in Table 3, the proposed 48-unit residential development is estimated to generate 535 new weekday daily trips, with 43 new trips occurring during the weekday AM peak hour (11 entering, 32 exiting), and 54 trips occurring during the weekday PM peak hour (34 entering, 20 exiting). A detailed trip generation estimate is included in Attachment A.

Transportation Concurrency

The project was tested for transportation concurrency by the City of Kirkland in August 2014. Based on the results of the test, the City has determined the proposed project meets the City's transportation concurrency requirements. Therefore, no short-term transportation mitigation was required to obtain concurrency in the City of Kirkland. A Concurrency Test Notice was issued for the project (formerly called the Moore Property) on August 18, 2014 and is included as Attachment B. A concurrency extension for the project was approved on November 20, 2014.

Project Traffic Distribution & Assignment

Traffic generated by the proposed Marinwood residential plat was assigned to the vicinity street system for both daily and PM peak hour conditions based on the distribution provided in the City's concurrency model. The resulting daily and PM peak hour project trip assignment is illustrated in Figure 3.

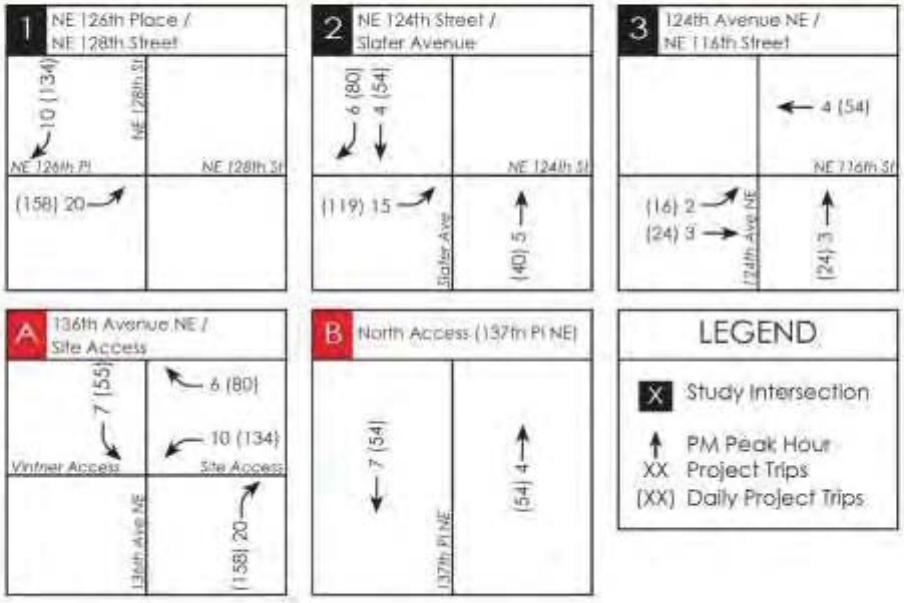

Figure 3: Daily and PM Peak Hour Trip Assignment

Proportional Share Impact

City *Traffic Impact Analysis Guidelines* (SEPA Review section, Step 9) require new development projects to prepare trip distribution and assignment of project-generated trips to determine proportional share impacts to intersections in the project vicinity. Any intersection that has a proportional share impact of greater than 1 percent is considered a "significant intersection" and requires SEPA review and potential mitigation for roadway, intersection, and safety impacts.

Step 10 in the City's *TIA Guidelines* identifies the analysis requirement at the site access and significant intersections. Proportional share impact was evaluated for the proposed Marinwood residential project at several City intersections in the site vicinity. The following two locations were determined to have a calculated proportional share greater than 1 percent:

- NE 124th Street / Slater Ave NE (1.94%)
- NE 126th Place / NE 128th Street (1.66%)

The calculated intersection proportional share was less than 1 percent at other remaining intersections. However, the intersection of 124th Ave NE/NE 116th Street has a proportional share of 0.99% so it was included as a study intersection based on direction provided by City staff.

The City's Proportional Share Impact Worksheets for both of these intersections, as well as several others in the site vicinity are provided in Attachment B.

Traffic Volumes Forecasts

Year 2017 without-project baseline traffic volumes were provided by the City of Kirkland at the two signalized study intersection. The future baseline traffic volumes were based on the City's traffic model forecasts which account for pipeline development and background growth.

Model forecast volumes were not available at the stop controlled study intersection of NE 128th Street/NE 126th Place. Future 2017 without-project baseline traffic volumes at NE 128th Street/NE 126th Place were estimated based on an existing 2014 count with a 2 percent annual traffic growth rate applied plus pipeline trips. PM peak hour traffic generated by the following 3 pipeline developments were included in the future 2017 baseline traffic volumes:

1. Vineyard residential
2. Momco residential
3. Vintners West residential

The future 2017 without-project baseline traffic volumes at the study intersections are illustrated in Figure 4.

Future 2017 with-project traffic volumes were estimated by adding the trip assignment from the proposed project (Figure 3) to the year 2017 without-project volumes (Figure 4). The resulting 2017 with-project PM peak hour traffic volumes at the study intersection and the site driveway on 136th Avenue NE are shown in Figure 5.

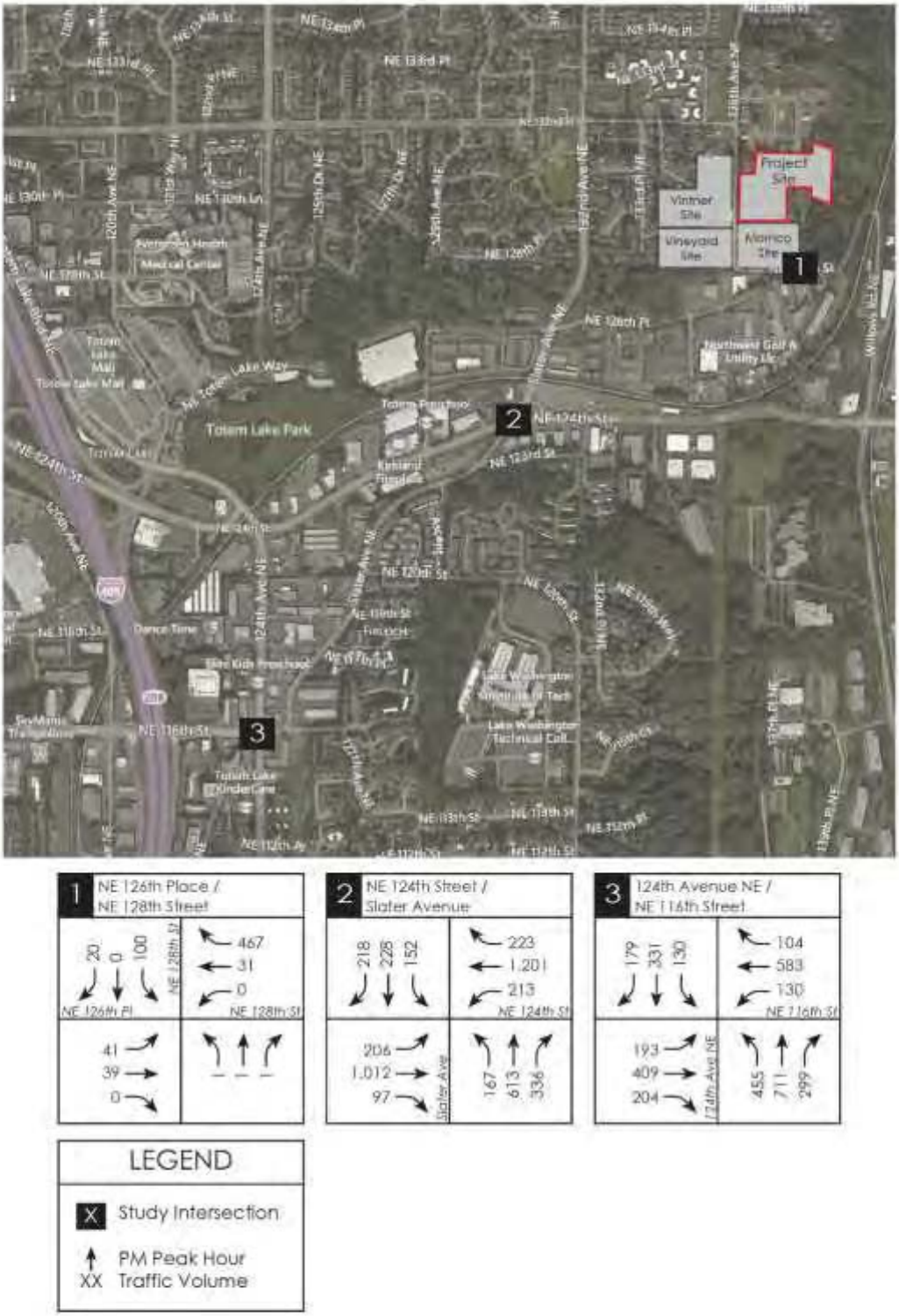

Figure 4: 2017 Without Project PM Peak Hour Traffic Volumes

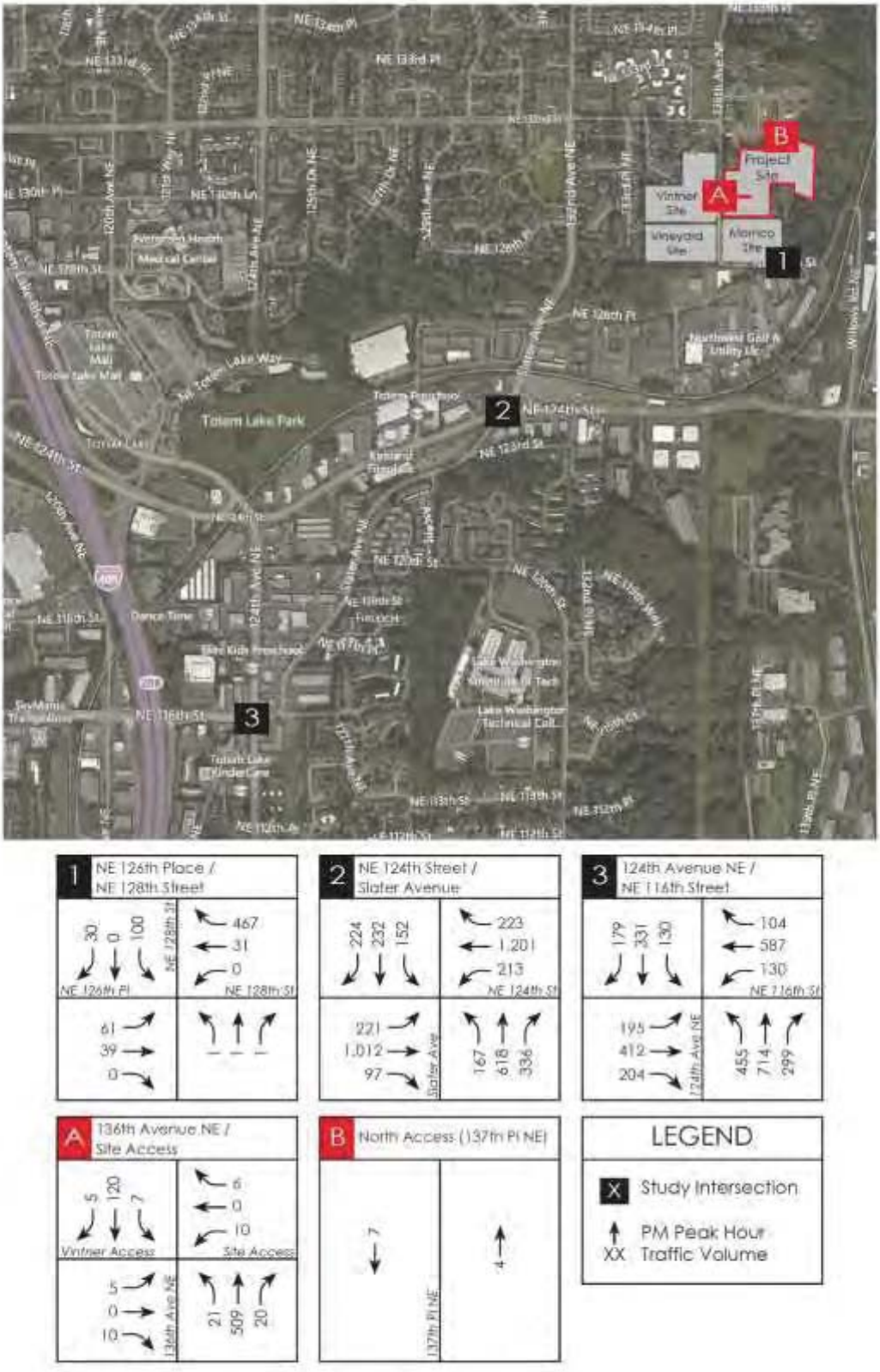

Figure 5: 2017 With Project PM Peak Hour Traffic Volumes

Level of Service Analysis

Weekday PM peak hour LOS were evaluated at the three study intersections. LOS was calculated for future year 2017 conditions without and with the Marinwood residential project.

LOS generally refers to the degree of congestion on a roadway or intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS. At signalized intersections, LOS A represents free-flow conditions (motorists experience little or no delays), and LOS F represents forced-flow conditions where motorists experience an average delay in excess of 80 seconds per vehicle.

The LOS reported for signalized intersections represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only). The LOS reported at stop-controlled intersections is based on the average control delay and can be reported for each controlled minor approach, controlled minor lane group, and controlled major-street movement (and for the overall intersection at all-way stop controlled intersections. Additional v/c ratio criteria apply to lane group or movement LOS only).

Table 4 outlines the current HCM 2010 LOS criteria for signalized and stop-controlled intersections based on these methodologies.

Table 4
LOS Criteria for Signalized and Stop-Controlled Intersections[1]

SIGNALIZED INTERSECTIONS			STOP-CONTROLLED INTERSECTIONS		
	LOS by Volume-to Capacity (V/C) Ratio[2]			LOS by Volume-to Capacity (V/C) Ratio[3]	
Control Delay (sec/veh)	≤ 1.0	> 1.0	Control Delay (sec/veh)	≤ 1.0	> 1.0
≤ 10	A	F	≤ 10	A	F
> 10 to ≤ 20	B	F	> 10 to ≤ 15	B	F
> 20 to ≤ 35	C	F	> 15 to ≤ 25	C	F
> 35 to ≤ 55	D	F	> 25 to ≤ 35	D	F
> 55 to ≤ 80	E	F	> 35 to ≤ 50	E	F
> 80	F	F	> 50	F	F

[1] Source: HCM2010 Highway Capacity Manual, Transportation Research Board, 2010.

[2] For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.

[3] For two-way stop controlled intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop controlled intersections. For approach-based and intersection-wide assessments at all-way stop controlled intersections, LOS is solely defined by control delay.

Level of service calculations for intersections were based on methodology and procedures outlined in the 2010 update of the *Highway Capacity Manual*, Transportation Research Board (HCM 2010) using *Synchro 8.0* traffic analysis software.

The PM peak hour LOS analysis results at the study intersections are summarized in Table 5. The LOS worksheets are included in Attachment C.

Table 5
Marinwood Residential – Future 2017 LOS Summary

Study Intersection	Without-Project LOS	Without-Project Delay	With-Project LOS	With-Project Delay
Signalized Intersections				
#2 NE 124th Street / Slater Ave NE [1]	E	73.6	E	74.7
#3 NE 116th Street / 124th Ave NE	D	44.1	D	44.7
Stop Controlled Intersections				
#1 NE 128th St / NE 126th Place				
EB Shared Left-Thru	A	8.5	A	8.6
SB Shared Lt-Thru-Rt (stop controlled)	B	12.9	B	13.6

1. Green splits were optimized for future LOS analyses.

As shown in Table 5, the study intersection of NE 124th Street/Slater Ave NE is expected to operate at LOS E in 2017 without or with the proposed project.

The need for site specific improvements under SEPA is primarily determined by the results of both the proportional share analysis and the LOS analysis at the study intersections. Table 6 is used as a guide by the City of Kirkland in determining when mitigation under SEPA is required.

Table 6
Guidelines for Installation of Improvements under SEPA

Peak Hour Intersection LOS with Project Traffic	Install Improvements?
A thru D	No
E	If intersection proportional share > 15%
F	If intersection proportional share > 5%

Based on the results of the LOS analysis, the intersection of NE 124th St/Slater Ave NE is estimated to operate at LOS E with the project however the intersection proportional share (1.94%) is less than 15%. Therefore, the installation of improvements under SEPA would not be required.

Site Access Analysis

The level of service (LOS) and queue analysis at the site driveway on 136th Ave NE were conducted using the methodology and procedures outlined in the HCM 2010. The *Synchro* software package was used to determine the reported LOS. Table 7 summarizes the results of the LOS and queue analysis for future 2017 with project conditions at the site driveway on 136th Ave NE. The LOS and queue calculation sheets are included in Attachment C.

Table 7
Future 2017 PM Peak Hour Site Access LOS Summary

		2017 With Project	
Site Driveway	LOS[1]	Delay (sec)	Queue (ft)[2]
136th Ave NE / Site Driveway			
WB Shared Lt-Rt (exiting)	B	14.9	<25'
SB Shared Lt-Thru (entering)	A	8.6	<25'

[1] LOS = Level of Service, reported by movement for unsignalized intersections.
[2] Queues are 95th Percentile queues. <25' indicates 95th Percentile queue statistically less than 1 vehicle.

The results of the unsignalized HCM LOS and queue analysis shown in Table 7 show that the controlled movements at the site driveway are expected to operate at acceptable levels (LOS B or better) in 2017 with the proposed project. The HCM results show 95th percentile queues that are all statistically less than 1 vehicle (25 feet).

Findings and Conclusions

This Traffic Impact Analysis summarizes the traffic impacts of the proposed 48-unit Marinwood residential plat with the following findings and conclusions.

- The Marinwood residential project site is located on the east side of 136th Avenue NE south of NE 132nd Street, with site access in alignment with a future access to the Vinters West property and approximately 230 feet north of the access to the Momco Development which aligns with the Vineyards development access.
- The proposed 48-unit Marinwood residential development is estimated to generate 535 new weekday daily trips, with 43 new trips occurring during the weekday AM peak hour (11 entering, 32 exiting), and 54 trips occurring during the weekday PM peak hour (34 entering, 20 exiting).
- All turn movements at the proposed site access intersection onto 136th Avenue NE are anticipated to operate at LOS B or better during the weekday PM peak hour.
- Payment of the City's required Road Impact Fee of $3,942 per unit would adequately mitigate the anticipated traffic impacts of the proposed Marinwood residential project.

If you have any questions with the above information, please contact me at (425) 250-0581 or schramm@tenw.com.

cc: Mike Behn, Pulte Group
Jeff Haynie, P.E., Principal - TENW

Attachments:

ATTACHMENT A

Trip Generation Summary

Land Use	Area	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate	Trips Generated In	Trips Generated Out	Trips Generated Total
Daily									
Proposed Use:									
Single Family	48	DU	210	50%	50%	equation	267	268	535
						New Daily Trips =	**267**	**268**	**535**
AM Peak Hour									
Proposed Use:									
Single Family	48	DU	210	25%	75%	equation	11	32	43
						New AM Peak Hour Trips =	**11**	**32**	**43**
PM Peak Hour									
Proposed Use:									
Single Family	48	DU	210	63%	37%	equation	34	20	54
						New PM Peak Hour Trips =	**34**	**20**	**54**

Notes:

[1] DU = Dwelling Units

[2] Institute of Transportation Engineers, Trip Generation Manual, 9th edition Land Use Code.

ATTACHMENT B

Concurrency Test Notice and Proportional Share Spreadsheets

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Planner

From: Thang Nguyen, Transportation Engineer

Date: August 18, 2014

Subject: Moore Single-Family Subdivision Development Traffic Concurrency Test Notice, Tran14-01115.

The purpose of this memo is to inform you that the proposed Moore single family subdivision development has passed traffic concurrency.

Project Description

The applicant proposed to construct 49 single-family homes on a vacant property located off 136th Avenue NE across from NE 129th Place. A new street will provide access to the project site from 136th Avenue NE. There will be two street connections to the property that will be developed north of the project site. The proposed project is anticipated to be completely built and occupied by 2017.

The proposed project passed traffic concurrency. This memo will serve as the concurrency test notice for the proposed project. Per *Section 25.10.020 Procedures* of the KMC (Kirkland Municipal Code), this Concurrency Test Notice will expire in one year (August 18, 2015) unless a development permit and certificate of concurrency are issued or an extension is granted.

EXPIRATION

The concurrency test notice shall expire and a new concurrency test application is required unless:

1. A complete SEPA checklist, traffic impact analysis and all required documentation are submitted to the City within 90 calendar days of the concurrency test notice.

2. A Certificate of Concurrency is issued or an extension is requested and granted by the Public Works Department within one year of issuance of the concurrency test notice. (A Certificate of Concurrency is issued at the same time a development permit or building permit is issued if the applicant holds a valid concurrency test notice.)

3. A Certificate of Concurrency shall expire six years from the date of issuance of the concurrency test notice unless all building permits are issued for buildings approved under the concurrency test notice.

APPEALS

The concurrency test notice may be appealed by the public or agency with jurisdiction. The concurrency test notice is subject to an appeal until the SEPA review process is complete and the appeal deadline has passed. Concurrency appeals are heard before the Hearing Examiner along with any applicable SEPA appeal. For more information, refer to the Kirkland Municipal Code, Title 25. If you have any questions, please call me at x3869.

cc: Jeff Schramm, TENW
Rob Jammerman, Development Engineer Manager
John Burkhalter, Senior Development Engineer

1) Project ID:	Moore Sub-division SF development		4) Transportation Concurrency Status	6) Transportation Concurrency Certificate Date:
2) Project Description:	Construct 49 single family units on vacant land		PASS	
		Gross Trips: Enter / Exit / Enter / Exit	5) Transportation Concurrency Test Date	7) Certificate of Occupancy Date
3) Build-out Year:	2017	factor = 1	August 18, 2014	

SUMMARY OF TRAFFIC IMPACTS

8) Daily Trips	545 net new	PM Peak Trips:	55 (35, 20) net new	Impacted Subarea(s):	NE	TAZ:	305	Case # TRAN14-01115

Signalized Intersection PM Peak Traffic Impact

		Project PM Peak Turning Volumes												PM Peak	Daily Trips	Sum of	Vol.
		Eastbound			Westbound			Northbound			Southbound						
Code	Intersection	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT				
														0			
	SEE Project Trip spreadsheet													0			
														0			
														0			
														0			
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	2017 LOS Standards		*LOS with Project Impacts*			
Subarea No	A= Max. Intersection LOS	B=Average 2015 V/C	a=No. exceeding 1.4	b=Average V/C	**a <= A?**	**b<= B?**
Southwest (1xx)	1.4	0.91	0	0.78	yes	yes
Northwest (2xx)	1.4	0.95	0	0.83	yes	yes
Northeast (3xx)	1.4	0.93	0	0.77	yes	yes
East(4xx)	1.4	1.07	0	0.93	yes	yes
Annex(5xx)	1.4	n/a	0	n/a	yes	n/a

TEST RESULTS

Result: **PASS**

* Based on Critical Movement, Planning Method TRC #212.

1. Number of intersection exceeding Average V/C LOS Standard

1. Sixth Year Target Average V/C ratio, see step 6, part 1 of the guidelines

2017	Moore Subdivision 49 SF	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
101	Lake WA Blvd/NE 38th Pl												
102	Lake WA Blvd/Lakeview Dr												
103	NE 68th St/State St												
104	NE 68th St/108th Ave NE												
105	Central Way/6th St												
106	Central Way/3rd St S												
107	Central Way/Lake St												
108	Lake St/Kirkland Ave												
109	NE 85th St/114th Ave NE												
110	6th St S/4th St												
111	Kirkland Ave/3rd Street												
112	Kirkland Way/6th Street												
201	NE 116th St/98th Ave NE												
202	NE 124th St/100th Ave NE				1		1			1			
203	NE 132nd St/100th Ave NE												
204	NE 132nd St/116th Way NE												
205	Forbes Creek Dr/Market St												
206	NE 120th Pl/100th Ave NE												
207	Juanita Dr/93rd Ave NE												
208	Juanita Dr/97th Ave NE												
209	n/a												
211	n/a												
301	NE 132nd St/120th Ave NE												
302	NE 130th St/120th Ave NE												
303	NE 128th St/120th Ave NE												
304	NE 132nd St/124th Ave NE												
306	NE 124th St/Slater Ave NE	15							5			4	6
307	Totem Lake Blvd/120th Ave NE												
310	NE 116th St/120th Ave NE		2			1							
311	NE 116th St/124th Ave NE	2	3			4			3				
312	NE 124th St/116th Way NE		2			2							
313	NE 124th St/113th Ave NE		7			4							
314	NE 120th St/Slater Ave NE	2							3			4	
315	NE 124th St/124th Ave NE		7		1	4	1			3	4		
316	NE 132nd St/Totem Lake Blvd												
317	NE 124th St/SB I-405 off Ramp		2			2					4		
318	NE 124th St/NB I-405 on/off Ramp		6							1			
319	n/a												
320	NE 116th St/NB I-405 off Ramp		2			4				3			
323	NE 128th St/116th Way NE												
325	NE 124th St/128th Lane NE		15			6							
401	NE 85th St/132nd Ave NE												
402	NE 85th St/124th Ave NE	1					1						
403	NE 85th St/120th Ave NE												
404	NE 100th St/124th Ave NE												
406	NE 70th St/132nd Ave NE												
407	NE 70th St/116th Ave NE												
408	NE 90th St/124th Ave NE												
409	NE 85th St/122nd Ave NE												
410	116th Ave NE/I-405 NB off Ramp												
411	NE 70th St/I-405 SB off Ramp												
412	NE 85th St/128th Ave NE												
416	NE 80th St/132nd Ave NE												
999	Project Driveway				10		6			20	7		
501	North Holmes Pt Dr NE/Juanita Dr NE												
502	South Holmes Pt Dr NE/Juanita Dr NE												
503	NE 141st Street/Juanita Dr NE												
504	Juanita-Woodinville Way/100th Ave NE												
505	NE 137th Street/100th Avenue NE												
506	Simonds Road/100th Avenue NE												
507	NE 145th street/100th Avenue NE												
508	NE 145th Street/Juanita-Woodinville Way												
509	NE 140th Street/132nd Avenue NE												
510	NE 132nd Street/132nd Avenue NE												
511	NE 144th Street/124th Avenue NE												
512	NE 124th Street/Willows Road NE												
	NE 126th Pl/NE 128th Street	20											10

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	100th Ave NE	# of Lanes*=	2
Minor Street[1]	NE 124th St	# of Lanes*=	1

DATE:
11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	4	8	0	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	13	26	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.04%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.26%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.03%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.52%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.15%
$S_2=(P_3+P_4)/2$=	0.27%

Intersection Proportional Share = Maximum of S1 and S2 = 0.27%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 124th St	# of Lanes*=	2
Minor Street[1]	Slater Ave NE	# of Lanes*=	1

DATE: 11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	59.5	119	0	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	87	40	134	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.60%
$P_2=V_2/(5{,}000 \times f_2)$ =	1.74%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.40%
$P_4=V_2/(2{,}500 \times f_4)$ =	3.48%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	1.17%
$S_2=(P_3+P_4)/2$=	1.94%

Intersection Proportional Share = Maximum of S1 and S2 = 1.94%

Significant Intersection? **yes**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 116th St	# of Lanes*=	1
Minor Street[1]	120th Ave NE	# of Lanes*=	1

DATE: 11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	14.5	16	13	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.17%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.12%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.09%
$S_2=(P_3+P_4)/2$=	0.06%

Intersection Proportional Share = Maximum of S1 and S2 = 0.09%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	124th Ave NE	# of Lanes*=	1
Minor Street[1]	NE 116th St	# of Lanes*=	1

DATE: 11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	12	24	0	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	47	40	54	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.14%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.94%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.10%
$P_4=V_2/(2{,}500 \times f_4)$ =	1.88%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.54%
$S_2=(P_3+P_4)/2$=	0.99%

Intersection Proportional Share = Maximum of S1 and S2 = 0.99%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 124th St	# of Lanes*=	2
Minor Street[1]	116th Ave NE	# of Lanes*=	1

DATE: 11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	21.5	16	27	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.22%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.14%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.11%
$S_2=(P_3+P_4)/2$=	0.07%

Intersection Proportional Share = Maximum of S1 and S2 = 0.11%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 124th St	# of Lanes*=	2
Minor Street[1]	113th Pl Ne	# of Lanes*=	1

DATE:
11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	54.5	55	54	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.55%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.36%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.27%
$S_2=(P_3+P_4)/2$=	0.18%

Intersection Proportional Share = Maximum of S1 and S2 = 0.27%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	Slater Ave NE	# of Lanes*=	1
Minor Street[1]	NE 120th St	# of Lanes*=	1

DATE:
11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	39	24	54	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	8	16	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.47%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.16%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.31%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.32%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.31%
$S_2=(P_3+P_4)/2$=	0.32%

Intersection Proportional Share = Maximum of S1 and S2 = 0.32%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 124th St	# of Lanes*=	2
Minor Street[1]	Totem Lk Blvd (124th Ave NE)	# of Lanes*=	1

DATE:
11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	67.5	55	80	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	28	24	32	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.68%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.56%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.45%
$P_4=V_2/(2{,}500 \times f_4)$ =	1.12%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.62%
$S_2=(P_3+P_4)/2$=	0.79%

Intersection Proportional Share = Maximum of S1 and S2 = 0.79%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 124th St	# of Lanes*=	2
Minor Street[1]	I-405 SB	# of Lanes*=	1

DATE: 11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	21.5	16	27	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	16	32	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.22%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.32%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.14%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.64%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.27%
$S_2=(P_3+P_4)/2$=	0.39%

Intersection Proportional Share = Maximum of S1 and S2 = 0.39%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 124th St	# of Lanes*=	2
Minor Street[1]	I-405 NB	# of Lanes*=	1

DATE:
11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	13.5	27	0	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	4	8	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.14%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.08%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.09%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.16%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.11%
$S_2=(P_3+P_4)/2$=	0.13%

Intersection Proportional Share = Maximum of S1 and S2 = 0.13%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 116th St	# of Lanes*=	1
Minor Street[1]	I-405 NB	# of Lanes*=	1

DATE: 11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	35	16	54	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	12	24	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.42%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.24%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.28%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.48%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.33%
$S_2=(P_3+P_4)/2$=	0.38%

Intersection Proportional Share = Maximum of S1 and S2 = 0.38%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 124th St	# of Lanes*=	2
Minor Street[1]	128th Ln NE	# of Lanes*=	1

DATE:
11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	99.5	119	80	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	1.00%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.66%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.50%
$S_2=(P_3+P_4)/2$=	0.33%

Intersection Proportional Share = Maximum of S1 and S2 = 0.50%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 85th St	# of Lanes*=	2
Minor Street[1]	124th Ave NE	# of Lanes*=	1

DATE: 11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	8	8	8	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.08%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.05%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.04%
$S_2=(P_3+P_4)/2$=	0.03%

Intersection Proportional Share = Maximum of S1 and S2 = 0.04%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 126th Pl	# of Lanes*=	1
Minor Street[1]	Ne 128th St	# of Lanes*=	1

DATE:
11/19/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	79	158	0	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	67	134	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.95%
$P_2=V_2/(5{,}000 \times f_2)$ =	1.34%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.63%
$P_4=V_2/(2{,}500 \times f_4)$ =	2.68%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	1.14%
$S_2=(P_3+P_4)/2$=	1.66%

Intersection Proportional Share = Maximum of S1 and S2 = 1.66%

Significant Intersection? **yes**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	CFC
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 132nd Street	# of Lanes*=	1
Minor Street[1]	136th Ave NE	# of Lanes*=	1

DATE: 12/16/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	0	0	0	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	40	80	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.00%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.80%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.00%
$P_4=V_2/(2{,}500 \times f_4)$ =	1.60%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.40%
$S_2=(P_3+P_4)/2$=	0.80%

Intersection Proportional Share = Maximum of S1 and S2 = 0.80%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	WMJ
Company:	TENW

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marinwood Residential		
Major Street[1]	NE 132nd Street	# of Lanes*=	1
Minor Street[1]	132nd Ave NE	# of Lanes*=	1

DATE:
12/16/2014

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	40	0	80	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.48%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.32%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.24%
$S_2=(P_3+P_4)/2$=	0.16%

Intersection Proportional Share = Maximum of S1 and S2 = 0.24%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	WMJ
Company:	TENW

ATTACHMENT C

Level of Service Worksheets

2017 Future Without-Project LOS Results

Lanes, Volumes, Timings
1: Dwy/128th St NE & 126th Pl NE/NE 128th St

12/16/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	39	0	0	31	467	1	1	1	100	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		360			440			435			355	
Travel Time (s)		9.8			12.0			11.9			8.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

HCM 2010 TWSC
1: Dwy/128th St NE & 126th Pl NE/NE 128th St

12/16/2014

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	41	39	0	0	31	467	1	1	1	100	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	42	40	0	0	32	477	1	1	1	102	0	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	508	0	0	40	0	0	403	631	40	394	393	270
Stage 1	-	-	-	-	-	-	123	123	-	270	270	-
Stage 2	-	-	-	-	-	-	280	508	-	124	123	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.509	4.009	3.309
Pot Cap-1 Maneuver	1067	-	-	1576	-	-	562	401	1037	567	545	771
Stage 1	-	-	-	-	-	-	886	798	-	738	688	-
Stage 2	-	-	-	-	-	-	731	542	-	882	796	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1067	-	-	1576	-	-	530	385	1037	548	523	771
Mov Cap-2 Maneuver	-	-	-	-	-	-	530	385	-	548	523	-
Stage 1	-	-	-	-	-	-	851	766	-	708	688	-
Stage 2	-	-	-	-	-	-	712	542	-	845	764	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.4	0	11.6	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	551	1067	-	-	1576	-	-	576
HCM Lane V/C Ratio	0.006	0.039	-	-	-	-	-	0.213
HCM Control Delay (s)	11.6	8.5	0	-	0	-	-	12.9
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.8

Lanes, Volumes, Timings
2: Slater Ave NE/132 Ave NE & NE 124th St

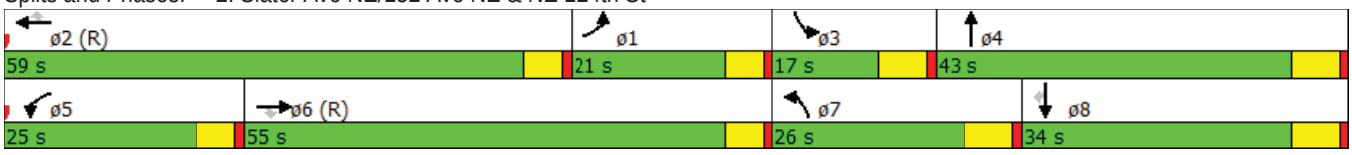
12/16/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	206	1012	97	213	1201	223	167	613	336	152	228	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			-3%			0%	
Storage Length (ft)	300		50	440		160	160		315	250		240
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		756			1188			835			1204	
Travel Time (s)		14.7			23.1			16.3			32.8	
Confl. Peds. (#/hr)			4			10			3			2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	35.0	35.0	15.0	41.0	41.0	15.0	41.0		11.0	33.0	33.0
Total Split (s)	21.0	55.0	55.0	25.0	59.0	59.0	26.0	43.0		17.0	34.0	34.0
Total Split (%)	15.0%	39.3%	39.3%	17.9%	42.1%	42.1%	18.6%	30.7%		12.1%	24.3%	24.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 3 (2%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Splits and Phases: 2: Slater Ave NE/132 Ave NE & NE 124th St



HCM 2010 Signalized Intersection Summary
2: Slater Ave NE/132 Ave NE & NE 124th St

12/16/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	206	1012	97	213	1201	223	167	613	336	152	228	218
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1891	1891	1928	1863	1863	1863
Adj Flow Rate, veh/h	217	1065	0	224	1264	0	176	645	354	160	240	0
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	1326	593	273	1416	633	236	639	351	177	475	404
Arrive On Green	0.04	0.12	0.00	0.05	0.13	0.00	0.13	0.29	0.27	0.10	0.25	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1801	2237	1228	1774	1863	1583
Grp Volume(v), veh/h	217	1065	0	224	1264	0	176	518	481	160	240	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1801	1796	1669	1774	1863	1583
Q Serve(g_s), s	17.1	41.0	0.0	17.5	49.2	0.0	13.2	40.0	40.0	12.5	15.4	0.0
Cycle Q Clear(g_c), s	17.1	41.0	0.0	17.5	49.2	0.0	13.2	40.0	40.0	12.5	15.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	228	1326	593	273	1416	633	236	513	477	177	475	404
V/C Ratio(X)	0.95	0.80	0.00	0.82	0.89	0.00	0.75	1.01	1.01	0.90	0.51	0.00
Avail Cap(c_a), veh/h	228	1326	593	279	1416	633	296	513	477	177	475	404
HCM Platoon Ratio	0.33	0.33	0.33	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.00	0.79	0.79	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	66.6	56.3	0.0	64.5	57.8	0.0	58.6	50.0	50.7	62.3	44.6	0.0
Incr Delay (d2), s/veh	42.7	4.6	0.0	14.0	7.3	0.0	5.5	42.0	43.5	40.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	21.0	0.0	9.7	25.6	0.0	6.9	25.8	24.2	8.1	8.0	0.0
LnGrp Delay(d),s/veh	109.3	60.9	0.0	78.6	65.1	0.0	64.1	92.0	94.2	102.4	45.0	0.0
LnGrp LOS	F	E		E	E		E	F	F	F	D	
Approach Vol, veh/h		1282			1488			1175			400	
Approach Delay, s/veh		69.1			67.1			88.7			67.9	
Approach LOS		E			E			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	59.0	17.0	43.0	24.5	55.5	21.3	38.7
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0
Max Green Setting (Gmax), s	16.0	54.0	11.0	37.0	20.0	50.0	20.0	28.0
Max Q Clear Time (g_c+I1), s	19.1	51.2	14.5	42.0	19.5	43.0	15.2	17.4
Green Ext Time (p_c), s	0.0	2.3	0.0	0.0	0.0	5.6	0.1	6.8

Intersection Summary	
HCM 2010 Ctrl Delay	73.6
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
3: 124th Ave NE & NE 116th St

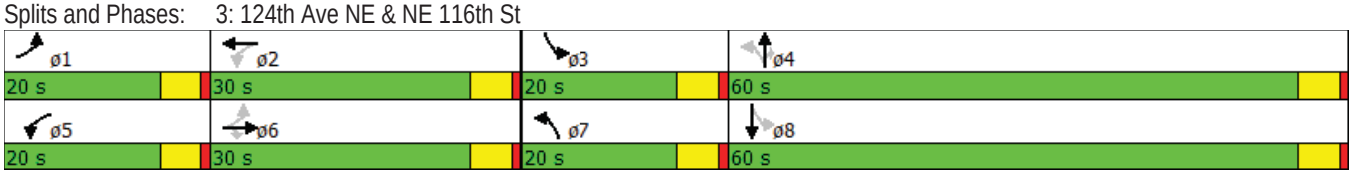
12/16/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	409	204	130	583	104	455	711	299	130	331	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	200		0	150		225	240		250	125		175
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		464			573			367			885	
Travel Time (s)		12.7			11.2			7.1			44.1	
Confl. Peds. (#/hr)	11		11	11		11	8		12	12		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	12.0	27.0	27.0	12.0	27.0		12.5	27.0	27.0	12.0	27.0	
Total Split (s)	20.0	30.0	30.0	20.0	30.0		20.0	60.0	60.0	20.0	60.0	
Total Split (%)	15.4%	23.1%	23.1%	15.4%	23.1%		15.4%	46.2%	46.2%	15.4%	46.2%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 122.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: 124th Ave NE & NE 116th St



HCM 2010 Signalized Intersection Summary
3: 124th Ave NE & NE 116th St

12/16/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	193	409	204	130	583	104	455	711	299	130	331	179
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1863	1863	1900
Adj Flow Rate, veh/h	197	417	0	133	595	106	464	726	169	133	338	183
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	2	2	2
Cap, veh/h	266	457	388	226	653	116	527	821	688	230	817	433
Arrive On Green	0.10	0.25	0.00	0.07	0.22	0.22	0.13	0.44	0.44	0.06	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	1792	3020	537	1792	1881	1577	1774	2228	1182
Grp Volume(v), veh/h	197	417	0	133	351	350	464	726	169	133	267	254
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1792	1787	1770	1792	1881	1577	1774	1770	1640
Q Serve(g_s), s	9.5	24.3	0.0	6.3	21.4	21.5	15.0	39.6	7.6	5.1	12.6	13.0
Cycle Q Clear(g_c), s	9.5	24.3	0.0	6.3	21.4	21.5	15.0	39.6	7.6	5.1	12.6	13.0
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.72
Lane Grp Cap(c), veh/h	266	457	388	226	386	383	527	821	688	230	649	601
V/C Ratio(X)	0.74	0.91	0.00	0.59	0.91	0.91	0.88	0.88	0.25	0.58	0.41	0.42
Avail Cap(c_a), veh/h	320	457	388	332	400	396	527	926	777	353	871	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	41.0	0.0	32.6	42.7	42.8	23.0	28.9	19.9	25.3	26.4	26.5
Incr Delay (d2), s/veh	7.2	22.6	0.0	2.4	23.9	24.8	15.9	9.4	0.2	2.3	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	15.4	0.0	3.3	13.1	13.1	9.1	22.5	3.3	2.6	6.2	5.9
LnGrp Delay(d),s/veh	38.6	63.6	0.0	35.1	66.6	67.6	38.9	38.3	20.1	27.6	26.8	27.0
LnGrp LOS	D	E		D	E	E	D	D	C	C	C	C
Approach Vol, veh/h		614			834			1359			654	
Approach Delay, s/veh		55.6			62.0			36.2			27.0	
Approach LOS		E			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	29.1	12.2	53.7	13.4	32.4	20.0	45.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	15.0	25.0	15.0	55.0	15.0	25.0	15.0	55.0
Max Q Clear Time (g_c+I1), s	11.5	23.5	7.1	41.6	8.3	26.3	17.0	15.0
Green Ext Time (p_c), s	0.2	0.6	0.2	7.1	0.2	0.0	0.0	11.5

Intersection Summary	
HCM 2010 Ctrl Delay	44.1
HCM 2010 LOS	D

2017 Future With-Project LOS Results

Lanes, Volumes, Timings
1: Dwy/128th St NE & 126th Pl NE/NE 128th St

12/16/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	39	0	0	31	467	1	1	1	100	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		360			440			435			355	
Travel Time (s)		9.8			12.0			11.9			8.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

HCM 2010 TWSC
1: Dwy/128th St NE & 126th Pl NE/NE 128th St

12/16/2014

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	61	39	0	0	31	467	1	1	1	100	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	62	40	0	0	32	477	1	1	1	102	0	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	508	0	0	40	0	0	449	672	40	435	434	270
Stage 1	-	-	-	-	-	-	164	164	-	270	270	-
Stage 2	-	-	-	-	-	-	285	508	-	165	164	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.509	4.009	3.309
Pot Cap-1 Maneuver	1067	-	-	1576	-	-	524	380	1037	533	517	771
Stage 1	-	-	-	-	-	-	843	766	-	738	688	-
Stage 2	-	-	-	-	-	-	727	542	-	839	764	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1067	-	-	1576	-	-	481	358	1037	507	486	771
Mov Cap-2 Maneuver	-	-	-	-	-	-	481	358	-	507	486	-
Stage 1	-	-	-	-	-	-	793	721	-	694	688	-
Stage 2	-	-	-	-	-	-	698	542	-	788	719	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.2	0	12	13.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	514	1067	-	-	1576	-	-	550
HCM Lane V/C Ratio	0.006	0.058	-	-	-	-	-	0.241
HCM Control Delay (s)	12	8.6	0	-	0	-	-	13.6
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.9

Lanes, Volumes, Timings
2: Slater Ave NE/132 Ave NE & NE 124th St

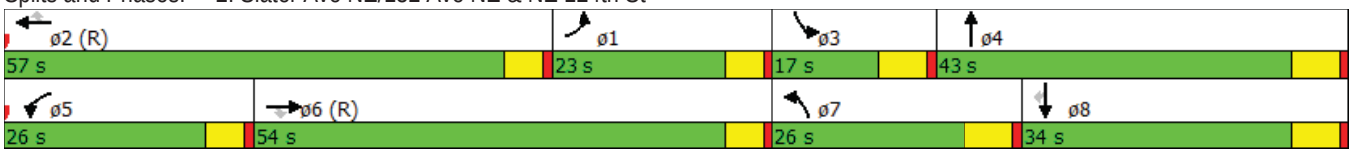
12/16/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	221	1012	97	213	1201	223	167	618	336	152	232	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			-3%			0%	
Storage Length (ft)	300		50	440		160	160		315	250		240
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		756			1188			835			1204	
Travel Time (s)		14.7			23.1			16.3			32.8	
Confl. Peds. (#/hr)			4			10			3			2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	35.0	35.0	15.0	41.0	41.0	15.0	41.0		11.0	33.0	33.0
Total Split (s)	23.0	54.0	54.0	26.0	57.0	57.0	26.0	43.0		17.0	34.0	34.0
Total Split (%)	16.4%	38.6%	38.6%	18.6%	40.7%	40.7%	18.6%	30.7%		12.1%	24.3%	24.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 3 (2%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Splits and Phases: 2: Slater Ave NE/132 Ave NE & NE 124th St



HCM 2010 Signalized Intersection Summary
2: Slater Ave NE/132 Ave NE & NE 124th St

12/16/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	221	1012	97	213	1201	223	167	618	336	152	232	224
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1891	1891	1928	1863	1863	1863
Adj Flow Rate, veh/h	233	1065	0	224	1264	0	176	651	354	160	244	0
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	1324	592	274	1365	611	236	642	349	177	475	404
Arrive On Green	0.05	0.12	0.00	0.05	0.13	0.00	0.13	0.29	0.27	0.10	0.25	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1801	2246	1221	1774	1863	1583
Grp Volume(v), veh/h	233	1065	0	224	1264	0	176	521	484	160	244	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1801	1796	1670	1774	1863	1583
Q Serve(g_s), s	18.3	41.0	0.0	17.5	49.5	0.0	13.2	40.0	40.0	12.5	15.7	0.0
Cycle Q Clear(g_c), s	18.3	41.0	0.0	17.5	49.5	0.0	13.2	40.0	40.0	12.5	15.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		1.00
Lane Grp Cap(c), veh/h	253	1324	592	274	1365	611	236	513	477	177	475	404
V/C Ratio(X)	0.92	0.80	0.00	0.82	0.93	0.00	0.75	1.01	1.01	0.90	0.51	0.00
Avail Cap(c_a), veh/h	253	1324	592	291	1365	611	296	513	477	177	475	404
HCM Platoon Ratio	0.33	0.33	0.33	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.00	0.79	0.79	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.9	56.4	0.0	64.5	59.1	0.0	58.6	50.0	50.7	62.3	44.7	0.0
Incr Delay (d2), s/veh	33.0	4.6	0.0	12.8	10.0	0.0	5.5	43.4	45.0	40.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	21.0	0.0	9.6	26.2	0.0	6.9	26.0	24.4	8.1	8.1	0.0
LnGrp Delay(d),s/veh	98.9	61.0	0.0	77.3	69.1	0.0	64.1	93.5	95.7	102.4	45.1	0.0
LnGrp LOS	F	E		E	E		E	F	F	F	D	
Approach Vol, veh/h		1298			1488			1181			404	
Approach Delay, s/veh		67.8			70.4			90.0			67.8	
Approach LOS		E			E			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	57.0	17.0	43.0	24.6	55.4	21.3	38.7
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0
Max Green Setting (Gmax), s	18.0	52.0	11.0	37.0	21.0	49.0	20.0	28.0
Max Q Clear Time (g_c+I1), s	20.3	51.5	14.5	42.0	19.5	43.0	15.2	17.7
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0	0.1	4.9	0.1	6.7

Intersection Summary	
HCM 2010 Ctrl Delay	74.7
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
3: 124th Ave NE & NE 116th St

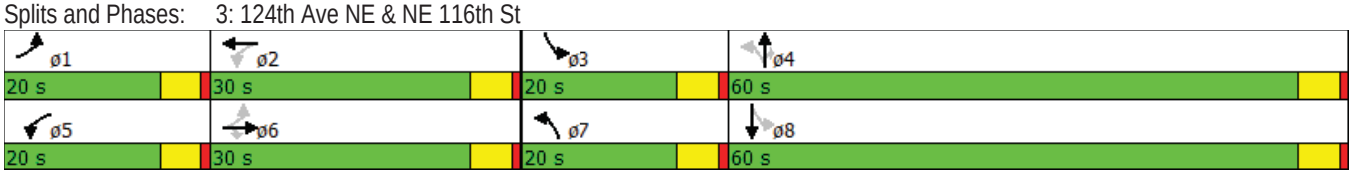
12/16/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	412	204	130	587	104	455	714	299	130	331	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	200		0	150		225	240		250	125		175
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		464			573			367			885	
Travel Time (s)		12.7			11.2			7.1			44.1	
Confl. Peds. (#/hr)	11		11	11		11	8		12	12		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	12.0	27.0	27.0	12.0	27.0		12.5	27.0	27.0	12.0	27.0	
Total Split (s)	20.0	30.0	30.0	20.0	30.0		20.0	60.0	60.0	20.0	60.0	
Total Split (%)	15.4%	23.1%	23.1%	15.4%	23.1%		15.4%	46.2%	46.2%	15.4%	46.2%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 122.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: 124th Ave NE & NE 116th St



HCM 2010 Signalized Intersection Summary
3: 124th Ave NE & NE 116th St

12/16/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	195	412	204	130	587	104	455	714	299	130	331	179
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1863	1863	1900
Adj Flow Rate, veh/h	199	420	0	133	599	106	464	729	169	133	338	183
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	2	2	2
Cap, veh/h	266	458	390	224	654	115	526	821	689	228	819	434
Arrive On Green	0.10	0.25	0.00	0.07	0.22	0.22	0.13	0.44	0.44	0.06	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	1792	3024	534	1792	1881	1577	1774	2228	1182
Grp Volume(v), veh/h	199	420	0	133	353	352	464	729	169	133	267	254
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1792	1787	1771	1792	1881	1577	1774	1770	1640
Q Serve(g_s), s	9.6	24.7	0.0	6.4	21.7	21.8	15.0	40.0	7.6	5.2	12.6	13.0
Cycle Q Clear(g_c), s	9.6	24.7	0.0	6.4	21.7	21.8	15.0	40.0	7.6	5.2	12.6	13.0
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.72
Lane Grp Cap(c), veh/h	266	458	390	224	387	383	526	821	689	228	650	603
V/C Ratio(X)	0.75	0.92	0.00	0.59	0.91	0.92	0.88	0.89	0.25	0.58	0.41	0.42
Avail Cap(c_a), veh/h	317	458	390	329	398	394	526	921	772	350	866	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	41.2	0.0	32.8	43.0	43.0	23.2	29.1	20.0	25.5	26.5	26.6
Incr Delay (d2), s/veh	7.8	23.1	0.0	2.5	24.8	25.7	16.0	9.8	0.2	2.4	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	15.7	0.0	3.3	13.4	13.4	9.2	22.9	3.3	2.7	6.2	5.9
LnGrp Delay(d),s/veh	39.3	64.3	0.0	35.3	67.8	68.8	39.3	38.9	20.2	27.9	26.9	27.1
LnGrp LOS	D	E		D	E	E	D	D	C	C	C	C
Approach Vol, veh/h		619			838			1362			654	
Approach Delay, s/veh		56.3			63.1			36.7			27.2	
Approach LOS		E			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	29.3	12.2	54.0	13.4	32.6	20.0	46.3
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	15.0	25.0	15.0	55.0	15.0	25.0	15.0	55.0
Max Q Clear Time (g_c+I1), s	11.6	23.8	7.2	42.0	8.4	26.7	17.0	15.0
Green Ext Time (p_c), s	0.2	0.5	0.2	7.0	0.2	0.0	0.0	11.6

Intersection Summary	
HCM 2010 Ctrl Delay	44.7
HCM 2010 LOS	D

Lanes, Volumes, Timings
4: 136th Ave NE & Dwy

12/16/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	5	0	10	10	0	6	21	509	20	7	120	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		474			406			608			532	
Travel Time (s)		10.8			9.2			13.8			12.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	10	10	0	6	21	509	20	7	120	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	2	0	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	11	11	0	6	22	536	21	7	126	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	738	745	129	740	737	546	132	0	0	557	0	0
Stage 1	144	144	-	591	591	-	-	-	-	-	-	-
Stage 2	594	601	-	149	146	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	336	342	926	333	346	538	1453	-	-	1014	-	-
Stage 1	864	778	-	493	494	-	-	-	-	-	-	-
Stage 2	495	489	-	854	776	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	325	332	926	322	336	538	1453	-	-	1014	-	-
Mov Cap-2 Maneuver	325	332	-	322	336	-	-	-	-	-	-	-
Stage 1	845	773	-	482	483	-	-	-	-	-	-	-
Stage 2	478	478	-	838	771	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	14.9	0.3	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1453	-	-	573	379	1014	-	-
HCM Lane V/C Ratio	0.015	-	-	0.028	0.044	0.007	-	-
HCM Control Delay (s)	7.5	0	-	11.5	14.9	8.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
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MEMORANDUM

To: Tony Leavitt, Planner

From: Thang Nguyen, Transportation Engineer

Date: February 24, 2015

Subject: Marinwood Residential Development Traffic Analysis Review, TRAN14-01115, SEP14-01890

This memo is a summary of Public Works staff review of the Traffic Impact Analysis (TIA) report for the proposed Marinwood (Moore) Residential Development.

FINDINGS AND RECOMMENDATIONS

Public Works staff has reviewed the traffic impact analysis report for the proposed project and concluded that the project will not create significant traffic impact that will require specific off-site transportation mitigation. Based on the traffic impacts and mitigation documented in the traffic report dated December 18, 2014 prepared by TENW, staff recommends approval of the proposed project with the following conditions:

- Pay road impact fee per the current Transportation Impact Fee schedule.
- Install a STOP sign at the project entrance (Road A on plans) connecting to 136th Avenue NE.
- The developer shall design the project entrance to meet Public Works sight distance requirements. A sight distance analysis shall be provided to Public Works for review and approval prior to final paving of the project entrance.

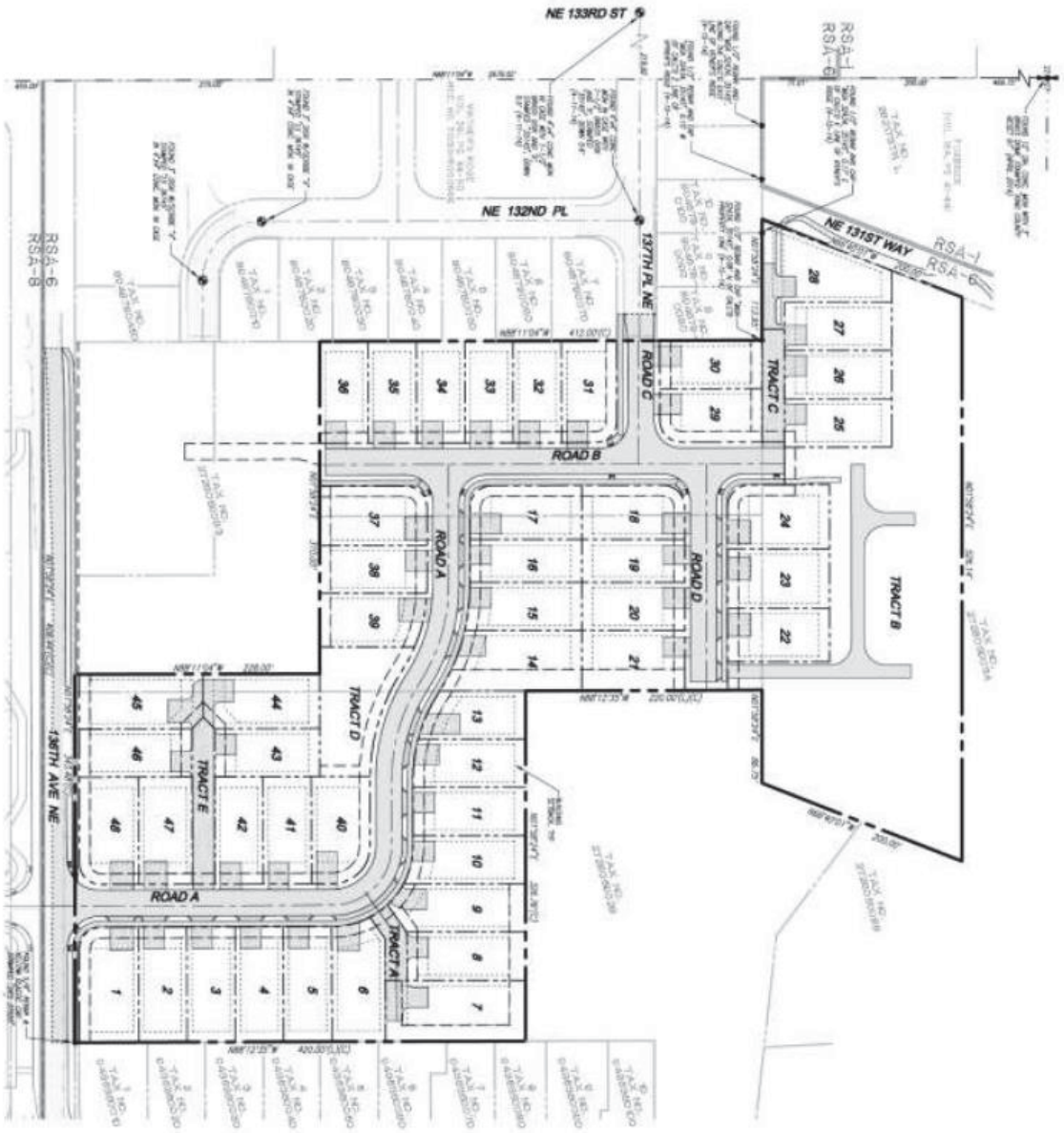
STAFF REVIEWS

Project Description-

The applicant proposed to construct 48 single-family homes on a vacant property located off 136th Avenue NE across from NE 129th Place. A new street will provide access to the project site from 136th Avenue NE. There will be one street connection to the existing 137th Place NE to the north of the subject property.. The proposed project is anticipated to be completely built and occupied by 2017. The project is calculated to generate a net new of 535 daily, 43 AM Peak Hour and 54 PM Peak Hour trips. Figure 1 illustrates the proposed site plan. The site driveway will align with the Vineyards

development driveway across the street on the west side of 136th Avenue NE. The project's interior street will connect to the development to the north via 137th Place NE

Figure 1. Proposed Site Plan



Traffic Concurrency - The full build out of the proposed project was tested for traffic concurrency and passed. A concurrency test notice of approval, valid for one year, was issued on August 18, 2014. If a complete building permit is not submitted or a development permit is not issued by August 18, 2015 then the applicant may request an one-year extension prior to the expiration of the concurrency test notice or resubmit for traffic concurrency testing.

Traffic Concurrency Appeal- The concurrency test notice may be appealed by the public or by an agency with jurisdiction. The concurrency test notice is subject to an appeal until the SEPA review process is complete and the appeal deadline has passed. Concurrency appeals are heard before the Hearing Examiner along with any applicable SEPA appeal. For more information, refer to the Kirkland Municipal Code, Title 25.

TRAFFIC IMPACTS & MITIGATIONS

The traffic report was completed following the City of Kirkland TIA guidelines. The scope of the traffic analysis was approved by the City of Kirkland transportation engineer. The traffic analysis included impacts from all pipeline development projects that have received traffic concurrency approval such as the Vineyard Residential, Momco Residential, and Vintners West Residential.

The City's Traffic Impact Analysis Guidelines (TIAG) requires a level of service (LOS) analysis using the Highway Capacity Manual Operational Method for intersections that have a proportionate share greater than 1% as calculated using the method in the TIAG.

Mitigation Threshold- For intersections that have more than 1% proportionate share impact, the City requires developers to mitigate traffic impacts when one of the following two conditions is met:

1. An intersection level of service is at E and the project has a proportional share of 15% or more at the intersection.
2. An intersection level of service is at F and the project has a proportional share of 5% or more at the intersection.

Based on the proportionate share calculation for the full build-out of the proposed project, three intersections are impacted by the proposed development with more than 1% proportional share:

1. NE 124th Street/Slater Avenue NE
2. NE 116th Street/124th Avenue NE
3. NE 128th Street/NE 126th Place

However, none of the intersections has impacts of 5% proportional share or more, and the level of services at those intersections are calculated to be LOS-E or better; therefore, off-site intersection mitigation is not warranted.

The site driveway will be control with a STOP sign. The project site's driveway is forecasted to operate at LOS-B or better; thus not warranting additional mitigation for level of service. The driveway shall be designed to meet intersection sight distance per the Department of Public Works 2015 Pre-Approved Plan Policy R-13. A sight distance analysis shall be provided to Public Works for review and approval prior to final paving of the site driveway.

Transportation Impact Fees- Per City's Ordinance 3685, Transportation Impact Fees is required for all developments. Transportation impact fees are used to construct transportation improvements throughout the City. The transportation impact fee for single family is $3,942 per single-family unit. The proposed project will have 48 net new single-family units. The calculated transportation impact fee is $189,216 (48 x $3,942). Transportation impact fee is paid at building permit issuance. Final transportation impact fee will be determined at building permit issuance.

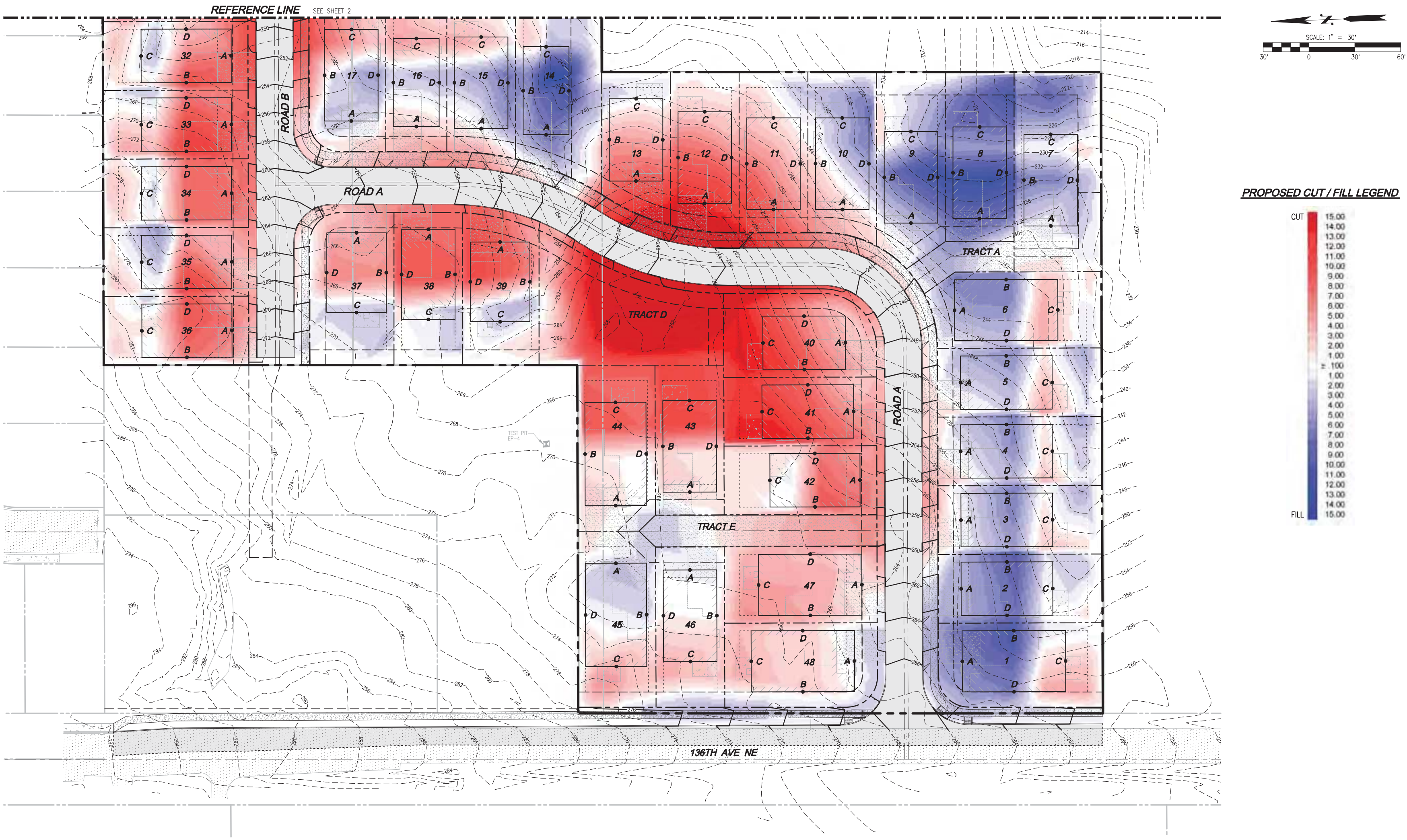
Frontage Improvements- The project will be required to construct half-street frontage improvements on 136th Avenue NE in accordance to the City of Kirkland standards including curb, gutter and sidewalk.

Staff Recommendations- Public Works staff recommends approval of the proposed development project with the following conditions:

- Pay road impact fee per the current Transportation Impact Fee schedule.
- Install a STOP sign at the project entrance (Road A on plans) connecting to 136th Avenue NE.
- The developer shall design the project entrance to meet Public Works sight distance requirements. A sight distance analysis shall be provided to Public Works for review and approval prior to final paving of the project entrance.

cc: Energov
Rob Jammerman, Development Engineer Manager

SUB14-01891 Staff Report, Attachment 7



Drawing: P:\2013\13-176 Kirkland Moore Layout\Exhibits\13176E-EX03.dwg Plotted: Dec 16, 2014 - 5:22pm

REVISIONS

NO.	DATE	DESCRIPTION	BY

LDC
THE CIVIL ENGINEERING GROUP
Engineering
Structural
Planning
Survey

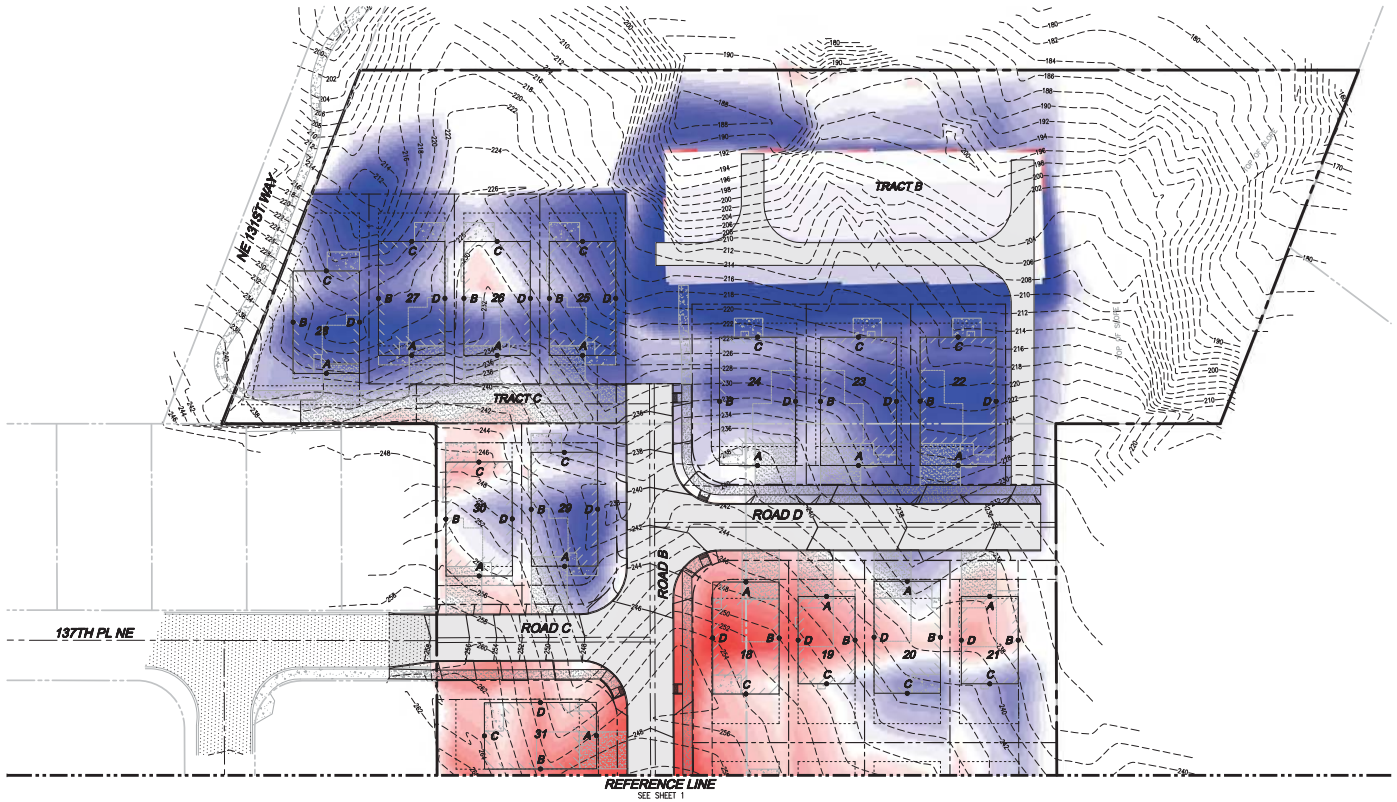
14201 NE 200th St., #100
Woodinville, WA 98072
Ph. 425.806.1869
Fx. 425.482.2893
www.LDCcorp.com

PULTE GROUP
MARINWOOD
BUILDING HEIGHT EXHIBIT

JOB NUMBER:	13-176
DRAWING NAME:	13176E-EX03
DESIGNER:	MWM
DRAFTING BY:	BJN
DATE:	12-16-14
SCALE:	1"=30'
JURISDICTION:	KIRKLAND

EX-03

SHEET 1 OF 3



SCALE: 1" = 30'
30' 0 30' 60'

PROPOSED CUT / FILL LEGEND

CUT 15.00 14.00 13.00 12.00 11.00 10.00 9.00 8.00 7.00 6.00 5.00 4.00 3.00 2.00 1.00 ± 100 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00 FILL

REVISIONS

NO.	DATE	DESCRIPTION	BY

LDC THE CIVIL ENGINEERING GROUP
Engineering Structural Planning Survey
14501 NE 20th St. #100 Bellevue, WA 98007
Ph. 425.885.1986 Fx. 425.885.1986
www.LDCcorp.com

PULTE GROUP

MARINWOOD

BUILDING HEIGHT EXHIBIT

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DRAFTING BY:	BJN
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SCALE:	1"=30'
JURISDICTION:	KIRKLAND

EX-03

SHEET 2 OF 3

Drawing: P:\2013\13-176 Kirkland Moore Layout\Exhibits\13176E-EX03.dwg Plotted: Dec 16, 2014 - 5:23pm

BUILDING HEIGHT TABLE

LOT#		LENGTH (FT)	ELEV.	AVG. BLDG. ELEV.	HEIGHT @ TBC	SE ELEV. FRONT	SE ELEV. (REAR)	MAX BLDG HT	PROP. BLDG HT	PROPOSED BLDG HT ABOVE MAX AT SUGGESTED FF
1	A	40	260.94							
	B	68	256.96							
	C	40	256.84							
	D	68	260.61							
				= 259.2	265.79	267.00	257.00	289.2	298.5	9.3
						-10.00	(front-rear)			
2	A	35	259.92							
	B	60	256.11							
	C	35	253.29							
	D	60	257.19							
				= 256.6	263.35	264.00	254.00	286.6	295.5	8.9
						-10.00	(front-rear)			
3	A	35	259.35							
	B	60	254.12							
	C	35	250.54							
	D	60	255.69							
				= 254.9	259.41	260.00	250.00	284.9	291.5	6.6
						-10.00	(front-rear)			
4	A	35	254.88							
	B	60	250.67							
	C	35	246.56							
	D	60	252.95							
				= 251.4	255.47	256.00	246.00	281.4	287.5	6.1
						-10.00	(front-rear)			
5	A	35	250.19							
	B	60	246.61							
	C	35	243.68							
	D	60	250.02							
				= 247.8	251.53	252.00	242.00	277.8	283.5	5.7
						-10.00	(front-rear)			
6	A	40	244.72							
	B	68	242.23							
	C	40	240.75							
	D	68	245.52							
				= 243.5	247.73	248.50	238.50	273.5	280.0	6.5
						-10.00	(front-rear)			
7	A	35	239.02							
	B	60	233.26							
	C	35	227.46							
	D	60	235.60							
				= 234.0	239.72	240.20	230.20	264.0	271.7	7.7
						-10.00	(front-rear)			
8	A	35	235.80							
	B	60	231.47							
	C	35	226.66							
	D	60	231.59							
				= 231.4	243.51	244.00	234.00	261.4	275.5	14.1
						-10.00	(front-rear)			
9	A	35	240.13							
	B	60	237.89							
	C	35	230.85							
	D	60	232.51							
				= 235.3	244.85	243.50	233.50	265.3	275.0	9.7
						-10.00	(front-rear)			
10	A	35	245.46							
	B	60	244.58							
	C	35	239.11							
	D	60	238.09							
				= 241.7	243.47	243.00		271.7	274.5	2.8
						-	(front-rear)			
11	A	35	252.48							
	B	60	251.27							
	C	35	245.71							
	D	60	246.25							
				= 248.9	243.70	244.00		278.9	275.5	-3.4
						-	(front-rear)			
12	A	35	259.69							
	B	60	254.69							
	C	35	248.30							
	D	60	252.01							
				= 253.6	245.15	246.00		283.6	277.5	-6.1
						-	(front-rear)			
13	A	35	257.84							
	B	54	253.06							
	C	35	248.25							
	D	54	252.67							
				= 252.9	246.96	249.00		282.9	280.5	-2.4
						-	(front-rear)			
14	A	30	248.39							
	B	58	249.80							
	C	30	243.90							
	D	58	244.28							
				= 246.7	252.81	255.00	245.00	276.7	286.5	9.8
						-10.00	(front-rear)			
15	A	35	257.71							
	B	60	255.23							
	C	35	250.75							
	D	60	251.35							
				= 253.6	255.90	258.00	248.00	283.6	289.5	5.9
						-10.00	(front-rear)			

LOT#		LENGTH (FT)	ELEV.	AVG. BLDG. ELEV.	HEIGHT @ TBC	SE ELEV. FRONT	SE ELEV. (REAR)	MAX BLDG HT	PROP. BLDG HT	PROPOSED BLDG HT ABOVE MAX AT SUGGESTED FF
16	A	30	260.98							
	B	58	257.17							
	C	30	253.15							
	D	58	255.88							
				= 256.7	258.73	259.00	249.00	286.7	290.5	3.8
						-10.00	(front-rear)			
17	A	35	260.11							
	B	60	260.53							
	C	35	256.65							
	D	60	257.06							
				= 258.6	260.28	262.00	252.00	288.6	293.5	4.9
						-10.00	(front-rear)			
18	A	35	246.83							
	B	59	249.96							
	C	35	253.78							
	D	59	253.53							
				= 251.2	241.30	242.00	252.00	281.2	273.5	-7.7
						10.00	(front-rear)			
19	A	30	243.25							
	B	46	243.95							
	C	30	248.81							
	D	46	248.56							
				= 246.2	240.31	239.00	249.00	276.2	270.5	-5.7
						10.00	(front-rear)			
20	A	35	235.57							
	B	59	239.12							
	C	35	243.28							
	D	59	242.40							
				= 240.3	238.59	238.00	248.00	270.3	269.5	-0.8
						10.00	(front-rear)			
21	A	30	237.44							
	B	46	236.30							
	C	30	240.61							
	D	46	239.24							
				= 238.3	236.65	235.00	245.00	268.3	266.5	-1.8
						10.00	(front-rear)			
22	A	40	226.58							
	B	68	222.57							
	C	40	214.93							
	D	68	221.51							
				= 221.6	237.51	235.00	225.00	251.6	266.5	14.9
						-10.00	(front-rear)			
23	A	40	232.58							
	B	68	230.79							
	C	40	220.22							
	D	68	224.83							
				= 227.3	239.75	237.00	227.00	257.3	268.5	11.2
						-10.00	(front-rear)			
24	A	40	238.88							
	B	68	232.18							
	C	40	223.52							
	D	68	231.45							
				= 231.6	241.07	239.00	229.00	261.6	270.5	8.9
						-10.00	(front-rear)			
25	A	35	227.81							
	B	60	226.80							
	C	35	219.54							
	D	60	219.21							
				= 223.3	236.90	238.00	228.00	253.3	269.5	16.2
						-10.00	(front-rear)			
26	A	35	235.03							
	B	60	230.52							
	C	35	228.05							
	D	60	228.69							
				= 230.3	241.40	240.00	230.00	260.3	271.5	11.2
						-10.00	(front-rear)			
27	A	35	232.41							
	B	60	225.24							
	C	35	221.96							
	D	60	229.14							
				= 227.2	242.51	241.00	231.00	257.2	272.5	15.3
						-10.00	(front-rear)			
28	A	35	232.80							
	B	54	229.98							
	C	35	222.16							
	D	54	225.65							
				= 227.7	239.23	238.50	228.50	257.7	270.0	12.3
						-10.00	(front-rear)			
29	A	35	244.94							
	B	60	246.73							
	C	35	237.33							
	D	60	238.87							
				= 242.2	250.22	251.00	241.00	272.2	282.5	10.3
						-10.00	(front-rear)			
30	A	35	254.71							
	B	60	253.84							
	C	35	246.86							
	D	60	249.32							
				= 251.3	256.64	254.00	244.00	281.3	285.5	4.2
						-10.00	(front-rear)			

LOT#		LENGTH (FT)	ELEV.	AVG. BLDG. ELEV.	HEIGHT @ TBC	SE ELEV. FRONT	SE ELEV. (REAR)	MAX BLDG HT	PROP. BLDG HT	PROPOSED BLDG HT ABOVE MAX AT SUGGESTED FF
31	A	35	256.59							
	B	59	257.50							
	C	35	263.34							
	D	59	254.83							
				= 257.6	248.86	250.00	260.00	287.6	281.5	-6.1
						10.00	(front-rear)			
32	A	35	262.26							
	B	59	264.88							
	C	35	264.09							
	D	59	258.26							
				= 262.2	253.06	255.00	265.00	292.2	286.5	-5.7
						10.00	(front-rear)			
33	A	35	267.09							
	B	59	270.97							
	C	35	270.28							
	D	59	266.52							
				= 268.7	257.96	259.00	269.00	298.7	290.5	-8.2
						10.00	(front-rear)			
34	A	35	270.93							
	B	59	271.09							
	C	35	274.26							
	D	59	271.11							
				= 271.7	262.86	263.00	273.00	301.7	294.5	-7.2
						10.00	(front-rear)			
35	A	35	270.83							
	B	59	278.89							
	C	35	276.83							
	D	59	271.85							
				= 274.8	267.76	267.00	277.00	304.8	298.5	-6.3
						10.00	(front-rear)			
36	A	35	277.79							
	B	59	279.03							
	C	35	281.73							
	D	59	280.72							
				= 279.8	272.66	271.00	281.00	309.8	302.5	-7.3
						10.00	(front-rear)			
37	A	39	265.30							
	B	52	266.82							
	C	39	268.61							
	D	52	267.47							
				= 267.1	260.11	261.00	271.00	297.1	292.5	-4.6
						10.00	(front-rear)			
38	A	35	265.77							
	B	59	266.24							
	C	35	266.85							
	D	59	267.19							
				= 266.6	258.32	257.50	267.50	296.6	289.0	-7.6
						10.00	(front-rear)			
39	A	39	263.44							
	B	52	260.09							
	C	39	261.89							
	D	52	265.31							
				= 262.7	254.84	254.00	264.00	292.7	285.5	-7.2
						10.00	(front-rear)			
40	A	35	253.83							
	B	54	260.17							
	C	35	263.31							
	D	54	256.39							
				= 258.4	249.20	250.00		288.4	281.5	-6.9
						-	(front-rear)			
41	A	35	258.36							
	B	60	264.67							
	C	35	266.25							
	D	60	260.98							
				= 262.6	253.16	253.00		292.6	284.5	-8.1
						-	(front-rear)			
42	A	35	262.73							
	B	59	265.65							
	C	35	268.76							
	D	59	263.59							
				= 264.7	257.07	256.00	266.00	294.7	287.5	-7.2
						10.00	(front-rear)			
43	A	35	267.52							
	B	60	267.81							
	C	35	266.65							
	D	60	266.61							
				= 267.2	269.03	266.00	256.00	297.2	297.5	0.3
						-10.00	(front-rear)			
44	A	40	270.13							
	B	68	269.48							
	C	40	267.39							
	D	68	268.35							
				= 268.9	270.03	269.00	259.00	298.9	300.5	1.6
						-10.00	(front-rear)			
45	A	40	269.05							
	B	68	269.25							
	C	40	274.96							
	D	68	270.69							
				= 270.7	270.63	271.00		300.7	302.5	1.8
						-	(front-rear)			

LOT#		LENGTH (FT)	ELEV.	AVG. BLDG. ELEV.	HEIGHT @ TBC	SE ELEV. FRONT	SE ELEV. (REAR)	MAX BLDG HT	PROP. BLDG HT	PROPOSED BLDG HT ABOVE MAX AT SUGGESTED FF
46	A	35	267.70							
	B	60	268.79							
	C	35	271.61							
	D	60	269.08							
				= 269.2	267.57	268.50		299.2	300.0	0.8
						-	(front-rear)			
47	A	40	264.35							
	B	68	266.98							
	C	40	267.61							
	D	68	266.08							
				= 266.3	263.20	263.00		296.3	294.5	-1.8
						-	(front-rear)			
48	A	40	265.35							
	B	68	268.81							
	C	40	269.48							
	D	68	267.84							
				= 268.0	265.76	266.00		298.0	297.5	-0.5
						-	(front-rear)			

NOTE

PROPOSED BUILDING HEIGHT EQUALS 30'

REVISIONS

NO.	DATE	DESCRIPTION	BY

LDC
THE CIVIL ENGINEERING GROUP
Engineering
Structural
Planning
Survey
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Bellevue, WA 98007
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PULTE GROUP

MARINWOOD

BUILDING HEIGHT EXHIBIT

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DESIGNER:	MWM
DRAFTING BY:	BJN
DATE:	12-16-14
SCALE:	1"=30'
JURISDICTION:	KIRKLAND

EX-03

SHEET 3 OF 3

Drawing: P:\2013\13-176 Kirkland Moore Layout\Exhibits\13176E-EX03.dwg Plotted: Dec 16, 2014 - 5:23pm

SHOFFNER CONSULTING
21529 4TH AVE. W. #C31 BOTHELL, WA 98021 MOBILE:(206)755-2871

September 24, 2014

Mick Cermack
Pulte Group
3535 Factoria Blvd. SE
Bellevue, WA
98006

Re: Tree Plan Report – Marinwood property.

Mick:

This report is provided to address the City of Kirkland's requirements for a Tree Retention Plan for developing properties as described in the Kirkland Zoning Code. The purpose of this report is to provide an assessment of existing features and trees, to discuss impacts requiring removal of trees and to specify protection measures for those retained through the development plan proposes.

This report and the accompanying tree evaluation data spreadsheet include the following:

- A tree inventory spreadsheet containing a numbering system of the trees on the subject property with numbers corresponding to the tags on the trees limits of disturbance of all existing significant trees on-site and off-site with overhanging driplines, size (dbh), brief general health condition rating of the trees, and tree type or species.
- An arborist report containing a complete description of each tree's health, condition and viability, a description of the method(s) used to determine the limits of disturbance and special instructions specifically outlining any work proposed within the limits of disturbance protection area.

I visited the subject property recently to assess the significant trees on the subject property as well as those on the adjacent properties with driplines that extend onto the subject property. All of the tree locations were gathered during the property survey.

1.0 Site Conditions

The project site is in northeast Kirkland and located on theh top of a hill and much of the property is on steep slopes with an eastern aspect It's developed with two houses. In addition to the trees in the overstory, the vegetation in the understory includes a mixture of native species and large amouts of Himalayan blackberry across much of the site and turfgrass around the home in the southern parcel.

2.0 Tree Inventory and Required Density Credits

There are 240 significant trees on the subject property. The accompanying tree evaluation data form provides information specific to each tree. The measurements for driplines (Spd) are diameters and LOD (maximum) are radial distances. The dripline and LOD distance for the off-site tree is the distance from the property line/ fence. Limits of Disturbance quadrant recommendations are provided in the Tree Evaluation Data Form. This form specifies which trees are to be retained and which are to be removed.

A total of 9 trees were found to be non-viable based upon their condition and/or health. These trees are removed from the total.

The City of Kirkland requires the maintenance of 30 tree credits per acre on developing properties. At 8.58 acres in size, this project site is required to maintain 257 tree credits either through retention or replacement or a combination of each. Of the viable, significant trees on site, there are 918 tree credits on site.

3.0 Tree Density Credits Provided and Required Replacement

The current development plan proposes to retain 24 significant trees. These trees are shown on the Tree Retention plans. The combined density credits for these trees provide a total of 97 density credits. With the required amount to be provided of 257, a total of 160 are required to be provided through tree replacement.

Replacement trees are to be 2 inches caliper for deciduous specie trees and 6 feet tall for evergreen trees. One density credit is provided per replacement tree, therefore 160 trees are needed to satisfy the required density credits.

4.0 Limits of Disturbance Discussion

The limits of development for all retained trees on site and those off-site with driplines that extend onto the project site are in most cases set beyond the dripline edge which provides full protection for the crowns and is sufficient to provide adequate protection for their roots in the event that grading or excavation is proposed as close as the LOD edge. For trees with broad and high crowns, primarily big-leaf maples, the LODs are set within the dripline at a distance from the tree far enough to provide adequate protection for the roots.

5.0 Tree Protection Measures

The following tree protection measures are specified in chapter 95.34, titled Tree Protection and Development Activity, of the Kirkland Zoning Code:

Prior to development activity or initiating tree removal on the site, vegetated areas and individual trees to be preserved shall be protected from potentially damaging activities pursuant to the following standards:

1. Placing Materials near Trees. No person may conduct any activity within the protected area of any tree designated to remain, including, but not limited to,

operating or parking equipment, placing solvents, storing building material or soil deposits, or dumping concrete washout or other chemicals. During construction, no person shall attach any object to any tree designated for protection.

2. Protective Barrier. Before development, land clearing, filling or any land alteration, the applicant shall:

   a. Erect and maintain readily visible temporary protective tree fencing along the limits of disturbance which completely surrounds the protected area of all retained trees or groups of trees. Fences shall be constructed of chain link and be at least six (6) feet high, unless other type of fencing is authorized by the Planning Official.
   b. Install highly visible signs spaced no further than 15 feet along the entirety of the protective tree fence. Said sign must be approved by the Planning Official and shall state at a minimum “Tree Protection Area, Entrance Prohibited” and provide the City phone number for code enforcement to report violations. Include on signs:

      “For questions regarding work within Tree Protection Zone or to report damage to retained trees, call Tony Shoffner, project consulting arborist, at (206)755-2871.”

   c. Prohibit excavation or compaction of earth or other potentially damaging activities within the barriers; provided, that the Planning Official may allow such activities approved by a qualified professional and under the supervision of a qualified professional retained and paid for by the applicant.
   d. Maintain the protective barriers in place for the duration of the project until the Planning Official authorizes their removal.
   e. Ensure that any approved landscaping done in the protected zone subsequent to the removal of the barriers shall be accomplished with light machinery or hand labor.
   f. In addition to the above, the Planning Official may require the following:
      1) If equipment is authorized to operate within the critical root zone, cover the areas adjoining the critical root zone of a tree with mulch to a depth of at least six (6) inches or with plywood or similar material in order to protect roots from damage caused by heavy equipment.
      2) Minimize root damage by excavating a 2-foot-deep trench, at edge of critical root zone, to cleanly sever the roots of trees to be retained.
      3) Corrective pruning performed on protected trees in order to avoid damage from machinery or building activity.
      4) Maintenance of trees throughout construction period by watering and fertilizing.
3. Grade.

   a. The grade shall not be elevated or reduced within the critical root zone of trees to be preserved without the Planning Official’s authorization based on recommendations from a qualified professional. The Planning Official may allow coverage of up to one-half (1/2) of the area of the tree’s critical root zone with light soils (no clay) to the minimum depth necessary to carry out

grading or landscaping plans, if it will not imperil the survival of the tree. Aeration devices may be required to ensure the tree's survival.

b. If the grade adjacent to a preserved tree is raised such that it could slough or erode into the tree's critical root zone, it shall be permanently stabilized to prevent suffocation of the roots.

c. The applicant shall not install an impervious surface within the critical root zone of any tree to be retained without the authorization of the Planning Official. The Planning Official may require specific construction methods and/ or use of aeration devices to ensure the tree's survival and to minimize the potential for root-induced damage to the impervious surface.

d. To the greatest extent practical, utility trenches shall be located outside of the critical root zone of trees to be retained. The Planning Official may require that utilities be tunneled under the roots of trees to be retained if the Planning Official determines that trenching would significantly reduce the chances of the tree's survival.

e. Trees and other vegetation to be retained shall be protected from erosion and sedimentation. Clearing operations shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. To control erosion, it is encouraged that shrubs, ground cover and stumps be maintained on the individual lots, where feasible.

4. Directional Felling. Directional felling of trees shall be used to avoid damage to trees designated for retention.

5. Additional Requirements. The Planning Official may require additional tree protection measures that are consistent with accepted urban forestry industry practices.

6.0 Special Instructions for Work within the Limits of Disturbance

The LOD recommendations are meant to protect the trees given their current size, form and crown spread. In some situations, work within the limits of development may be proposed to accommodate the development plan. Considering the extent of proposed impact within the LOD is acceptable, the following recommendations for any work to be conducted within the specified Limits of Disturbance (LOD) and Tree Protection Zone (TPZ) are to be followed.

1. Prior to beginning work on the property, the protection fencing is to be installed at the specified TPZ (at the location of the recommended LOD) per the type, size and location specified on the site plan.
2. Any work conducted within LOD and TPZ is to be conducted by hand and monitored by the project consulting arborist;
3. During work within the LOD and TPZ, the protection fencing is to either be moved as far toward the tree(s) as necessary to allow for room to conduct the work. Fencing is to be replaced to the required location immediately following completion of the work.
4. Work within the LOD and TPZ is to be limited to ground surface preparation and no structures requiring excavation of the ground are to be placed within the LOD and TPZ unless determined to be a reasonable and minor impact.

5. As an additional measure of protection not necessarily within the LOD, during clearing the contractor will be required to employ participation of the project arborist to inspect and cut any severed or damaged roots.
6. If necessary, an exception to #2 above is permissible to remove the trunk for trees to be removed within the LOD of retained trees. In order to protect the roots of retained trees, any stumps within LODs are to be ground out, down to just below the soil surface, and not pulled.

7.0 Use of This Report

This report is provided to Pulte Group, for the purpose of addressing the City of Kirkland's requirements for a tree plan, to report on the conditions of the existing trees on the Marinwood project site and those located just off-site with driplines that extend onto the subject site, to make recommendations for Limits of Development and to specify recommendations for work performed within the LODs. This information is the property of Pulte Group and cannot be amended by anyone other than Shoffner Consulting. This report doesn't guarantee against damaged caused by the failure of any tree, nor does it guarantee that trees not recommended for removal will live long into the future.

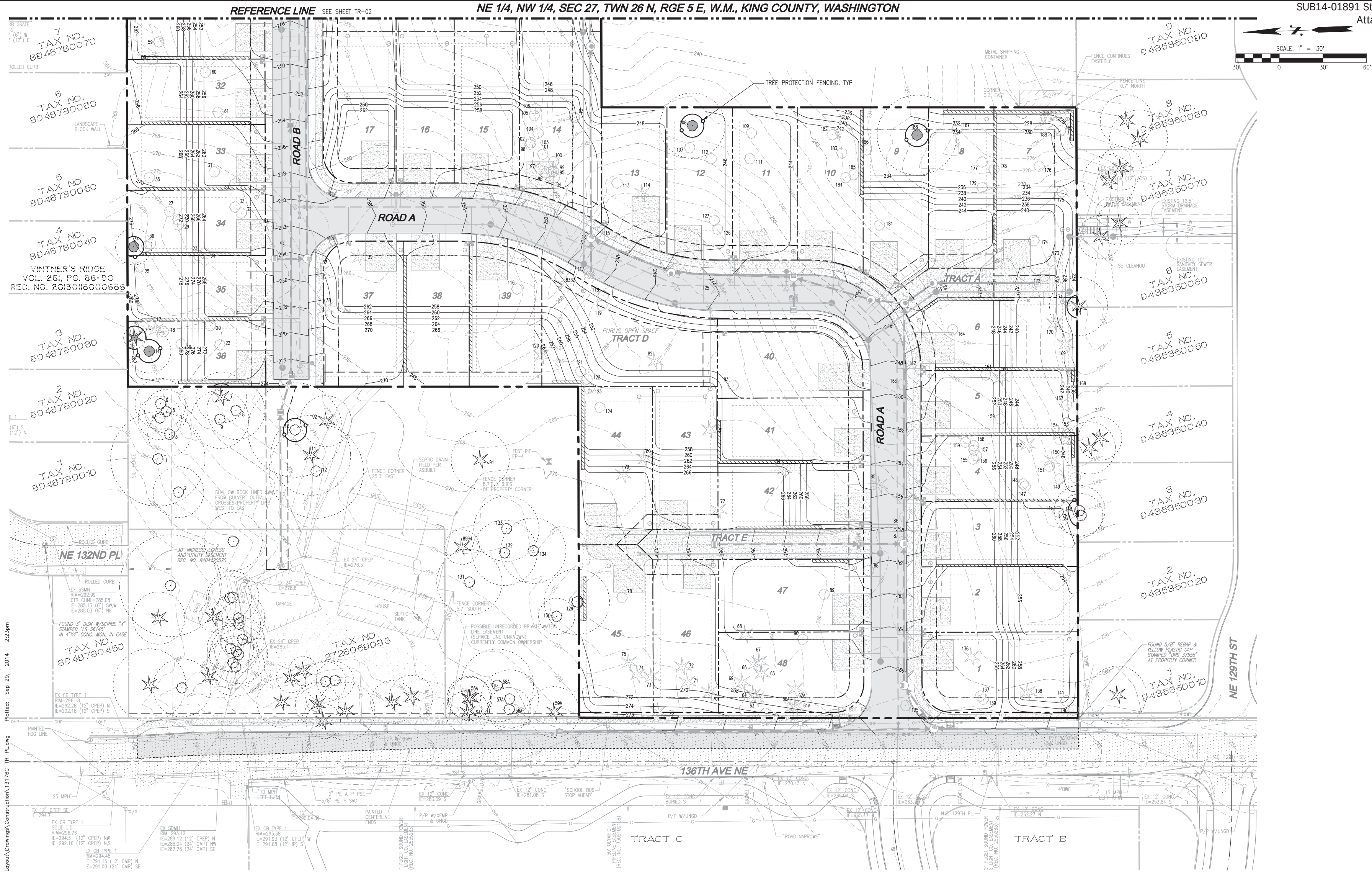
If you have any questions regarding this report, please feel free to call me directly.

Cordially,

Tony Shoffner
ISA Certified Arborist #PN-0909A
CTRA #1759

REFERENCE LINE SEE SHEET TR-02

NE 1/4, NW 1/4, SEC 27, TWN 26 N, RGE 5 E, W.M., KING COUNTY, WASHINGTON



LEGEND

- TREE PROTECTIVE FENCING PER COK STD PLAN CK-R.49
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- EXISTING OFFSITE TREE

TREE DENSITY CALCULATIONS

SIGNIFICANT TREES ON SITE=	240
VIABLE SIGNIFICANT TREES ONSITE=	231 – 918 CREDITS
NON-VIABLE SIGNIFICANT TREES ONSITE=	9
TREES TO BE SAVED=	24 – 97 CREDITS
TREE CREDITS REQUIRED=	257
TREE CREDITS TO BE PLANTED=	101

NOTES

1. SEE LANDSCAPE PLANS FOR TREES TO BE PLANTED.
2. SEE SHEET TR-03 AND TR-04 FOR ARBORIST REPORT AND DETAILS.

SURVEY DISCLAIMER

TOPOGRAPHIC SURVEY INFORMATION ON TAX LOTS 2726059032, 2726059038 AND 2726059029 AS SHOWN ON THESE PLANS HAS BEEN PROVIDED BY CORE DESIGN, INC. LDC, INC. (LAND DEVELOPMENT CONSULTANTS, INC.) ASSUMES NO LIABILITY AS TO THE ACCURACY AND COMPLETENESS OF THIS DATA. ANY DISCREPANCIES FOUND BETWEEN WHAT IS SHOWN ON THE PLANS AND WHAT IS NOTED IN THE FIELD SHOULD BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.

REVISIONS

NO.	DATE	DESCRIPTION

LDC — THE CIVIL ENGINEERING GROUP
Engineering · Structural · Planning · Survey
14201 NE 200th St. #100, Woodinville, WA 98072
Ph. 425.806.1869 Fx. 425.482.2893
www.LDCcorp.com

PULTE GROUP
MARINWOOD
INTEGRATED DEVELOPMENT PLAN

JOB NUMBER:	13-176
DRAWING NAME:	13176C-TR-PL
DESIGNER:	MEV
DRAFTING BY:	RCR
DATE:	9-29-14
SCALE:	1"=30'
JURISDICTION:	KIRKLAND

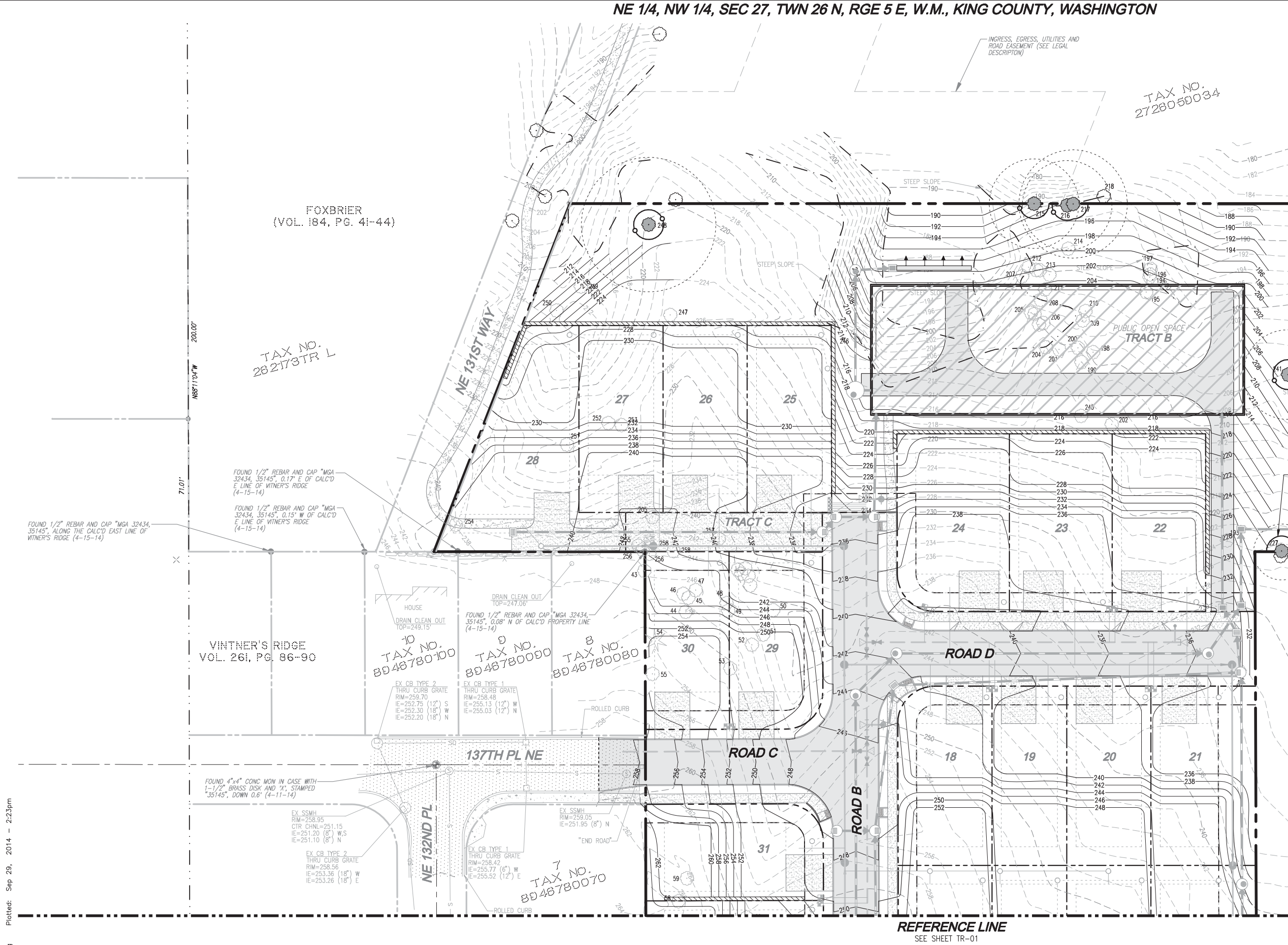
TR-01

SHEET 20 OF 23

Drawing: P:\2013\13-176 Kirkland Moore Layout\Drawings\Construction\13176C-TR-PL.dwg Plotted: Sep 29, 2014 - 2:23pm

SUB14-01891 Staff Report
Attachment 8

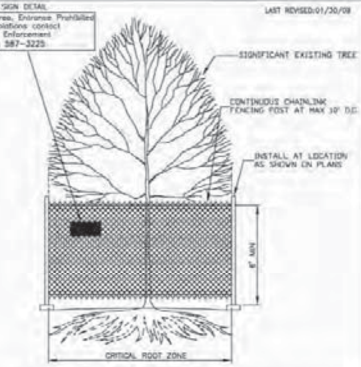
NE 1/4, NW 1/4, SEC 27, TWN 26 N, RGE 5 E, W.M., KING COUNTY, WASHINGTON



FENCING SIGN DETAIL

Tree Protection Area, Entrance Prohibited
To report violations contact
City Code Enforcement
at (425) 587-3225

LAST REVISED:01/30/08



NOTES:

1. MINIMUM SIX (6) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.
3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.
4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE. SIGN TO BE MINIMUM 11"X17", AND MADE OF WEATHERPROOF MATERIAL.

CITY OF KIRKLAND
PLAN NO. CK-R.49
TREE PROTECTION

LEGEND

- TREE PROTECTIVE FENCING PER COK STD PLAN CK-R.49
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- EXISTING OFFSITE TREE

NOTES

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2. SEE SHEET TR-03 AND TR-04 FOR ARBORIST REPORT AND DETAILS.

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Call 2 Business Days Before You Dig
811 or 1-800-424-5555
Utilities Underground Location Center

Drawing: P:\2013\13-176 Kirkland Moore Layout\Drawings\Construction\13176C-TR-PL.dwg   Plotted: Sep 29, 2014 - 2:23pm

REVISIONS

NO.	DATE	DESCRIPTION

LDC
THE CIVIL ENGINEERING GROUP
Engineering
Structural
Planning
Survey
14201 NE 200th St., #100
Woodinville, WA 98072
Ph. 425.806.1869
Fx. 425.482.2893
www.LDCcorp.com

PULTE GROUP
MARINWOOD
INTEGRATED DEVELOPMENT PLAN

MATTHEW MERRITT
STATE OF WASHINGTON
46848
REGISTERED PROFESSIONAL ENGINEER
9-29-14

JOB NUMBER:	13-176
DRAWING NAME:	13176C-TR-PL
DESIGNER:	MEV
DRAFTING BY:	RCR
DATE:	9-29-14
SCALE:	1"=30'
JURISDICTION:	KIRKLAND

TR-02

NE 1/4, NW 1/4, SEC 27, TWN 26 N, RGE 5 E, W.M., KING COUNTY, WASHINGTON

1	2	3	4	5	6--LIMITS OF DISTURBANCE				7	8	9	10	11	12	13	14	15	16	17	18
TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE DIAM	NORTH	SOUTH	EAST	WEST	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
1	BLM/Am	mt 24	N/A off-site	65	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
2	BC/Pe	14	N/A off-site	35	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	3	Viable	RETAIN – OFF-SITE
3	BLM/Am	8	N/A off-site	30	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
4	BLM/Am	8	N/A off-site	30	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
5	BLM/Am	10	N/A off-site	30	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
6	BLM/Am	10	N/A off-site	35	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
7	DF/Pm	20	N/A off-site	N/A	N/A	N/A	N/A	N/A	Med.	N/A	Poor	Poor	Poor	Good	Good	Terminal dieback	Significant	4	NON-VIABLE	RETAIN – OFF-SITE
8	BLM/Am	12	N/A off-site	40	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
9	BLM/Am	8	N/A off-site	40	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
10	BLM/Am	mt 22	N/A off-site	65	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
11	PM/Am	mt 20	N/A off-site	N/A	N/A	N/A	N/A	N/A	Low	N/A	Good	Good	Good	Good	Good	Sparse, declining	Significant	4	NON-VIABLE	RETAIN – OFF-SITE
12	BLM/Am	26	N/A off-site	65	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
13	BLM/Am	mt 8	1.0	40	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
14	BLM/Am	mt 6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
15	DF/Pm	6	1.0	15	8	8	8	8	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
16	RA/Ar	6	1.0	20	12	12	12	12	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
17	DF/Pm	6	1.0	15	10	10	10	10	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
18	RA/Ar	8	1.0	20	12	12	12	12	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
19	RA/Ar	8	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
20	BC/Pt	8	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
21	BC/Pt	16	4.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
22	BC/Pt	20	6.0	40	21	21	21	21	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
23	RA/Ar	8	1.0	25	13	13	13	13	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
24	RA/Ar	8	1.0	25	13	13	13	13	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
25	RA/Ar	8	1.0	25	13	13	13	13	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
26	RA/Ar	8	1.0	25	13	13	13	13	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
27	BC/Pt	26	9.0	50	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
28	BC/Pt	6	1.0	20	12	12	12	12	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
29	RA/Ar	6	1.0	20	12	12	12	12	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
30	RA/Ar	16	4.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
31	BC/Pt	22	7.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
32	BLM/Am	mt 16	4.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
33	BLM/Am	8	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
34	RA/Ar	6	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	RETAIN
35	BC/Pt	20	6.0	40	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
36	RA/Ar	6	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
37	PM/Am	26	9.0	45	23	23	23	23	Low	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
38	DF/Pm	20	6.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
39	PM/Am	18	N/A	N/A	N/A	N/A	N/A	N/A	Low	N/A	Poor	Poor	Poor	N/A	N/A	Advanced decline	Significant	4	NON-VIABLE	REMOVE
40	RA/Ar	8	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
41	BLM/Am	18	5.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
42	BLM/Am	8	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
43	BLM/Am	22	7.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
44	BLM/Am	mt 22	7.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
45	BLM/Am	mt 16	4.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
46	BLM/Am	10	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
47	BLM/Am	16	4.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
48	BLM/Am	6	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
49	BLM/Am	8	1.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
50	BLM/Am	6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
51	BLM/Am	mt 12	2.0	45	15	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
52	BLM/Am	12	2.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
53	BLM/Am	mt 36	N/A	N/A	N/A	N/A	N/A	N/A	Low	N/A	Poor	Poor	Poor	N/A	N/A	Trunk decay and prior failure	Significant	4	NON-VIABLE	REMOVE
54	DF/Pm	44	N/A	N/A	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Poor	Good	Good	Codoms at 20' with v-crotch and included bark	Significant	4	NON-VIABLE	REMOVE
54A	DF/Pm	28	N/A off-site	35	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
55	BLM/Am	12	2.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
55A	DF/Pm	18	N/A off-site	32	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
56	BLM/Am	10	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
56A	BLM/Am	10	N/A off-site	35	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	4	Viable	RETAIN – OFF-SITE
57	BLM/Am	10	1.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
57A	BLM/Am	10	N/A off-site	35	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
58	BLM/Am	6	1.0	25	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
58A	BLM/Am	6	N/A off-site	28	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
59	BLM/Am	14	3.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
59A	DF/Pm	32	N/A off-site	N/A	N/A	N/A	N/A	N/A	Low	N/A	Good	Good	Poor	Good	Good	Topped	Significant	4	NON-VIABLE	RETAIN – OFF-SITE
60	WIL/Ss	20	6.0	28	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
60A	DF/Pm	20	6.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
61	BLM/Am	24	8.0	56	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
61A	DF/Pm	14	3.0	30	16	16	16	16	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
62	DF/Pm	18	5.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
63	DF/Pm	22	6.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
64	DF/Pm	20	6.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
65	DF/Pm	10	1.0	15	10	10	10	10	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
66	DF/Pm	10	1.0	15	10	10	10	10	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
67	DF/Pm	14	3.0	25	14	14	14	14	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
68	DF/Pm	26	9.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
69	DF/Pm	26	9.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
70	DF/Pm	18	5.0	30	16	16	16	16	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
71	DF/Pm	26	9.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
72	DF/Pm	24	8.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
73	DF/Pm	26	9.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
74	DF/Pm	20	6.0	30	16	16	16	16	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
75	DF/Pm	22	7.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I

1	2	3	4	5	6--LIMITS OF DISTURBANCE				7	8	9	10	11	12	13	14	15	16	17	18
TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE DIAM	NORTH	SOUTH	EAST	WEST	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
76	EH/Ia	mt 8	1.0	15	8	8	8	8	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
77	DF/Pm	26	9.0	40	22	22	22	22	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
78	DF/Pm	24	8.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
79	DF/Pm	24	8.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
80	DF/Pm	32	N/A	N/A	N/A	N/A	N/A	N/A	High	N/A	Good	Good	Poor	Good	Good	Codoms at 8' with v-crotch and included bark	Significant	4	NON-VIABLE	REMOVE
81	DF/Pm	32	12	40	22	22	22	22	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
82	DF/Pm	50	21.0	50	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
83	BLM/Am	mt 18	5.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
84	WRC/Tp	42	17.0	40	22	22	22	22	High	N/A	Good	Good	Good	Good	Good	Trunk decay	Significant	3	Viable	REMOVE – I
85	DF/Pm	16	4.0	30	16	16	16	16	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
86	BLM/Am	46	19.0	65	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
87	BLM/Am	mt 22	7.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
88	BC/Pe	18	5.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
89	BLM/Am	mt 10	1.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
90	BLM/Am	mt 18	5.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
91	DF/Pm	24	N/A off-site	N/A	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Codoms at 24' with v-crotch and included bark	Significant	4	NON-VIABLE	RETAIN – OFF-SITE
92	DF/Pm	24	N/A off-site	N/A	N/A	N/A	N/A	N/A	Low	N/A	Poor	Poor	Poor	N/A	N/A	Sparse crown, declining	Significant	4	NON-VIABLE	RETAIN – OFF-SITE
93	BLM/Am	mt 14	3.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
94	RA/Ar	10	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
95	RA/Ar	10	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
96	RA/Ar	6	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
97	RA/Ar	6	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
98	RA/Ar	8	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
99	RA/Ar	8	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
100	RA/Ar	10	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
101	RA/Ar	12	2.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
102	RA/Ar	12	2.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
103	RA/Ar	14	3.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
104	RA/Ar	16	4.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
105	RA/Ar	8	1.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
106	RA/Ar	14	3.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
107	BLM/Am	mt 12	2.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
108	BLM/Am	mt 8	1.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
109	BLM/Am	mt 6	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
110	DF/Pm	8	1.0	15	10	10	10	10	Med.	N/A	Good	Good	Good	Good	Good	OFF-SITE TO E OF 109	Significant	1	Viable	REMOVE – I
111	BLM/Am	mt 8	1.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
112	BLM/Am	mt 6	1.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
113	BLM/Am	mt 8	1.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
114	DF/Pm	mt 22	N/A	N/A	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Codoms at base with v-crotch and included bark	Significant	4	NON-VIABLE	REMOVE
115	BLM/Am	mt 20	N/A	N/A	N/A	N/A	N/A	N/A	Low	N/A	Poor	Poor	Poor	Poor	Poor	Trunk decay and the tree is in very bad shape overall	Significant	4	NON-VIABLE	REMOVE
116	BLM/Am	mt 14	3.0	65	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
117	BLM/Am	22	7.0	65	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
118	EL/Pl	6	1.0	15	8	8	8	8	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
119	EL/Pl	6	1.0	15	8	8	8	8	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
120	DF/Pm	20	6.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
121	BLM/Am	mt 10	1.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
122	BLM/Am	mt 6	1.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
123	BLM/Am	8	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
124	DF/Pm	22	7.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
125	WRC/Tp	44	18.0	40	22	22	22	22	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
126	WIL/Ss	18	5.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Trunk decay and minor branch dieback	Significant	3	Viable	REMOVE – I
127	WIL/Ss	mt 6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
128	BLM/Am	mt 14	3.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
129	BLM/Am	mt 10	N/A off-site	45	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
130	BLM/Am	6	N/A off-site	25	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
131	BLM/Am	mt 12	N/A off-site	45	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
132	BLM/Am	mt 10	N/A off-site	45	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
133	BLM/Am	mt 8	N/A off-site	45	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
134	BLM/Am	mt 8	N/A off-site	45	N/A	N/A	N/A	N/A	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN – OFF-SITE
135	BLM/Am	mt 8	1.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
136	DF/Pm	26	9.0	40	22	22	22	22	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
137	BLM/Am	18	5.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
138	DF/Pm	28	10.0	40	22	22	22	22	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
139	WIL/Ss	6	1.0	20	12	12	12	12	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
140	BC/Pe	10	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
141	WIL/Ss	8	1.0	20	12	12	12	12	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
142	BLM/Am	6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
143	BLM/Am	8	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
144	BLM/Am	6	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
145	CAS/Rp	16	4.0	45	15	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
146	CAS/Rp	12	2.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
147	BLM/Am	6	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
148	BLM/Am	6	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
149	PD/Cn	10	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
150	DF/Pm	18	5.0	35	18	18	18	18	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
151	BLM/Am	6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
152	DF/Pm	18	5.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
153	BLM/Am	14	3.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
154	DF/Pm	14	3.0	30	16	16	16	16	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
155	RA/Ar	6	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
156	RA/Ar	6	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
157	RA/Ar	6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
158	RA/Ar	6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I

Drawing: P:\2013\13-176 Kirkland Moore Layout\Drawings\Construction\13176C-TR-PL.dwg Plotted: Sep 29, 2014 – 2:23pm

NO.	DATE	REVISIONS DESCRIPTION	BY

LDC
THE CIVIL ENGINEERING GROUP
Engineering
Structural
Planning
Survey
14201 NE 200th St., #100
Woodinville, WA 98072
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PULTE GROUP
MARINWOOD
INTEGRATED DEVELOPMENT NOTES AND DETAILS

MATTHEW MERRITT
STATE OF WASHINGTON
36848
REGISTERED PROFESSIONAL ENGINEER
9-29-14

JOB NUMBER:	13-176
DRAWING NAME:	13176C-TR-PL
DESIGNER:	MEV
DRAFTING BY:	RCR
DATE:	9-29-14
SCALE:	AS NOTED
JURISDICTION:	KIRKLAND

TR-03

SHEET 22 OF 23

NE 1/4, NW 1/4, SEC 27, TWN 26 N, RGE 5 E, W.M., KING COUNTY, WASHINGTON

1	2	3	4	5	6--LIMITS OF DISTURBANCE				7	8	9	10	11	12	13	14	15	16	17	18
TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE DIAM	NORTH	SOUTH	EAST	WEST	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
159	BLM/Am	10	1.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
160	DF/Pm	18	5.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health, ivy	Significant	1	Viable	REMOVE – I
161	BLM/Am	8	1.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
162	BLM/Am	mt 14	3.0	65	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
163	BLM/Am	mt 8	1.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
164	BLM/Am	mt 12	2.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
165	BLM/Am	mt 10	1.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
166	RA/Ar	10	1.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
167	PD/Cn	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Felled during clearing on property to south	Significant	4	NON-VIABLE	REMOVE
168	BLM/Am	8	1.0	40	22	22	22	22	Low	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
169	DF/Pm	20	6.0	40	22	22	22	22	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
170	DF/Pm	6	1.0	25	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Crook in trunk at 15'	Significant	3	Viable	REMOVE – I
171	PM/Am	6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
172	BLM/Am	26	9.0	60	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
173	BLM/Am	12	2.0	45	15	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
174	BLM/Am	18	5.0	50	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
175	BLM/Am	mt 22	7.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
176	BC/Pe	8	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
177	BLM/Am	14	3.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
178	BLM/Am	mt 14	3.0	60	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
179	RA/Ar	8	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
180	BLM/Am	12	2.0	40	22	22	22	22	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
181	BLM/Am	mt 20	6.0	60	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
182	RA/Ar	8	1.0	35	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
183	BLM/Am	6	1.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
184	BLM/Am	mt 12	2.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
185	BLM/Am	mt 8	1.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
186	BLM/Am	mt 8	1.0	55	28	28	28	28	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
187	BLM/Am	mt 8	1.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
188	BLM/Am	mt 14	3.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
189	BLM/Am	mt 10	1.0	45	23	23	23	23	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
190	RA/Ar	8	N/A	N/A	N/A	N/A	N/A	N/A		N/A	Poor	Poor	Poor	Poor	Poor	Declining and decay	Significant	4	NON-VIABLE	REMOVE
191	BC/Pe	8	1.0	25	13	13	13	13	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	2	Viable	REMOVE – I
192	BLM/Am	16	N/A	N/A	N/A	N/A	N/A	N/A		N/A	Good	Good	Good	Good	Good	Regrowth from failed tree, not rooted, not a tree.	Significant	4	NON-VIABLE	REMOVE
193	BLM/Am	8	1.0	38	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
194	BLM/Am	26	9.0	86	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
195	BLM/Am	12	2.0	50	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	2	Viable	REMOVE – I
196	BLM/Am	16	4.0	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
197	BLM/Am	22	7.0	52	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
198	BLM/Am	20	6.0	55	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
199	BLM/Am	8	1.0	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
200	BLM/Am	20	6.0	45	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
201	BLM/Am	16	4.0	48	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
202	CAS/Rp	6	1.0	28	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
203	BLM/Am	18	5.0	48	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
204	BLM/Am	12	2.0	45	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
205	BLM/Am	20	6.0	56	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
206	BLM/Am	10	1.0	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
207	BLM/Am	16	4.0	48	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
208	BLM/Am	10	1.0	45	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
209	BLM/Am	10	1.0	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I

1	2	3	4	5	6--LIMITS OF DISTURBANCE				7	8	9	10	11	12	13	14	15	16	17	18
TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE DIAM	NORTH	SOUTH	EAST	WEST	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
210	BLM/Am	8	1.0	32	17	17	17	17	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
211	RA/Ar	6	1.0	28	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
212	RA/Ar	10	1.0	36	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
213	BLM/Am	18	5.0	54	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
214	RA/Ar	14	3.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Moderate branch dieback	Significant	3	Viable	REMOVE – I
215	RA/Ar	22	7.0	48	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Moderate branch dieback	Significant	3	Viable	RETAIN
216	RA/Ar	20	6.0	48	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Moderate branch dieback	Significant	3	Viable	RETAIN
217	BLM/Am	20	6.0	58	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
219	BLM/Am	24	8.0	55	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
220	RA/Ar	22	7.0	45	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
221	RA/Ar	16	4.0	36	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
222	RA/Ar	16	4.0	38	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
223	RA/Ar	10	1.0	34	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
224	RA/Ar	8	1.0	28	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
225	AP/Md	8	1.0	26	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	REMOVE – I
226	BLM/Am	26	9.0	75	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
227	BLM/Am	38	15.0	75	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	RETAIN
228	BLM/Am	18	5.0	58	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
229	BLM/Am	12	2.0	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
230	BLM/Am	18	5.0	50	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
231	BLM/Am	8	1.0	36	18	18	18	18	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
232	BLM/Am	24	8.0	65	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	RETAIN
233	WRC/Tp	8	1.0	16	9	9	9	9	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
234	BLM/Am	16	4.0	58	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	RETAIN
235	BLM/Am	40	16.0	66	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Minor branch dieback	Significant	2	Viable	RETAIN
236	LC/xCl	8	1.0	15	8	8	8	8	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
237	WRC/Tp	6	1.0	15	8	8	8	8	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
238	WH/Th	8	1.0	16	9	9	9	9	High	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
239	BLM/Am	22	7.0	58	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
240	BLM/Am	16	4.0	36	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
241	BLM/Am	16	4.0	48	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
242	BLM/Am	36	14.0	68	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
243	BLM/Am	42	17.0	74	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
244	BC/Pt	24	8.0	45	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
245	BC/Pt	14	3.0	30	15	15	15	15	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
246	BC/Pt	30	11.0	40	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
247	RA/Ar	6	1.0	16	8	8	8	8	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
248	BLM/Am	48	20.0	72	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	RETAIN
249	BLM/Am	24	8.0	60	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
250	BLM/Am	30	11.0	62	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
251	BC/Pt	18	5.0	35	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
252	BC/Pt	18	5.0	35	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
253	BC/Pt	18	5.0	35	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
254	BLM/Am	36	14.0	68	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
255	RA/Ar	26	9.0	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
256	BLM/Am	16	4.0	44	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
257	RA/Ar	12	2.0	28	14	14	14	14	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
258	BLM/Am	15	4.0	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
8337	BLM/Am	14	3.0	38	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
8468	DF/Pm	14	3.0	30	16	16	16	16	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	REMOVE – I
TOTAL VIABLE TREE CREDITS			918.0																	

OFFSITE TREES

1	2	3	4	5	6--LIMITS OF DISTURBANCE				7	8	9	10	11	12	13	14	15	16	17	18
TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE DIAM	NORTH	SOUTH	EAST	WEST	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
218	BLM/Am	18	N/A	55	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	N/A
OS1	BC/Pt	12	N/A	32	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	N/A
OS2	BLM/Am	24	N/A	58	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	N/A
OS3	BLM/Am	27	N/A	62	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	N/A
OS4	BLM/Am	15	N/A	42	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	N/A
OS5	DF/Pm	41	N/A	40	20	20	20	20	Med.	N/A	Good	Good	Good	Good	Good	Generally good condition and health	Significant	1	Viable	N/A

SUMMARY:

240 Trees were evaluated on the project site.

240 Trees were evaluated on the subject property

- **Significance:** 240 trees are greater than 6 inches are are significant
- **Viability:** - 9 trees are *Non-Viable* due to poor health, poor structure, lack of wind firmness, or a combination.
- **Tree Credits:**

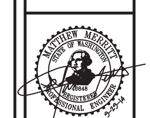
At [illegible] acres with 30 credits per acre required, a total of 287 tree credits are required through retention or replacement.

- The trees on the subject property that are both *Viable and Significant* total 918 Tree Credits.
- The trees proposed to be retained provide 97 Tree Credits.
- A total of 101 Tree Credits are required to be provided through tree replacement.

REVISIONS
NO.	DATE	DESCRIPTION

LDC THE CIVIL ENGINEERING GROUP
Engineering Structural Planning Survey
14201 NE 200th St. #100 Woodinville, WA 98072
Ph. 425.806.1869 Fx. 425.482.2893
www.LDCcorp.com

PULTE GROUP
MARINWOOD
INTEGRATED DEVELOPMENT NOTES AND DETAILS



JOB NUMBER:	13-176
DRAWING NAME:	13176C-TR-PL
DESIGNER:	MEV
DRAFTING BY:	RCR
DATE:	9-29-14
SCALE:	AS NOTED
JURISDICTION:	KIRKLAND

TR-04

SHEET 23 OF 23

Drawing: P:\2013\13-176 Kirkland Moore Layout\Drawings\Construction\13176C-TR-PL.dwg Plotted: Sep 29, 2014 - 2:23pm